

Self-Assessment Report for Accreditation of B.E - Information Science & Engineering (TIER-I)



Volume 1

Self Assessment Report (SAR)

B.E - Information Science & Engineering

www.newhorizonindia.edu

Outer Ring Road, Bellandur Post, Near Marathahalli
Bengaluru-560103, Karnataka, India

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Volume 1



**Self-Assessment Report for Accreditation
of
B.E. Information Science & Engineering
(TIER-I)**



**National Board of Accreditation,
NBCC Place, 04th Floor East Tower,
Bhisham Pitamah Marg,
Pragati Vihar, New Delhi – 110 003**



**(AUTONOMOUS INSTITUTION AFFILIATED TO VISVESVARAYA
TECHNOLOGICAL UNIVERSITY
(VTU), BELGAVI)
Ring Road, Kadubisanahalli, Bellandur Post, Near Marathalli
Bangalore 560103**

PREFACE

Education is a process of learning and acquiring knowledge. Our teachers are the key to process, they believe in each student's capabilities and facilitate them to explore, understand and therefore learn.

In New Horizon College of Engineering, we take immense pride in providing highest quality of education by paying utmost importance to teaching quality and practical learning. Our excellence is not just confined to the classroom. We are active in organizing conferences, workshops, seminars, guest lectures, co-curricular and extra-curricular activities. These activities and educational methodology helps in an overall development in our students, making them competent for success. Due to such comprehensive practices New Horizon College of Engineering is a favored engineering college in Bangalore.

We also take great pride in our excellent infrastructure and have ensured that the best of the technologies be incorporated in teaching learning process. We aspire to reach to a higher horizon, a horizon at which we are recognized at the national and the international levels and we well set for this feat.

I firmly believe that NHCE is again ready for its accreditation. It is in this context that we are submitting our Self-Assessment Report (SAR) to the NBA, New Delhi. A strenuous effort has been made to prepare the SAR and making the college ready for accreditation. I would like to express my cordial thanks to our beloved chairman Dr. Mohan Manghnani for guiding us through this journey.

Dr. Manjunatha

Principal

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PART A: Institutional Information

1. Name and Address of the Institution:

New Horizon College of Engineering,
Ring Road, Kadubisanahalli, Bellandur Post, Near Marathalli
Bangalore 560103

2. Name and Address of the Affiliating University:

Visvesvaraya Technological University
Jnana Sangama, VTU Main Rd,
Machhe, Belgaum, Karnataka 590018

3. Year of establishment of the Institution: 2001

4. Type of the Institution:

- | | |
|----------------------------------|-------------------------------------|
| Institute of National Importance | <input type="checkbox"/> |
| University | <input type="checkbox"/> |
| Deemed University | <input type="checkbox"/> |
| Autonomous | <input checked="" type="checkbox"/> |
| Any other (Please specify) | <input type="checkbox"/> |

Note:

1. In case of Autonomous and Deemed University, mention the year of grant of status by the authority.
2. In case of University Constituent Institution, please indicate the academic autonomy status of the Institution as defined in 12th Plan guidelines of UGC. Institute should apply for Tier 1 only when fully academically autonomous.

5. Ownership Status:

Central Government	<input type="checkbox"/>
State Government	<input type="checkbox"/>
Government Aided	<input type="checkbox"/>
Self - financing	<input checked="" type="checkbox"/>
Trust	<input checked="" type="checkbox"/>
Society	<input type="checkbox"/>
Section 25 Company	<input type="checkbox"/>
Any Other (Please specify)	<input type="checkbox"/>

6. Other Academic Institutions of the Trust/Society/Company etc., if any:

Table A.6

Name of the Institution(s)	Year of Establishment	Programs of Study	Location
New Horizon Public School	1982	Pre-primary to Standard 10	100 Feet Rd, HAL 2nd Stage, Indiranagar, Bengaluru, Karnataka 560008
New Horizon Pre-University	1982	1st PU and 2nd PU	3rd A Cross, 2nd A Main Rd, East of NGEF Layout, Kasturi Nagar, Bengaluru, Karnataka 560043
New Horizon College Marathalli	1998	B.B.A., B.Com., B.C.A.	Ring Rd, near Marathalli, Kaverappa Layout, Kadabeesanahalli, Bengaluru, Karnataka 560103
New Horizon College Kasturinagar	1998	B.B.A., B.Com., B.C.A.	3rd A Cross, 2nd A Main Rd, East of NGEF Layout, Kasturi Nagar, Bengaluru, Karnataka 560043

PART A: Institutional Information



New Horizon International School	2022	Schooling	Hennur Gardens, Bengaluru
New Horizon Gurukul,	2010	Schooling	Bellandur, Bengaluru

7. Details of all the programs being offered by the institution under consideration:

Table A.7

S. No	Program Name	Program Applied level	Year of Start	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation Status*	From	To	Program for consideration	Program for duration
1.	B.E Information Science & Engineering	UG	2001	2001	60	Yes	180	Granted accreditation for 3 years for the period (specify period)	2018	2022	Yes	4

Sanctioned intake for Last Five Years for the B.E -Information Science and Engineering	
Academic Year	Sanctioned intake
2022-23	180
2021-22	180
2020-21	180
2019-20	180
2018-19	120
2017-18	120

*** Write applicable one:**

Applying first time

- *Granted provisional accreditation for two/three years for the period (specify period)*
- *Granted accreditation for 5/6 years for the period (specify period)*
- *Not accredited (specify visit dates, year)*
- *Withdrawn (specify visit dates, year)*
- *Not eligible for accreditation*
- *Eligible but not applied*

8. Programs to be considered for Accreditation vide this application

Table A.8

Sl. No	Level	Discipline	Program
1.	Under Graduate	Engineering & Technology	Electrical & Electronics Engg.
2.	Under Graduate	Engineering & Technology	Information Science & Engg.

9. Total number of employees:

A. Regular Employees (Faculty and Staff):

Table A.9a

Items	CAY: 2022-23		CAYm1: 2021-22		CAYm2: 2020-21	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	126	126	138	138	149	149
Faculty in Engineering (Female)	153	153	146	146	127	127
Faculty in Maths, Science & Humanities teaching in engineering program (Male)	16	16	18	18	20	20
Faculty in Maths, Science & Humanities teaching in engineering program (Female)	32	32	29	29	31	31
Non-teaching staff (Male)	56	56	59	59	56	56
Non-teaching staff (Female)	20	20	20	20	20	20

Note: All the faculty whether regular or contractual (except Part-Time), will be considered. The contractual faculty (doing away with the terminology of visiting/adjunct faculty, whatsoever) who have taught for 2 consecutive semesters in the corresponding academic year on full time basis shall be considered for the purpose of calculation in the Faculty Student Ratio. However, following will be ensured in case of contractual faculty:

1. *Shall have the AICTE prescribed qualifications and experience.*
2. *Shall be appointed on full time basis and worked for consecutive two semesters during the particular academic year under consideration.*
3. *Should have gone through an appropriate process of selection and the records of the same shall be made available to the visiting team during NBA visit*

CAY- Current Academic Year

CAYm1- Current Academic Year minus1= Current Assessment Year

CAYm2 - Current Academic Year minus2=Current Assessment Year minus 1

B. Contractual Staff Employees (Faculty and Staff):

Table A.9b

Items	CAY: 2022-23		CAYm1: 2021-22		CAYm2: 2020-21	
	MIN	MAX	MIN	MAX	MIN	MAX
Faculty in Engineering (Male)	0	0	0	0	0	0
Faculty in Engineering (Female)	0	0	0	0	0	0
Faculty in Maths, Science & Humanities teaching in engineering program (Male)	0	0	0	0	0	0
Faculty in Maths, Science & Humanities teaching in engineering program (Female)	0	0	0	0	0	0
Non-teaching staff (Male)	0	0	0	0	0	0
Non-teaching staff (Female)	0	0	0	0	0	0

10. Total number of Engineering Students:

Engineering and Technology- UG	Shift1 √	Shift2
Engineering and Technology- PG	Shift1 √	Shift2
Engineering and Technology- Polytechnic	Shift1	Shift2
MBA	Shift1 √	Shift2
MCA	Shift1 √	Shift2

Table A.10

Engineering and Technology- UG Shift-1

Item	CAY: 2022-23	CAYm1: 2021-22	CAYm2: 2020-21
Total no. of Boys	3520	3583	3690
Total no. of Girls	1403	1269	1228
Total no. of students	4923	4852	4918

Engineering and Technology- PG Shift-1

Item	CAY: 2022-23	CAYm1: 2021-22	CAYm2: 2020-21
Total no. of Boys	9	17	20
Total no. of Girls	15	19	15
Total no. of students	24	36	35

Engineering and Technology- MBA Shift-1

Item	CAY: 2022-23	CAYm1: 2021-22	CAYm2: 2020-21
Total no. of Boys	198	221	213
Total no. of Girls	164	139	146
Total no. of students	362	360	359

Engineering and Technology- MCA Shift-1

Item	CAY: 2022-23	CAYm1: 2021-22	CAYm2: 2020-21
Total no. of Boys	164	219	215
Total no. of Girls	79	108	127
Total no. of students	243	327	342

Note: In case the institution is running programs other than engineering programs, a separate table giving similar details is to be included.

11. Vision of the Institution:

To emerge as an Institute of eminence in the fields of engineering, technology and management in serving the industry and the nation by empowering students with a high degree of technical, managerial and practical competence.

12. Mission of the Institution:

- To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.
- To encourage long-term interaction between the academia and industry through their involvement in the design of the curriculum and its hands-on implementation.
- To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

13. Contact Information of the Head of the Institution and NBA coordinator, if designated:

- Name : Dr. Manjunatha
Designation : Principal
Mobile No : 9901916000
Email id : principal@newhorizonindia.edu
- NBA coordinator:
Name : Dr. Sanjeev Sharma
Designation : Dean – Quality Assurance & Skill Development Center & Professor/ECE
Mobile No : 7829176479
Email id : dean.qasdc@newhorizonindia.edu

PART B: Criteria Summary

Name of the Program: Information Science and Engineering

Criterion No.	Criteria	Total Marks	Institute Marks
Program level criteria			
1.	Vision, Mission and Program Educational Objectives	50	50
2.	Program Curriculum and Teaching – Learning Processes	100	100
3.	Course Outcomes and Program Outcomes	175	175
4.	Students' Performance	100	89.53
5.	Faculty Information and Contributions	200	184.33
6.	Facilities and Technical Support	80	80
7.	Continuous Improvement	75	75
Institute level Criteria			
8.	First Year Academics	50	45.9
9.	Student Support Systems	50	50
10.	Governance, Institutional Support and Financial Resources	120	120
Total		1000	970

**Department of Information
Science & Engineering**

Criterion - 1

**Vision - Mission &
Program Educational Objectives**

CRITERION 1	VISION, MISSION & PROGRAM EDUCATIONAL OBJECTIVES	50
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1. VISION, MISSION, AND PROGRAM EDUCATIONAL OBJECTIVES(50)

1.1 State the Vision and Mission of the Department and Institute (5)

INSTITUTE VISION

To emerge as an institute of eminence in the fields of engineering, technology and management in serving the industry and the nation by empowering students with a high degree of technical, managerial and practical competence.

INSTITUTE MISSION

- ❖ To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students.
- ❖ To encourage long-term interaction between academia and industry through their involvement in the design of the curriculum and its hands-on implementation.
- ❖ To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

DEPARTMENT VISION

To emerge as a Department of Eminence in Information Science and Engineering in serving the Information Technology industry and the nation by empowering students with a high degree of technical and practical competence.

DEPARTMENT MISSION

- ❖ **To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.**
- ❖ **To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.**
- ❖ **To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.**

Table 1.1: Mapping of Department Vision with Institute Vision

Consistency of the Vision of the Institute with that of the department	
Components of Vision Statement of NHCE	Components of Vision Statement of Department
❖ To emerge as an institute of eminence in the fields of engineering, technology and management in serving the industry and the nation by empowering students with a high degree of technical, managerial and practical competence.	❖ To emerge as a department of eminence in Information Science and Engineering in serving the Information Technology industry and the nation by empowering students with a high degree of technical and practical competence.

Table 1.2: Mapping of Department Mission with Institute Mission

<ul style="list-style-type: none"> ❖ To strengthen the theoretical, practical and ethical dimensions of the learning process by fostering a culture of research and innovation among faculty members and students. ❖ To encourage long-term interaction between academia and industry through the involvement of the industry in the design of the curriculum and its hands-on implementation. ❖ To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extra-curricular activities. 	<ul style="list-style-type: none"> ❖ To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering. ❖ To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation. ❖ To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.
---	--

1.2 State the Program's Educational Objectives (PEOs) (5)

The Program Educational Objectives (PEOs) of the UG program in Information Science and Engineering are established through a consultation process amongst stakeholders as described in section 1.3 and this address the following broad categories:

- (i) Preparation: Employment/Higher studies.
- (ii) Core Competence: Discipline knowledge.
- (iii) Professionalism: Professional Value-Knowledge development.
- (iv) Life Long Learning: Environment.

- What our graduates could do best?
- How our graduates would perform problem-solving and using which skills?
- What value addition our graduates will have?

Table 1.3: Program Educational Objectives

PEO 1	Excel as Information Science Engineers with the ability to solve a wide range of computational problems in the IT industry, Government or other work environments.
PEO 2	Pursue higher studies with profound knowledge enriched with academia and industrial skill sets.
PEO 3	Exhibit adaptive skills to develop computing systems using modern tools and technologies in multidisciplinary areas to meet technical and managerial challenges which meet societal requirements.
PEO 4	Possess the ability to collaborate as a team member and leader with professional ethics to make a positive impact on society.

1.3 Indicate where the Vision, Mission, and PEOs are published and disseminated among stakeholders (15)

The vision and mission are published and disseminated at:

- College website,
<https://newhorizoncollegeofengineering.in/about/>
- Department website,
<https://information-science-engineering.newhorizoncollegeofengineering.in>
- HOD cabin
- Staff rooms
- Classrooms
- Laboratories
- Syllabus Books
- Lab Manuals
- Internal Assessment Books
- Practical Record Books
- Course files
- Department Newsletter- I NEWS
- Corridors

The PEOs are published at:

The PEOs are published and disseminated at:

- Department website:
<https://information-science-engineering.newhorizoncollegeofengineering.in/peo-po-pso/>
- HOD cabin
- Staff rooms
- Classrooms
- Laboratories
- Syllabus Books
- Lab Manuals
- Internal Assessment Books
- Practical Record Books
- Course files
- Corridors

The vision, mission and PEOs are disseminated to the stakeholders of the program i.e. management, faculty, students, staff, alumni, parents and employees through continuous interaction (Refer Figure 1.1 Stakeholders).

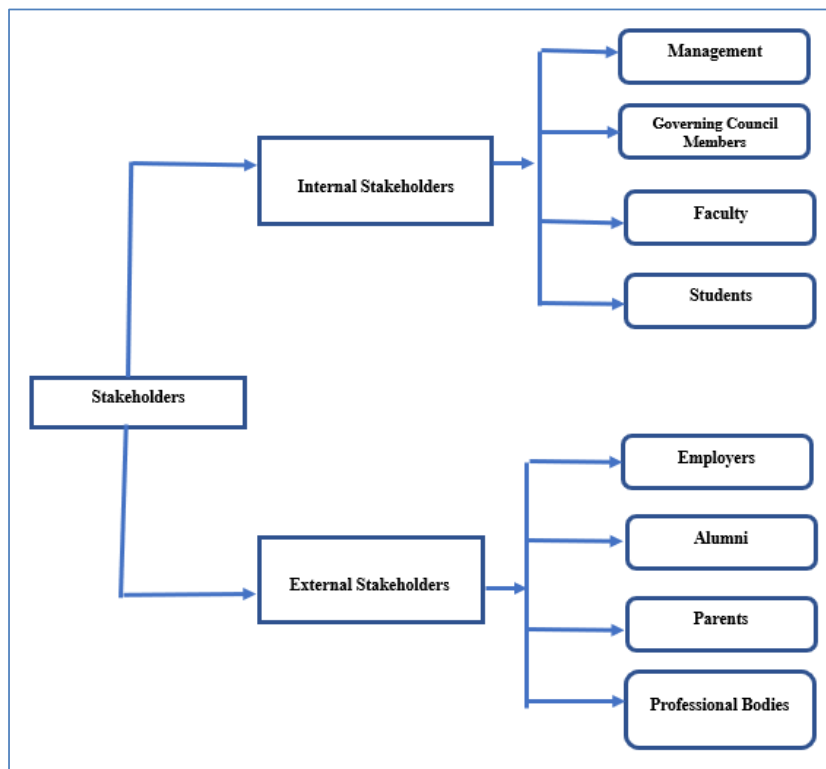


Figure 1.1 Stakeholders

1.3.A Process of Dissemination among Stakeholders

As the students are the immediate stakeholders at the beginning of every academic year an orientation program is conducted at the department for all the II-year students during which the students are made aware of the vision, mission and PEO statements of the department. In addition, a general interaction program is conducted for the pre-final and final-year students separately discussing the purpose as well as the importance of these statements.

The Vision, Mission, PEOs and PSOs are disseminated in the following places classrooms, corridors, laboratories, internal assessment books, record books, department newsletters and websites so that each student can be aware of the Vision, Mission, PEOs and PSOs.

Further, the Vision, Mission, PEOs and PSOs are disseminated to all the other stakeholders of the program by the following means:

- Academic Council Meetings.
- Board of Studies.
- Department Advisory Board meetings.
- Faculty meetings.
- Alumni meetings.
- Industry expert interactions.
- Faculty Development Programs.
- Parent-Teacher Meetings.

1.3 B. Extent of Awareness of Vision, Mission & PEOs among the Stakeholders:

ROLE OF STAKEHOLDERS:

Stakeholders play a crucial role in promoting and aligning with the Vision, Mission and PEOs of the department. Their awareness and understanding of these elements contribute to a shared commitment and collaboration, enabling the department to work towards its educational objectives effectively. The department needs to communicate and reinforce these elements consistently to enhance stakeholder engagement and ensure a cohesive educational community.

Students actively engage in their learning journey embodying the values and goals outlined in the Vision, Mission and PEOs. Faculty members design and deliver curriculum and instruction that align with these elements ensuring students develop the desired knowledge and skills. Management provides strategic leadership ensuring the Vision, Mission and PEOs guide institutional policies and resource allocation. Industry partners and alumni contribute their expertise and resources supporting the goals of the department and enhancing students' career readiness.

To ensure awareness to the external as well as internal stakeholders the Vision, Mission and PEOs are published on the institute's website, Departmental website, Principal's chamber, college brochure, college and Department newsletters, HOD's Chamber, staffrooms, departmental laboratories and display boards in the department corridors. The extent of awareness is monitored during regular interactions / relevant meetings.

1.4 State the process for defining the Vision and Mission of the Department (15)

The Department vision and mission are found through a consultative process involving the stakeholders, faculty of the department and the Advisory Board members of the Institution.

The Process for Defining the Vision and Mission of the Department:

The department established its Vision and Mission through a consultative process involving the stakeholders of the institute/department such as Management, Faculty members, students, staff, parents, alumni and employers keeping in mind the future scopes of the department and the societal requirements and this process is illustrated in Figure 1.2. In establishing the Vision and Mission of the department the following steps were followed:

Step 1: Vision and Mission of the institute are taken as a basis.

Step 2: Program Assessment Committee (PAC) collects the views of Professional bodies, Industry experts, Alumni members and Parents and conducts brainstorming sessions to prepare draft statements.

Step 3: The PAC committee members formulate and prepare the draft vision and mission of the department. The Department Advisory Board (DAB) shortlist and finalize the statements.

Step 4: The statements are reviewed by Department Advisory Board (DAB) and Internal Quality Assurance Cell (IQAC) to check consistency with the Institute's Vision and Mission.

Step 5: If the statements are approved by DAB and IQAC, establish the vision and mission statements or else review and update the statement.

Step 6: The program coordinator disseminates the vision and mission statements to the stakeholders, BOS, ACM and Management.

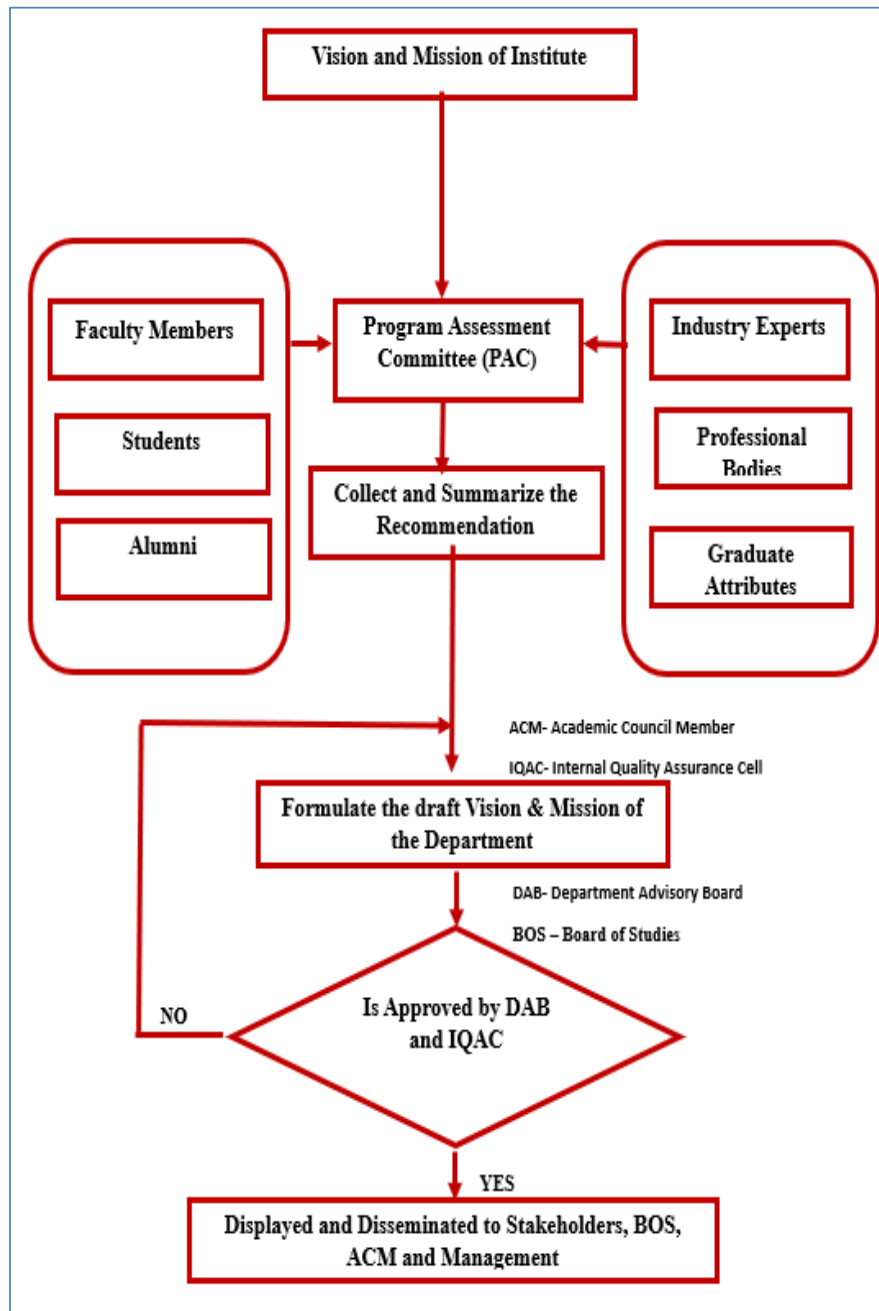


Fig 1.2: Process for defining the Vision and Mission of the department

State the process for defining the PEOs

The Program Educational Objectives are established through a consultation process involving the core constituents such as students, alumni, industry, faculty and employers.

The PEOs are established through the following process steps:

1. Program Educational Objectives (PEO) are broad statements (3 years or more after graduation) describing the career and professional accomplishments that the program is preparing graduates to achieve.
2. Department PEO statements are a derivative component of the institute's vision, mission and graduate attributes defined by the NBA and also department vision and mission.

Step 1: Vision and Mission of the department are taken as a basis to interact with various stakeholders, and program outcomes defined by NBA are also kept in view.

Step 2: Program Assessment Committee (PAC) collects the views of Professional bodies, Industry experts, Alumni members and Parents and conducts brainstorming sessions to prepare draft statements.

Step 3: The PAC committee members formulate and prepare the draft PEOs of the department. The Department Advisory Board (DAB) shortlist and finalize the statements.

Step 4: The statements are reviewed by Department Advisory Board (DAB) and Internal Quality Assurance Cell (IQAC).

Step 5: If the statements are approved by DAB and IQAC, establish the PEO statements or else review and update the statement.

Step 6: The program coordinator disseminates the PEO statements to the stakeholders, BOS, ACM and Management.

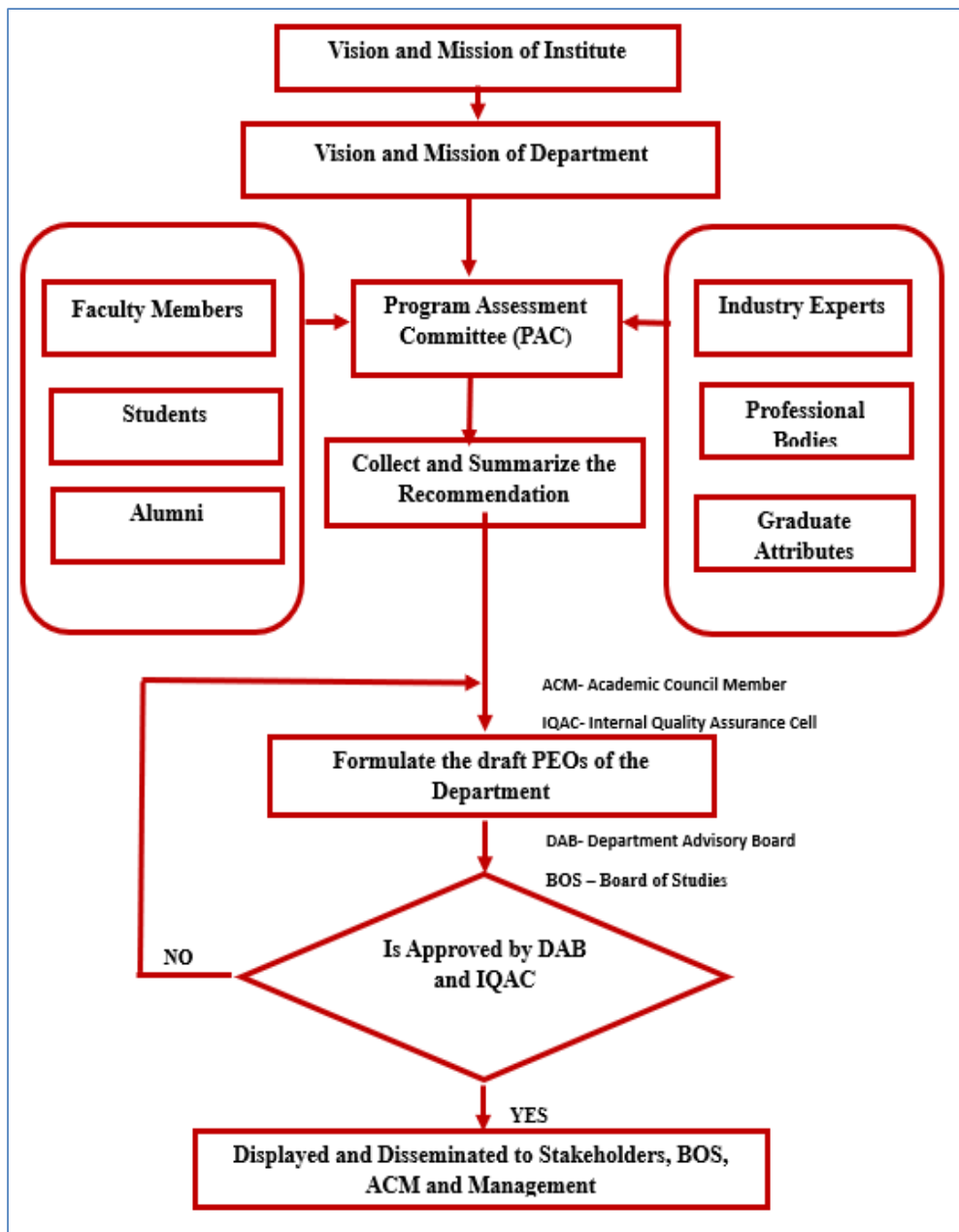


Fig 1.3: Illustrates the Process for establishing the PEOs

1.5 Establish consistency of PEOs with the Mission of the Department (10)

The mission of the Department

- ❖ **M1:** To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.
- ❖ **M2:** To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.
- ❖ **M3:** To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.

Table 1.4: Consistency of PEOs with the Mission of the Department

PEO Statements	M1	M2	M3
PEO 1: Excel as an Information Science Engineer with the ability to solve a wide range of computational problems in the IT industry, Government or other work environments.	3	3	2
PEO 2: Pursue higher studies with profound knowledge enriched with academia and industrial skill sets.	3	3	2
PEO 3: Exhibit adaptive skills to develop computing systems using modern tools and technologies in multidisciplinary areas to meet technical and managerial challenges which meet societal requirements.	3	3	3
PEO 4: Possess the ability to collaborate as a team member and leader with professional ethics to make a positive impact on society.	2	2	3

3 - Strong Correlation

2 -Moderate Correlation

1 - Weak Correlation

- ❖ **PEO1** is concerned with proficiency as computer scientists to solve a wide range of problems maps moderately with M1. Mission M1 focuses on theoretical and practical aspects of the learning process. This PEO maps substantially with M2 as it is concerned with industry-institute interactions. PEO1 is concerned with solving wide range of computing problems in multiple environments and moderately maps with M3.

- ❖ **PEO2** is concerned with adapting to new environments with a strong focus on innovation and substantially relates to M1 since M1 focuses on encouraging a culture of research and innovation. This PEO is concerned with assimilating new information and working in multi-disciplinary areas and has a moderate correlation to M2 since M2 focuses on the involvement of the IT industry in ensuring that students are industry-ready. PEO2 is concerned with attaining the ability to work in multi-disciplinary areas and is substantially related to M3 since M3 focuses on widening awareness in multiple environments by encouraging participation in co-curricular and extracurricular activities.

- ❖ **PEO3** is concerned with developing the capacity to understand technical problems with computational systems and hence substantially maps with M1. M1 focuses on strengthening the theoretical and practical aspects of the learning process. PEO3 is concerned with developing the capacity to understand technical problems with computational systems and maps moderately with M2, as M2 focuses on training in the latest technologies. PEO3 is concerned with developing logical thinking ability and moderately correlates to M3 since M3 focuses on improving the logical thinking of the students through participation in co-curricular and extracurricular activities.

- ❖ **PEO4** is concerned with facilitating cutting-edge technical solutions for computing systems and moderately maps with M1 since M1 focuses on encouraging a culture of research and innovation. PEO4 is concerned with providing improved functionality for computing systems and moderately maps with M2 since M2 focuses on the involvement of the IT industry in exposure to cutting-edge technologies. PEO4 is concerned with the ability to collaborate in a team and moderately maps with M3 since M3 focuses on team-based participation with professional, ethical, social, and environmental dimensions.

Table 1.5: Representation of mapping of PEOs with the Mission of the Department

PEOs	Mission	Levels	Justification
PEO1: Excel as an Information Science Engineer with the ability to solve a wide range of computational problems in the IT industry, Government or other work environments.	M1: To strengthen the theoretical, practical, and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.	3	The information science faculties with a high degree of academic professionalism and a culture of research and innovation shall enable graduates to analyze and perform a wide range of computational problems involved in any working environment and accept new technical challenges.
	M2: To build long-term interaction between the academia and Information Technology industry, through their	3	Guest lectures, expert talks and training are included by industry experts to focus on the all-around development of students and help them to

	involvement in the design of curriculum and its hands-on implementation.		pursue successful careers in industries.
	M3: To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.	2	The learning environment provided by the institute is designed to encourage students in professional, ethical and social dimensions thus helping students to sustain a successful career in any working environment.
PEO2: Pursue higher studies with profound knowledge enriched with academia and industrial skill sets.	M1: To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.	3	Inculcating research and innovation in both academic and industrial skill sets in engineering coupled with the theoretical, practical and ethical dimensions make the student better suited to an increasingly technical-oriented environment.
	M2: To build long-term interaction	3	Guests lectures and expert

	between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.		talks are arranged to interact with academia and industry and also students are motivated and encouraged to participate in college and inter-college level project exhibitions and hackathons so that they get exposure to the real field problems and challenges associated.
	M3: To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.	2	Students are supported to develop in professional, ethical and social dimensions and are also encouraged to participate in co-curricular and extracurricular activities.
PEO3: Exhibit adaptive skills to develop computing systems using modern tools and technologies in multidisciplinary	M1: To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and	3	The institute environment with the collaboration of research and innovation is helping students and faculties to achieve personal and professional success with awareness

<p>areas to meet technical and managerial challenges which meet societal requirements.</p>	<p>innovation among faculty members and students, in the field of Information Science and Engineering.</p>		<p>both as individuals and in a team environment.</p>
	<p>M2: To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.</p>	3	<p>The involvement of industry and academia helps the students to get trained in a conducive environment of the institute so that the students can achieve success as individuals as well as in a team environment.</p>
	<p>M3: To strengthen and mould students in professional, ethical, social and environmental dimensions by encouraging participation in co-curricular and extracurricular activities.</p>	3	<p>Students completing their mini projects, internship projects, major projects and AICTE activity points as a part of their curriculum are exposed to build them strongly as good professionals and the knowledge gained can be helpful towards sustainable national development.</p>

<p>PEO4: Possess the ability to collaborate as a team member and leader with professional ethics to make a positive impact on society.</p>	<p>M1: To strengthen the theoretical, practical and ethical dimensions of the learning process by continuous learning and establishing a culture of research and innovation among faculty members and students, in the field of Information Science and Engineering.</p>	2	<p>Students are exposed to participate in various project exhibitions, hackathons and societal issues thus involving them to understand the practical requirements of the nation and society at large enabling them to contribute better as information science engineers as an individual as well as in a team.</p>
	<p>M2: To build long-term interaction between the academia and Information Technology industry, through their involvement in the design of curriculum and its hands-on implementation.</p>	2	<p>By industry and academia interaction there will be a good understanding of the needs of the society or nation at large as an integral part of being competent to offer engineering solutions to the current problems faced by the nation.</p>
	<p>M3: To strengthen and mould students in professional, ethical, social and environmental dimensions by</p>	3	<p>Emphasizing and developing the overall personality of the students by inculcating intellectual, emotional and ethical integration with the basic</p>

Criterion-1 Vision - Mission & PEO's



	encouraging participation in co-curricular and extracurricular activities.		values of secularism, humanism and democracy make students capable of giving a full response to social and environmental challenges.
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**Department of Information
Science & Engineering**

Criterion -2

**Program Curriculum and
Teaching Learning Processes**

CRITERION 2	PROGRAM CURRICULUM AND TEACHING LEARNING PROCESSES	100
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2.1 Program Curriculum (30)

2.1.1. State the process for designing the program curriculum (10)

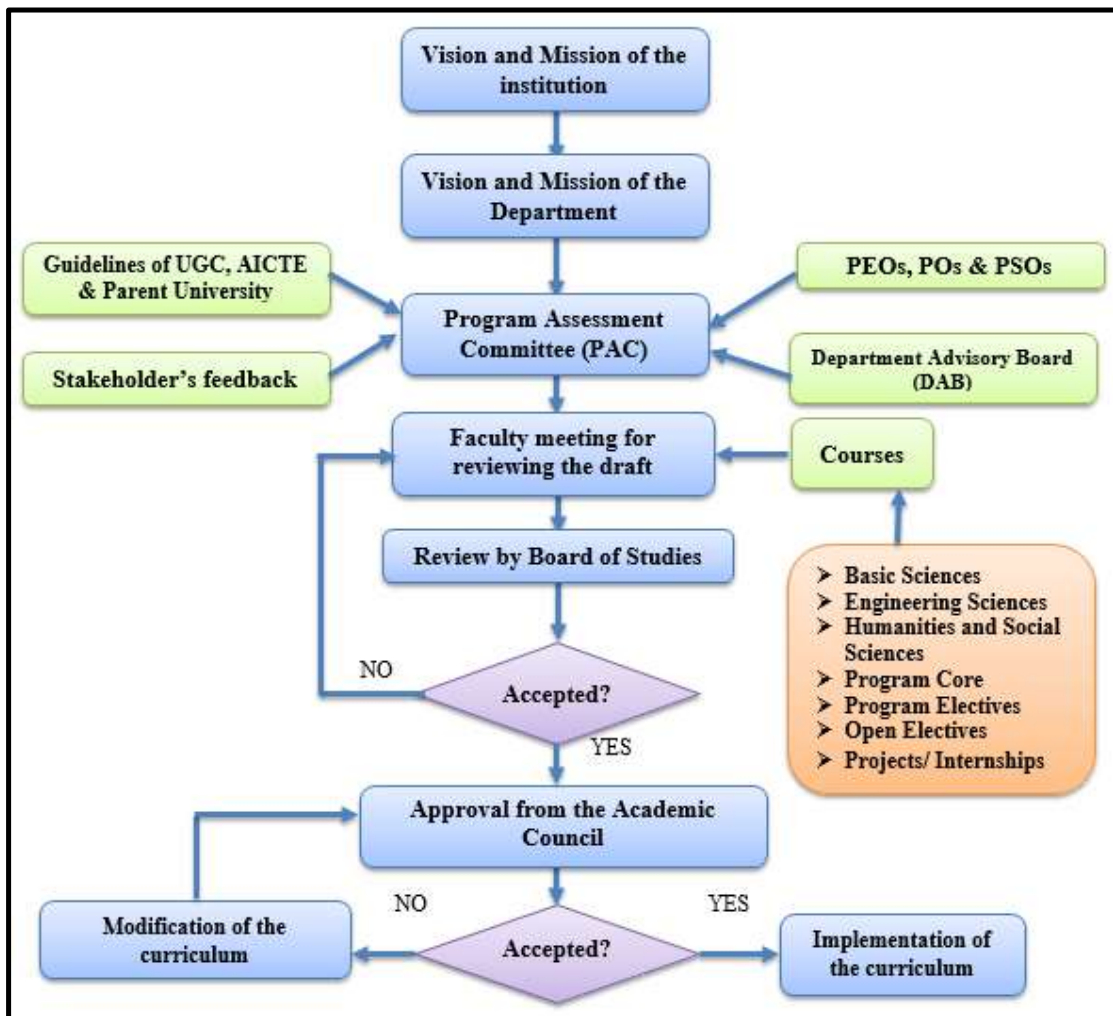


Figure.2.1.1: Process for designing/ revision of Program Curriculum

The program curriculum is designed by the Program Assessment Committee (PAC) based on feedback from stakeholders which comprises industry experts, external academicians, professional organizations, alumni and internal BOS members in aligned with Program Educational Objectives, Program Specific Outcomes & Program Outcomes.

Board of Studies committee which constitutes internal faculty members, industry experts, senior academician, nominee from the university and alumni will review the curriculum and will provide suggestions. The given suggestions will be incorporated in the curriculum and the same will be send to academic council members for getting the approval. The committee approves the curriculum to be implemented in the program. The process is shown as a flow chart in 2.1.1.

2.1.2. Structure of the Curriculum (5)

B.E. Program- Department of Information Science and Engineering
Table 2.1.2.1: SCHEME OF TEACHING AND EXAMINATION
2018-2022 Batch - (175 Credits)

Sl No	Course Code	Course Title	Lecture	Tutorial	Practical	Total Hours	Theory Credits	Practical Credits	Total Credits
			(L)	(T)	(P)				
1	18MAT11	Applied Mathematics -I	2	2	0	4	3	0	3
2	18PHY12	Engineering Physics	3	0	0	3	3	0	3
3	18MEE13	Elements of Mechanical Engineering	3	0	0	3	3	0	3
4	18CIV14	Elements of Civil Engineering	3	0	0	3	3	0	3
5	18EEL15	Basic Electrical Engineering	3	0	0	3	3	0	3
6	18PHL16	Engineering Physics Lab	0	0	4	4	0	2	2

Criterion-2 Program Curriculum and TLP



7	18EEL17	Basic Electrical Engineering Lab	0	0	4	4	0	2	2
8	18HSS171	Essential English	0	0	0	1	0	0	0
9	18MAT21	Applied Mathematics - II	2	2	0	4	3	0	3
10	18CHE22	Engineering Chemistry	3	0	0	3	3	0	3
11	18CSE23	Introduction to Programming with C	3	0	0	3	3	0	3
12	18MEE24	Computer Aided Engineering Drawing	1	0	4	5	1	2	3
13	18ECE25	Basic Electronics	3	0	0	3	3	0	3
14	18HSS26	Professional Communication	2	0	0	2	2	0	2
15	18CHL27	Engineering Chemistry Lab	0	0	4	4	0	2	2
16	18CSL28	Programming with C Lab	0	0	4	4	0	2	2
17	18HSS272	Constitution of India and Professional Ethics	0	0	0	1	0	0	0
18	19ISE31	Applied Mathematics- III	2	2	0	4	3	0	3
19	19HSS321	Economics for Engineers	3	0	0	3	3	0	3
20	19HSS323	Environmental Science and Awareness	0	0	0	1	0	0	0
21	19ISE33	Digital Logic Design	3	0	0	3	3	0	3
22	19ISE34	Data Structures using	3	0	0	3	3	0	3

Criterion-2 Program Curriculum and TLP



23	19ISE35	Computer Organization	3	0	0	3	3	0	3
24	19ISE36	Python Programming	3	0	0	3	3	0	3
25	19ISL37	Digital Logic Design lab	0	0	2	2	0	1	1
26	19ISL38	Data Structures Using C lab	0	0	3	3	0	1.5	1.5
27	19ISL39	Python Programming lab	0	0	3	3	0	1.5	1.5
28	19ISE391	Mini Project	0	0	4	4	0	2	2
29	19DMAT31	Basic Applied Mathematics-1	0	0	0	1	0	0	0
30	19ISE41	Discrete Mathematics and Graph Theory	2	2	0	4	3	0	3
31	19HSS422	Life Skills for Engineers	3	0	0	3	3	0	3
32	19ISE43	Database Management Systems	3	0	0	3	3	0	3
33	19ISE44	Oops with Java	3	0	0	3	3	0	3
34	19ISE45	Operating Systems	3	0	0	3	3	0	3
35	19ISL46	Database Management Systems Lab	0	0	4	4	0	2	2
36	19ISL47	Oops with Java Lab	0	0	3	3	0	1.5	1.5

Criterion-2 Program Curriculum and TLP



37	19ISL48	Operating Systems Lab	0	0	3	3	0	1.5	1.5
38	19ISE49	Mini Project	0	0	4	4	0	2	2
39	19DMAT41	Basic Applied mathematics-II	0	0	0	1	0	0	0
40	20ISE51	Web Internet Programming	3	0	0	3	3	0	3
41	20ISE52	Design and Analysis of Algorithms	3	2	0	5	4	0	4
42	20ISE53	Data Science	3	0	0	3	3	0	3
43	20ISE54	Mobile Application Development	3	0	0	3	3	0	3
44	20ISE55X	Professional Elective-1	3	0	0	3	3	0	3
45	20ISL56	Design and Analysis of Algorithms Lab	0	0	4	4	0	2	2
46	20ISL57	Data Science Lab	0	0	3	3	0	1.5	1.5
47	20ISL58	Mobile Application Development Lab	0	0	3	3	0	1.5	1.5
48	20ISE59	Mini Project	0	0	4	4	0	2	2
49	20ISE61	Software Engineering & Project Management	3	0	0	3	3	0	3
50	20ISE62	Advanced Java	3	0	0	3	3	0	3
51	20ISE63	Machine Learning	3	0	0	3	3	0	3
52	20ISE64X	Professional Elective-2	3	0	0	3	3	0	3

Criterion-2 Program Curriculum and TLP



53	20ISE65XX	Professional Elective-3	3	0	0	3	3	0	3
54	20NHOPXX	Open Elective - 1	3	0	0	3	3	0	3
55	20ISL66	Advanced Java Lab	0	0	3	3	0	1.5	1.5
56	20ISL67	Machine Learning Lab	0	0	3	3	0	1.5	1.5
57	20ISE68	Mini Project	0	0	4	4	0	2	2
58	20ISE71A	Software Testing & Automation	3	0	0	3	3	0	3
59	20ISE72A	Computer Networks	3	0	0	3	3	0	3
60	20ISE73A	Cryptography and Information Security	3	0	0	3	3	0	3
61	20ISE74XA	Professional Elective – 4	3	0	0	3	3	0	3
62	20ISE75XA	Professional Elective - 5	3	0	0	3	3	0	3
63	20NHOPXX	Open Elective – 2	3	0	0	3	3	0	3
64	20ISL76A	Software Testing & Automation Lab	0	0	3	3	0	1.5	1.5
65	20ISL77A	Computer Networks Lab	0	0	3	3	0	1.5	1.5
66	20ISE78A	Project Phase-1	0	0	6	6	0	3	3
67	20ISE81XA	Professional Elective-6	3	0	0	3	3	0	3
68	20ISE82A	Internship Viva	0	0	8	8	0	4	4

69	20ISE83A	Project Phase-2	0	0	24	24	0	12	12
								Total Credits	175

2.1.3. State the components of the curriculum

**Table 2.1.3.1: Program Curriculum Grouping Based on Course Components
(Batch 2018-2022, Credits -175)**

Course Component	Curriculum Content (% of total number of credits of the program)	Total Number of contact hours	Total Number of credits
Basic Sciences	12.57%	32	22
Engineering Sciences	9.71%	21	17
Humanities and Social Sciences	4.57%	11	8
Program Core	44.0%	100	77
Professional Electives	10.28%	18	18
Open Electives	3.43%	6	6
Project(s)	13.14%	46	23
Internships/Seminars	2.28%	8	4
Total number of Credits			175

2.1.4. State the process used to identify extent of compliance of the curriculum for attaining the Program Outcomes and Program Specific Outcomes

The structure of the curriculum designed for B. E. in Information Science and Engineering is well balanced and appropriate for engineering program. The designed curriculum provides both depth and breadth across the range of Computer Science and Information technology topics. The curriculum is designed by considering the POs and PSOs of engineering programs recommended by lead professional societies of India. The designed curriculum is well balanced and it has included various categories of courses from basic sciences, engineering sciences, humanities and social sciences. The curriculum includes core programs, professional and open electives, projects and internship components necessary to analyze and design

complex computer applications and real time systems.

The syllabus for each course has been designed to meet the compliance of the curriculum for attaining the POs and PSOs defined for the program. The Program Specific Outcomes (PSOs) of Information Science and Engineering are as follows:

The student will be able:

PSO1: The ability to understand, analyze and develop computer programs in the areas related to Algorithms, System Software, Web Design, Big Data Analytics, Machine Learning, Internet of Things, Data Science and Networking for efficient design of computer based systems of varying complexity.

PSO2: The ability to apply standard practices and strategies in software project development using innovative ideas and open ended programming environments with skills in teams and professional ethics to deliver a quality product for business success.

Process Description:

The course outcomes of all the courses in the program are mapped with the defined twelve POs and two PSOs. The mapping has been done based on the correlation levels defined by the Board of Accreditation. The various correlation levels are “3” – substantial (High) Correlation, “2”- moderate (Medium) Correlation “1”- Slight (low) Correlation. “dash” – No Correlation

Table 2.1.4.1 shows the substantial mapping of the courses with POs & PSOs for batch 2018-2022 and Figure 2.1.4 .1 shows the process to ensure the compliance and attainment of POs & PSOs

- It is ensured that the defined POs/PSOs are adequately covered by the courses being taught and each course is mapped substantially high with at least one PO. It also ensured that the POs/PSOs have high correlation with adequate number of courses.
- The attainment of POs and PSOs are calculated through direct and indirect assessment methods.
- Direct attainment is calculated through Continuous Internal Evaluation (CIE) and indirect attainment through feedback form from Students, Employers, Parents, and Alumni.
- If the attainment meets the target, enhance the target. Otherwise, rework / revise content / delivery / assessment to get the desired attainment.

**Table 2.1.4.1: POs/PSOs Vs Courses Mapped with High Correlation for
(Batch 2018-2022, Credits -175)**

POs/PSOs	Courses
PO1	19ISE31, 19HSS321, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE553, 20ISE554, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE654, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE745A, 20ISE751A, 20ISE752A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE812A, 20ISE813A, 20ISE815A, 20ISE83A
PO2	19ISE31, 19HSS321, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE553, 20ISE554, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE654, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE745A, 20ISE751A, 20ISE752A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE812A, 20ISE813A, 20ISE815A, 20ISE83A
PO3	19ISE31, 19HSS321, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE553, 20ISE554, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE654, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE745A, 20ISE751A, 20ISE752A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE812A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO4	19ISE31, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE554, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE745A, 20ISE751A, 20ISE752A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A

PO5	19ISE31, 19HSS321, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE553, 20ISE554, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE644, 20ISE651, 20ISE652, 20ISE653, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE751A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO6	19HSS 323, 19ISE391, HSS422, 19ISL47, 19ISE49, 20ISE52, 20ISE53, 20ISE552, 20ISE553, 20ISE555, 20ISE63, 20ISE645, 20ISE651, 20ISE652, 20ISE654, 20ISL66, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE752A, 20ISE753A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE814A, 20ISE83A
PO7	19HSS321, 19HSS 323, 19ISE36, 19ISL39, 19ISE391, 19ISE44, 19ISL47, 19ISE49, 20ISE53, 20ISE54, 20ISE551, 20ISE555, 20ISE59, 20ISE61, 20ISE62, 20ISE641, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE655, 20ISE68, 20ISE73A, 20ISE742A, 20ISE751A, 20ISL77A, 20ISE78A, 20ISE814A, 20ISE83A
PO8	19HSS321, 19HSS 323, HSS422, 19ISL47, 20ISE53, 20ISE645, 20ISE651, 20ISE652, 20ISE654, 20ISE71A, 20ISE743A, 20ISE745A, 20ISE752A, 20ISE753A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO9	19HSS321, 19HSS 323, 19ISE391, HSS422, 19ISE49, 20ISE53, 20ISE552, 20ISE59, 20ISE61, 20ISE63, 20ISE645, 20ISE651, 20ISE652, 20ISL66, 20ISE68, 20ISE71A, 20ISE741A, 20ISE753A, 20ISL77A, 20ISE78A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO10	19HSS 323, 19ISE36, HSS422, 19ISE44, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE555, 20ISE62, 20ISE63, 20ISE641, 20ISE645, 20ISE651, 20ISE653, 20ISE655, 20ISE71A, 20ISE741A, 20ISE743A, 20ISE751A, 20ISE755A, 20ISE78A, 20ISE812A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO11	19ISE31, 19HSS321, 19HSS 323, 19ISE35, 19ISE391, 19ISE41, HSS422, 19ISE49, 20ISE552, 20ISE59, 20ISE642, 20ISE645, 20ISE651, 20ISE68, 20ISE71A, 20ISE752A, 20ISE753A, 20ISL77A, 20ISE78A, 20ISE812A, 20ISE813A, 20ISE814A, 20ISE815A, 20ISE83A
PO12	19ISE31, 19HSS321, 19HSS 323, 19ISE33, 19ISE34, 19ISE35, 19ISE36, 19ISL37, 19ISL38, 19ISL39, 19ISE391, 19ISE41, HSS422, 19ISE43, 19ISE44, 19ISE45, 19ISL46, 19ISL47, 19ISL48, 19ISE49, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE552, 20ISE553, 20ISE555, 20ISL56, 20ISL57, 20ISL58, 20ISE59, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE645, 20ISE651, 20ISE653, 20ISE654, 20ISE655, 20ISL66, 20ISL67, 20ISE68, 20ISE71A, 20ISE72A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE744A, 20ISE745A, 20ISE751A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISL77A, 20ISE78A, 20ISE811A, 20ISE814A, 20ISE815A, 20ISE83A
PSO1	20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE553, 20ISE554, 20ISE555, 20ISE555, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE654, 20ISE655, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE745A, 20ISE751A, 20ISE752A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISL76A, 20ISE811A, 20ISE812A, 20ISE815A

PSO2	20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE551, 20ISE553, 20ISE554, 20ISE61, 20ISE62, 20ISE63, 20ISE641, 20ISE642, 20ISE643, 20ISE644, 20ISE645, 20ISE651, 20ISE652, 20ISE653, 20ISE655, 20ISE71A, 20ISE72A, 20ISE73A, 20ISE741A, 20ISE742A, 20ISE743A, 20ISE745A, 20ISE751A, 20ISE753A, 20ISE754A, 20ISE755A, 20ISE76A, 20ISE812A, 20ISE813A, 20ISE815A
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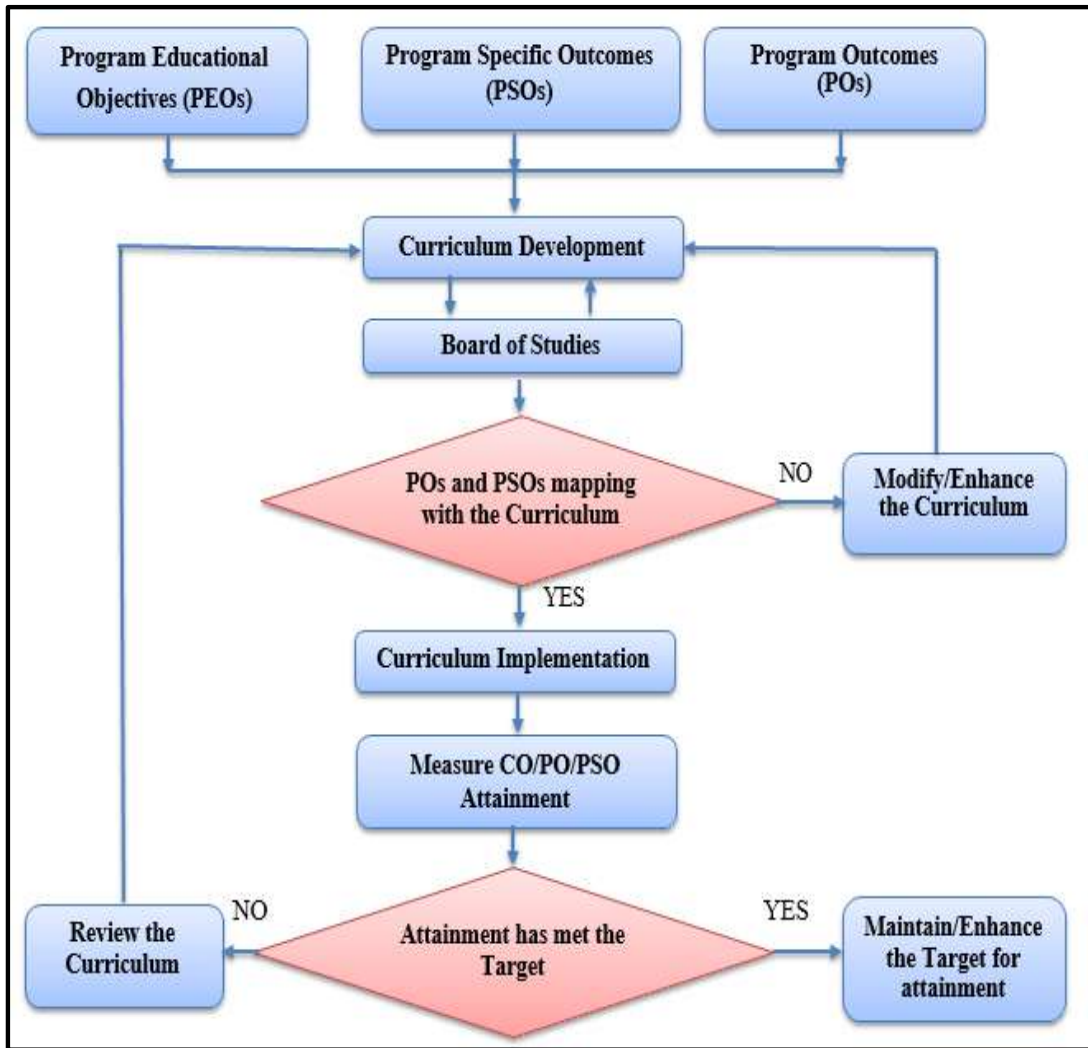


Figure 2.1.4.1: Process to ensure the compliance and attainment of POs & PSOs

2.2 Teaching - Learning Processes

2.2.1 Describe Processes Followed to Improve Quality of Teaching & Learning (15)

Learning is brought about through teaching, the process of teaching learning aims at transmission of knowledge, imparting skills and formation of attitudes, values and behavior of a student.

The teaching learning process comprises various modules that includes academic course management, examination management, outcome visibility and assessment, monitoring, audits and corrective measures. Teaching-Learning in the department follows a student-centric process employing experiential, participative, problem solving and innovative methodologies. Various events and activities are included in teaching learning to enhance the confidence and communication skills of students.

The process of course allotment to a faculty in the department is as follows:

- The Course preferences will be asked by Head of the Department from all the faculty members in the department.
- A Faculty meeting will be conducted on the discussion of the same.
- HOD then allocate a course as per faculty preference, specialization and experience.
- After the allotment of the course, faculty members prepares lesson plan and gets the approval from the HOD.
- The process followed to improve the quality of teaching and learning in the department of Information Science and Engineering is described in Figure. 2.2.1.1

To strengthen the teaching-learning process, following initiatives have been taken:

- A. Adherence to Academic Calendar - Preparation of academic action plans
 - i. Continuous Internal Assessment
 - ii. Assignment and Quizzes
 - iii. Project and Internship Review
 - iv. Industrial Visit
 - v. Conference
 - vi. Guest Lectures
 - vii. Workshops /Alumni talks/ Expert talks/ Seminars
 - viii. Co-Curricular activity – Various Club Activity

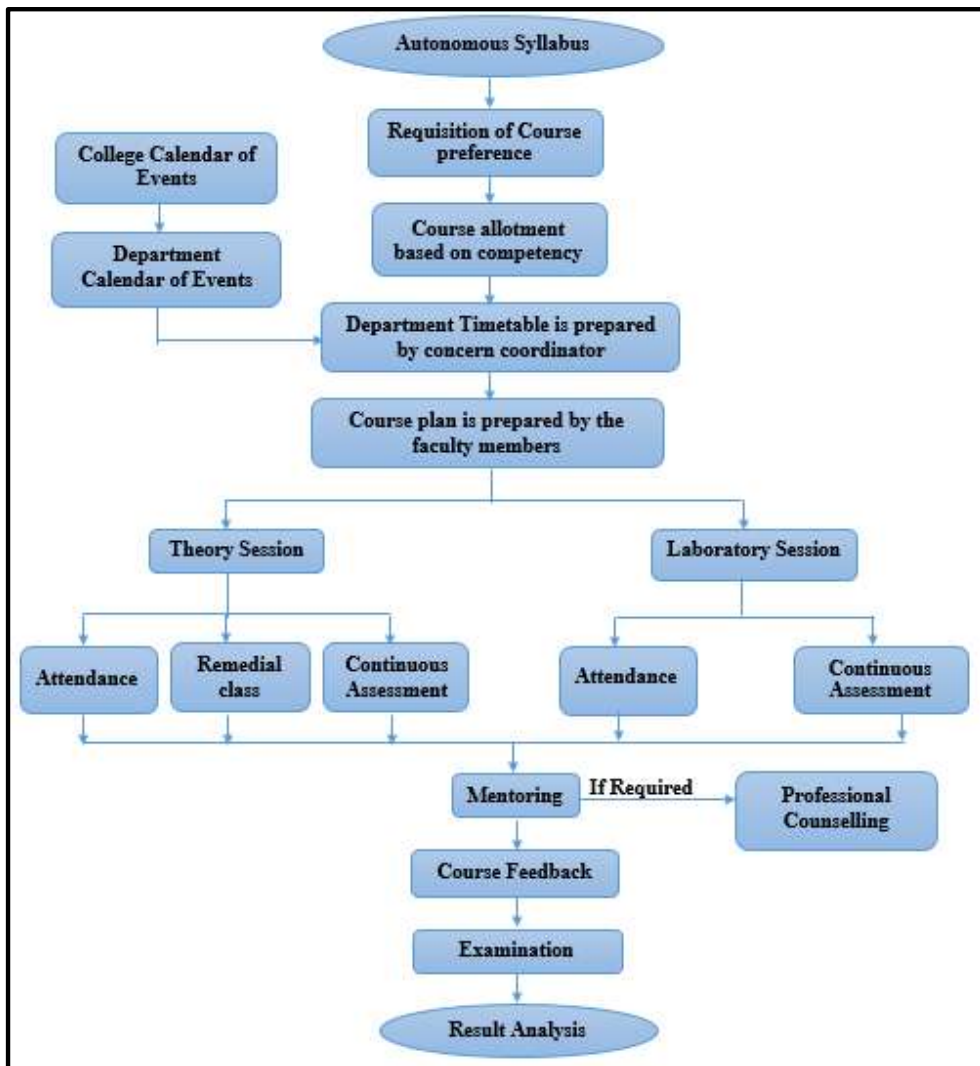


Figure 2.2.1.1: Teaching Learning Process

- B. Pedagogical Initiatives - Content Delivery (method of instruction)
 - i. Lecture Teaching Approach
 - ii. Collaborative / Cooperative teaching and Approach
 - iii. Flipped Learning Approach
 - iv. Activity Based Approach
 - v. Problem Solving/Design Thinking Approach
 - vi. Case Study based Approach
 - vii. Experiential Approach
 - viii. Project Based Approach
 - ix. Game and Simulation Based
- C. Methodologies to support weak students and encourage bright Students
 - i. Mentoring System
 - ii. Identification of Weak Students / Bright students
 - iii. Action Taken
- D. Quality of Class Room Teaching
- E. Conduct of Experiments
- F. Continuous Assessment in the laboratory
- G. Student Feedback and action taken

A. Adherence to Academic Calendar

Academic Calendar: In reference with university and college calendar of events, department prepares the calendar of events in alignment with Institute academic calendar prior to the commencement of the semester. A sample of calendar of events in adherence to the Institute academic calendar is presented in Figure 2.2.1.A.1, Figure 2.2.1.A.2, Figure 2.2.1.A.3 and Figure 2.2.1.A.4

The Calendar of events comprises the following:

- a) The academic calendar is prepared as per VTU guidelines in consideration with the public holidays listed by parent University (VTU).
- b) Dates for continuous internal evaluation (IA Test, and other assessment components) are well planned in the calendar.
- c) With prior consultation with event coordinators of guest lectures, alumni talks,

Criterion-2 Program Curriculum and TLP



workshops, industrial visits and various department club activities are also mentioned in the calendar.

d) The approved calendar of events is published in the student management software tool (Contineo).

NEW HORIZON COLLEGE OF ENGINEERING
CALENDAR OF EVENTS FOR ODD SEM AY 2022-23
Revised B.E. (III SEM)

Commencement: 27th October 2022 Last Working Day: 3rd February 2023

MONTH	Week No.	MON	TUE	WED	THU	FRI	SAT	SUN	Events/Holidays	Activities (Internal Tests, Quia & Others)						
OCT	1	*	*	*	27	28	29	30		27th Oct. Commencement of Classes						
	2	*	*	*	*	*	*	*								
	3	*	*	*	*	*	*	*	1st Nov- Kannada Rajsthava							
NOV	4	7	8	9	10	11	12	13								
	5	14	15	16	17	18	19	20								
	6	21	22	23	24	25	26	27		30th (Nov) 1st, 2nd Dec - I Internal Tests						
	7	28	29	30	*	*	*	*								
DEC	8	*	*	*	1	2	3	4								
	9	5	6	7	8	9	10	11								
	10	12	13	14	15	16	17	18		19th, 20th, 21st Dec- II Internal Tests						
	11	19	20	21	22	23	24	25								
JAN	12	26	27	28	29	30	31	*								
	13	*	*	*	*	*	*	1								
	14	2	3	4	5	6	7	8	14th January- Makara Sankranti							
	15	9	10	11	12	13	14	15	24th January- Republic Day	23rd, 24th, 25th Jan- III Internal Tests						
	16	16	17	18	19	20	21	22								
FEB	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1st Feb - Last Working Day

NOTE:
 1. No Separate Circulars will be issued regarding Activities mentioned above.
 2. The Industrial Visits and Guest Lectures shall be arranged on Weekends.
 3. Internal Tests / Quia / Assignments / Workshops / Seminars / Conferences / Guest Lectures / BOS / BDE Meetings to be included in the department calendar.
 4. Holidays* Refer list of Holidays for year 2022-23.
 5. Internship Programme- 6th October to 30th October 2022

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 Professor and Dean, Academic
 New Horizon College of Engineering,
 Ring Road, Sarinagar Puri,
 Bangalore - 560 077

PRINCIPAL: M. Jayanthi

NOTE:
 Commencement / Closing Dates
 Holidays
 Internal Tests

Figure 2.2.1.A.1: College Calendar of Events –ODD- 2022-23

NEW HORIZON COLLEGE OF ENGINEERING
Department of Information Science & Engineering,
CALENDAR OF EVENTS FOR ODD SEM AY 2022-23
B.E. (V SEM)

Commencement: 10th October 2022 Last Working Day: 18th January 2023

MONTH	Week No.	MON	TUE	WED	THU	FRI	SAT	SUN	Events/Holidays	CIE Activities (CIE, Assignment, Quia)	Department Activities
OCT	1	10	11	12	13	14	15	16		10th Oct- Commencement of Classes, 13 VITA Club Event, 14 IISWT Club Event	10th Oct- Commencement of Classes, 13 VITA Club Event, 14 IISWT Club Event, 20-25 IISWT Club Event, 21 IISWT Club Event
	2	17	18	19	20	21	22	23			28-30th Nov- Industrial Visit 1
	3	24	25	26	27	28	29	30	20th to 24th Oct- Deepavali Holidays	1st Nov- Kannada Rajsthava	21-22 Oct- IISWT Club Event
NOV	4	*	*	*	2	3	4	5	1st Nov- Kannada Rajsthava	1st Nov- Kannada Rajsthava	2- Alumni Talk- 1, 34- BOE Meeting 1
	5	7	8	9	10	11	12	13			10th, 11th, 12th Nov- I Internal Tests, 10- FSP
	6	14	15	16	17	18	19	20			15- VITA Club Event, 16- IISWT Club Event, 17- CIE Activity, 23- ED Cell Activity, 25- Aptitude Test, 25th and 26th Nov- Sports
	7	21	22	23	24	25	26	27			28- IISWT Club Event, 30- Industrial Visit 1 and Guest Lecture 2
DEC	8	28	29	30	*	*	*	*			1- BOE Meeting-2, Alumni Talk-3
	9	*	*	*	1	2	3	4			2- BOE Meeting-2
	10	5	6	7	8	9	10	11			3- BOE Meeting-3
	11	12	13	14	15	16	17	18			4- BOE Meeting-3
JAN	12	19	20	21	22	23	24	25			12th, 13th, 14th Dec- II Internal Tests
	13	26	27	28	29	30	31	*			13- Aptitude Test
	14	2	3	4	5	6	7	8	14th January- Makara Sankranti	14th Jan- IISWT Club Event, 30- Alumni Talk-2	28- IISWT Club Event, 30- Alumni Talk-2
	15	9	10	11	12	13	14	15	14th January- Makara Sankranti	14th Jan- IISWT Club Event, 30- Alumni Talk-2	28- IISWT Club Event, 30- Alumni Talk-2
	16	16	17	18	19	20	21	22	18th Jan- Last Working Day and Printing CIE & Attendance in Contineo software	18th Jan- Last Working Day and Printing CIE & Attendance in Contineo software	18th Jan- Last Working Day and Printing CIE & Attendance in Contineo software

NOTE:
 1. No Separate Circulars will be issued regarding Activities mentioned above.
 2. The Industrial Visits and Guest Lectures shall be arranged on Weekends.
 3. Internal Tests / Quia / Assignments / Workshops / Seminars / Conferences / Guest Lectures / BOS / BDE Meetings to be included in the department calendar.
 4. Holidays* Refer list of Holidays for year 2022-23

DEAN ACADEMICS: M. Jayanthi

NOTE:
 Commencement / Closing Dates
 Holidays
 Internal Tests

Figure 2.2.1.A.2: Department Calendar of Events for Odd Semester 2022-23

Criterion-2 Program Curriculum and TLP



NEW HORIZON COLLEGE OF ENGINEERING
CALENDAR OF EVENTS FOR EVEN SEM AY 2022-23
B.E (VIII SEM)

Commencement: 23rd January 2023 Last Working Day: 10th May 2023

MONTH	Week No.	MON	TUE	WED	THU	FRI	SAT	SUN	Events/Holidays	Activities (Internal Tests, Quiz & Others)
JAN	1	23	24	25	26	27	28	29	26th Jan- Republic Day	23rd Jan- Commencement of Classes
	2	30	31	*	*	*	*	*		
FEB	3	*	*	1	2	3	4	5		
	4	6	7	8	9	10	11	12		
	5	13	14	15	16	17	18	19	18th Feb- Maha Shivratri	
	6	20	21	22	23	24	25	26		25th - I Internal Test
	7	27	28	*	*	*	*	*		
MAR	8	*	*	1	2	3	4	5		
	9	6	7	8	9	10	11	12	8th Mar- Holi	
	10	13	14	15	16	17	18	19		
	11	20	21	22	23	24	25	26	22nd Mar- Ugadi	
APR	12	27	28	29	30	*	*	*		31st - II Internal Test
	13	*	*	*	*	1	2			
	14	3	4	5	6	7	8	9	7th Apr- Good Friday, 8th Apr- Holiday	
	15	10	11	12	13	14	15	16		
	16	17	18	19	20	21	22	23		
MAY	17	24	25	26	27	28	29	30		27th to 30th - Techathon
	18	1	2	3	4	5	6	7	1st May- May Day	5th - III Internal Test
	19	8	9	10	11	12	13	14		10th May- Last Working Day SKE commences from 12th May onwards

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NOTE:
1. No Separate Circulars will be issued regarding Activities mentioned above.
2. The Industrial Visits and Guest Lectures shall be arranged on Weekends.
3. Internal Tests / Quiz / Assignments / Workshops / Conferences / Guest Lectures / BOS / BOE Meetings to be included in the department calendar.
4. Holidays - Refer list of holidays for year 2022-23
5. Internship / Project schedule/ Technical Seminar to be mentioned in department time table.

Figure 2.2.1.A.3: College Calendar of Events – EVEN -2022-23

NEW HORIZON COLLEGE OF ENGINEERING
Department of Information Science & Engineering
CALENDAR OF EVENTS FOR EVEN SEM AY 2022-23
B.E (VIII SEM)

Commencement: 23rd January 2023 Last Working Day: 10th May 2023

MONTH	Week No.	MON	TUE	WED	THU	FRI	SAT	SUN	Events/Holidays	OR Activities (OR, Assignment, Quiz)	Activities (Internal Tests, Quiz & Others)
JAN	1	23	24	25	26	27	28	29	26th Jan- Republic Day	23rd Jan- Commencement of Classes	23rd Jan- Commencement of Classes
	2	30	31	*	*	*	*	*			
FEB	3	*	*	1	2	3	4	5			11th- Alumni Talk-1
	4	6	7	8	9	10	11	12			17th- VEDIC talk, 20th- Birthday of Chhatrapati Shivaji
	5	13	14	15	16	17	18	19	18th Feb- Maha Shivratri	17th- 2018014A(A1)	21th- BOE meeting-1, 25th- I Internal Test
	6	20	21	22	23	24	25	26		21th- BOE meeting-1, 25th- I Internal Test	
	7	27	28	*	*	*	*	*			
MAR	8	*	*	1	2	3	4	5		2nd - 2018014A (Q1)	3rd- Guest Lecture-1
	9	6	7	8	9	10	11	12	8th Mar- Holi		10th & 11th - Project Phase-2 Review - 1
	10	13	14	15	16	17	18	19			15th- Internship Review-1
	11	20	21	22	23	24	25	26	22nd Mar- Ugadi		17th- Alumni Talk- 2, 25th- FDP, 27th- 2018014A (Q2)
APR	12	27	28	29	30	*	*	*		20th- BOE meeting-2, 23rd - II Internal Test	20th- BOE meeting-2, 23rd - II Internal Test
	13	*	*	*	*	1	2				
	14	3	4	5	6	7	8	9	7th Apr- Good Friday, 8th Apr- Holiday		
	15	10	11	12	13	14	15	16		21st - 2018014A(A2)	15th- Internship Review - 2, 20th- 2018014A (Q2)
	16	17	18	19	20	21	22	23			21st & 22nd- Project Phase-2 Review - 2
MAY	17	24	25	26	27	28	29	30		23th - 2018014A (Q2)	27th to 29th - Techathon, 29th- National conference & Project Exhibition
	18	1	2	3	4	5	6	7	1st May- May Day	2nd- BOE meeting-3, 5th - III Internal Test	2nd- BOE meeting-3, 5th - III Internal Test
	19	8	9	10	11	12	13	14			10th May- Last Working Day SKE commences from 12th May onwards

HOD-ISE
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NOTE:
1. No Separate Circulars will be issued regarding Activities mentioned above.
2. The Industrial Visit and Guest Lectures shall be arranged on Weekends.
3. Internal Tests / Quiz / Assignments / Workshops / Conferences / Guest Lectures / BOS / BOE Meetings to be included in the department calendar.
4. Holidays - Refer list of holidays for year 2022-23
5. Internship / Project schedule/ Technical Seminar to be mentioned in department time table.

Figure 2.2.1.A.4: Department Calendar of Events for Even Semester 2022-23

➤ **Continuous Internal Evaluation CIE:**

Continuous assessment is conducted for theory as well as laboratory courses. In theory courses, three no. of internal examinations will be conducted in a semester and two no. of internal practical examination will be conducted. Question papers are prepared in-line with RBT level, COs, POs and PSOs.

➤ **Assignments and Quizzes**

Assignments and Quizzes are an integral part of the continuous assessment process to ensure that students apply and analyse the knowledge to raise the level of learning and application. Similar to CIE and SEE, the assignments are also in-line with RBT, COs, POs and PSOs that have been predefined. There will be two Assignments conducted and in each assignment three sets will be prepared by faculty and sent it to students. Based on the student USN, any one set will be given to a student. Assignment announcement and submission dates are mentioned by the respective faculty members in each Assignment paper. Assignment scheme is prepared by the faculty for evaluation. Quiz will also be conducted in adhere to the calendar of events of the department by using the ICT -Google Forms.

➤ **Guest Lecture:**

Department, with the prime vision of enhancing technical competency of our students, has organized various guest lectures by inviting experts from Industry to lend valuable guidance on latest technical drive, industry expectations and avenues for knowledge enhancement. (Refer Table 2.2.4.C.1, 2.2.4.C.2, 2.2.4.C.3 and 2.2.4.C.4).

➤ **Industrial Visit:**

The department organizes industrial visits for students twice in a year for each semester to enable the students to experience the practical implementation of theoretical knowledge in real world at any leading organizations/companies (Refer table 2.2.5.A.1). This gives them an insight of the work culture ethics prevailing in Industries. The visits also help the students to learn about people management, which is essential in any organization.

➤ **Internship:**

It is mandatory for the final semester students to undergo internship training for minimum 45 days (Refer table 2.2.5.B.2). At the end of every semester or in vacation, students are encouraged to carry out internship in reputed industries/public sectors to improve their

professional skills. It helps the students to bridge the gap between the institute and the industry.

➤ **Conference:**

Every year department organizes National level conferences on recent technologies in Information Technology to enrich the knowledge of students and researchers. This conference provides a platform for students, researchers and faculty members to share their ideas and innovations. It also helps the attendees to interact with experts to enhance their ideas in the respective domain. Table 2.2.1.A.1, Table 2.2.1.A.2 and Table 2.2.1.A.3 lists the details of International and National Conferences organized by the department during the 2019-20, 2020-21 and 2021-22 respective academic years.

Table 2.2.1.A.1: International Conference details AY: 2019-20

SI No	Title of the Conference	Date	No. of Participants	No. of Days	Outcome
1	International Conference on “Innovative Research in Engineering Management and Science”	19/12/2019 20/12/2019 21/12/2019	325	3	PO1 -12, PSO1, PSO2

Table 2.2.1.A.2: National Conference details AY: 2021-22

SI No	Title of the Conference	Date	No. of Participants	No. of Days	Outcome
1	3 rd National Conference on “Innovative Technologies for Post Pandemic”	07/04/2022 08/04/2022	68	2	PO1-12, PSO1, PSO2

Table 2.2.1.A.3: National Conference details AY: 2020-21

SI No	Title of the Conference	Date	No. of Participants	No. of Days	Outcome
1	2 nd National Conference on “Internet of Things - Opportunities for Society”	30/06/2021	76	1	PO1 -12, PSO1, PSO2

2	One day National Conference on “Research challenges and opportunities in Digital and cyber forensics”	30/09/2020	48	1	PO1-12, PSO1, PSO2
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➤ Workshop

Department organizes at least two workshops per academic year to facilitate the students in having a hands on training in a specific domain.

- These workshops enable students in learning and realizing new and latest technologies. (Refer Table 2.2.1.A.4, Table 2.2.1.A.5 Table 2.2.1.A.6 and Table 2.2.1.A.7).
- The students get a platform to exhibit their ideas and implement them in reality.

Table 2.2.1.A.4 : Workshop Details AY: 2022-2023

Sl No	Workshop Topic	Date	No. of Participants	No. of Days	Resource Person	Outcomes
1	Introduction to Blockchain	19-05-2023	60	1	Mr.Chirag Ravishankar Contributor, Shardeum Mr.Hardik Singh Blockchain Developer, Lumos Labs	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2
2	Defendx A Hands-on Workshop on Cyber Security	27/04/2023	40	1	Soumen Joarder Associate Principal Consultant, Synopays Software integrity Group	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2

Table 2.2.1.A.5 : Workshop Details AY: 2021-2022

SI No	Workshop Topic	Date	No. of Participants	No. of Days	Resource Person	Outcomes
1	3D Modelling using Blender	06/05/2022	50	1	Mr. Darpan Majumder, Principal Engineer, Zebra Technologies	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2
2	Techwiz	29/04/2022	40	1	Mr. Kevin King, Director of Integrated	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2
3	Data Analytics	03/06/2022	34	1	Mr. Dinesh Kumar Panigrahi, Regional Head, NASSCOM	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2

Table 2.2.1.A.6: Workshop Details AY: 2020-2021

SI No	Workshop Topic	Date	No. of Participants	No. of Days	Resource Person	Outcomes
1	Workshop on HANA-In memory database and cloud computing	17/12/2020	149	1	Abhishek Shukla, Director Academics, Ether Global Council	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2
2	Workshop on Ethical Hacking	12/04/2021	200	1	Mr Abhishek Shukla, Director Academics, Mr. Baldev Krish, Cisco Trainer, Mr. Sai Kiran, Ether Global Council.	PO1, PO3, PO4, PO5, PO9, PSO1, PSO2

Table 2.2.1.A.7 : Workshop Details AY: 2019-2020

SI No	Workshop Topic	Date	No. of Participants	No. of Days	Resource Person
1	Workshop on Data Science with python	28/08/2019	56	1	Mr.Guru Prakash, Founder & Chief Executive Officer, XOBIN Technologies Pvt limited
2	Workshop on Global Education Awareness Programme and workshop	24/09/2019	112	1	Mr.Arshad Ahmed, Assistant General Manger and Counselor
3	Cryptoath on awareness about python and its application in cryptography field	26/10/2019	48	1	Mr. Guruprakash, Founder & Chief Executive Officer, Xobin Technologies Private Limited
4	Workshop on Secure Links, cryptocurrencies and Smart contracts	08/02/2020	45	1	Mr. Shorupan Pirkaspathy, CEO of Nvest Group of companies
5	Workshop on Artificial intelligence	28/01/2020	34	1	Mr.Vishnuvardhan Y, Founder of Exposys Data Labs
6	Workshop on Advanced python	31/08/2019	28	1	Mr. Biju Nair, Member of FSMK
7	Workshop on Block chain andCrypto currency	31/01/2020	76	1	Mr. Shorupan Pirkaspathy, CEO of Nvest Group of companies

2.2.1. B. Pedagogical Initiatives

Pedagogies play an important role in delivering of content and it varies with the courses. Besides with regular lecture mode, faculties in the Department adapts blended learning pedagogical tools like case methods, simulation, role play, group discussions, debates, seminars etc., for making the learning interactive and interesting. Student centric methods, such as experiential learning, participative learning and problem-solving methodologies are used for enhancing learning experiences. As part of the course, students are taken to industry visits for exposing them to real time scenarios. In addition, Guest lectures, Expert Talks and Alumni Talks are organized by inviting experts from the industry. The following are the various student centric methods to enhance teaching – learning process. Faculty members uses various pedagogical methods for effective teaching learning process which are as follows:

Figure 2.2.1.B.1, Figure 2.2.1.B.2 and Figure 2.2.1.B.3 illustrates some of the pedagogical initiatives which are followed in the department for curriculum and co-curriculum. A well-defined process for course allotment and load distribution is adopted at the department level. The curriculum has inculcated various pedagogies in Teaching and assessment as shown is the sample Figure 2.2.1.B.5.

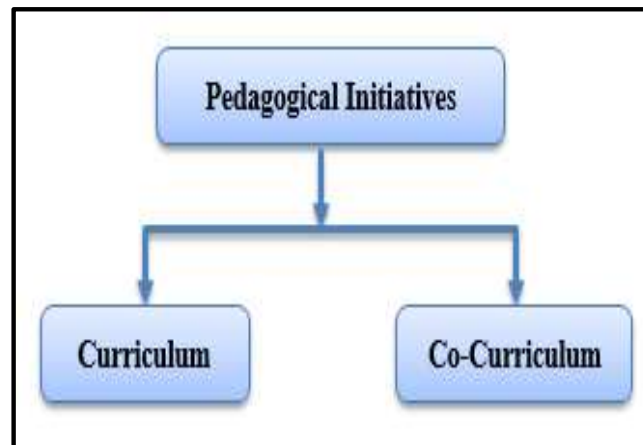


Figure 2.2.1.B.1: Pedagogical Initiatives

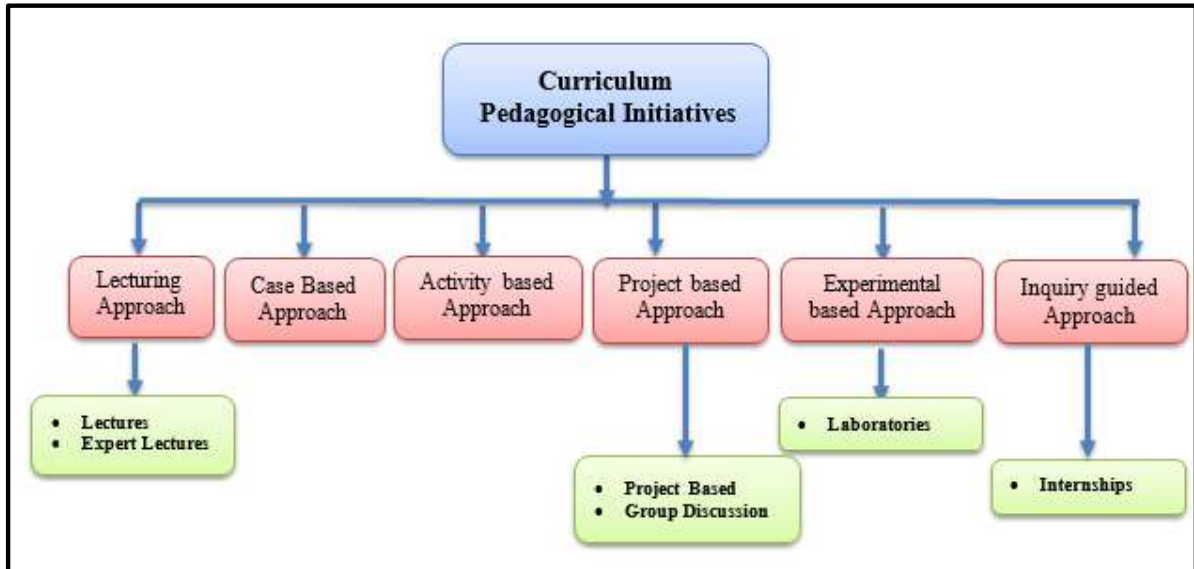


Figure 2.2.1.B.2: Curriculum Pedagogical Initiatives

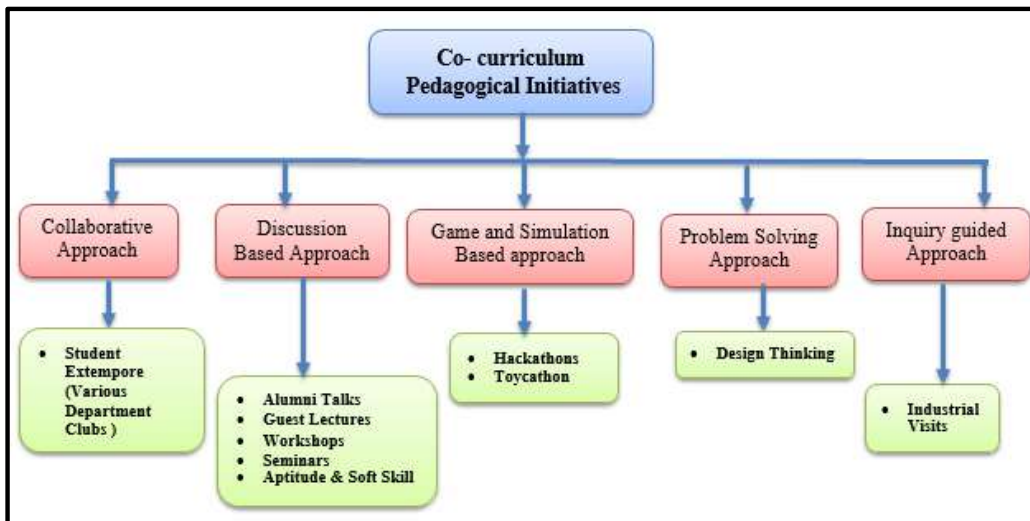


Figure 2.2.1.B.3: Co-Curriculum Pedagogical Initiatives

- Figure 2.2.1.B.4 show the various Course Delivery Methods used while delivering the course by the faculty in classroom.

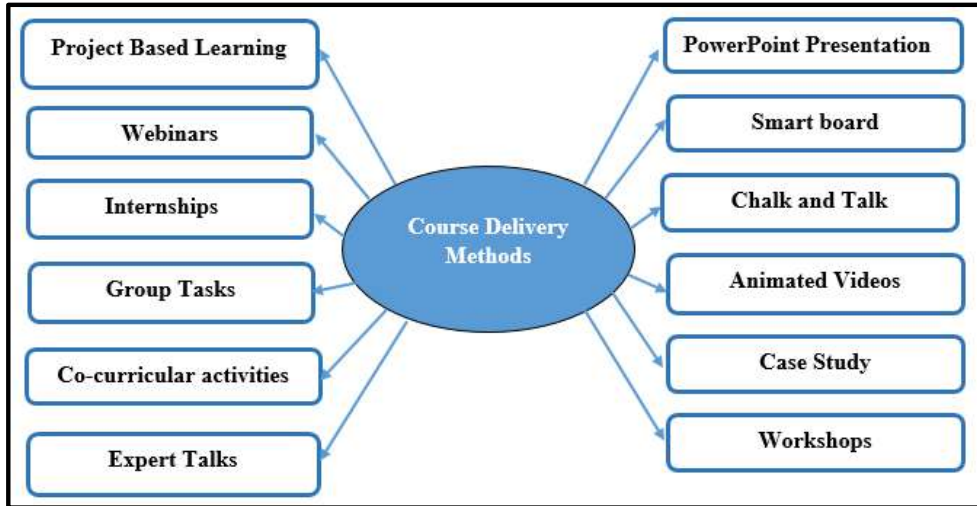


Figure 2.2.1.B.4: Course Delivery Methods

LECTURE BASED TEACHING

OUTCOMES

- Topics are covered in interesting ways
- Increases our concentration power.
- Gives us a better understanding about the topic.

OUR FLIPPED CLASSROOM

Flipped learning - active learning - amazing engineers

END RESULTS:

- Greater development
- Learning of independent skills
- Deeper understanding
- Improved engagement
- Less time needed to cover basic information

CASE-BASED LEARNING

CASE-BASED LEARNING

- Makes our learning more relevant to the classroom.
- Makes our learning more meaningful and applicable to the workplace.
- Makes our learning more engaging and interactive.
- Makes our learning more practical and applicable to the workplace.

PROBLEM BASED LEARNING

NO PROBLEM CAN WITHSTAND THE ASSAULT OF SUSTAINED THINKING

- We are confident in our learning.
- We are confident in our learning.
- We are confident in our learning.
- We are confident in our learning.



Figure. 2.2.1.B.5: Depicts the efficient implementation of Pedagogical Initiatives

Project Based Learning (PBL)

Project Based Learning (PBL) is significantly more effective than traditional instruction to train competent and skilled practitioners and it promotes long-term retention of knowledge and skills. It is an innovative practice that is used to implement Outcome Based Education.

Students are encouraged to carry out multidisciplinary projects to apply their engineering knowledge from third semester onwards. 2-4 students form groups and in consultation with guide they identify the project. The faculty guide and the students collectively identify the Projects based on societal need and issues. At the end of the semester, projects are evaluated by the examiners. Project Based Learning process is shown in Figure 2.2.1.B.6 and faculty and samples of student's involvement during Project Based Learning is shown in the Figure 2.2.1.B.7.

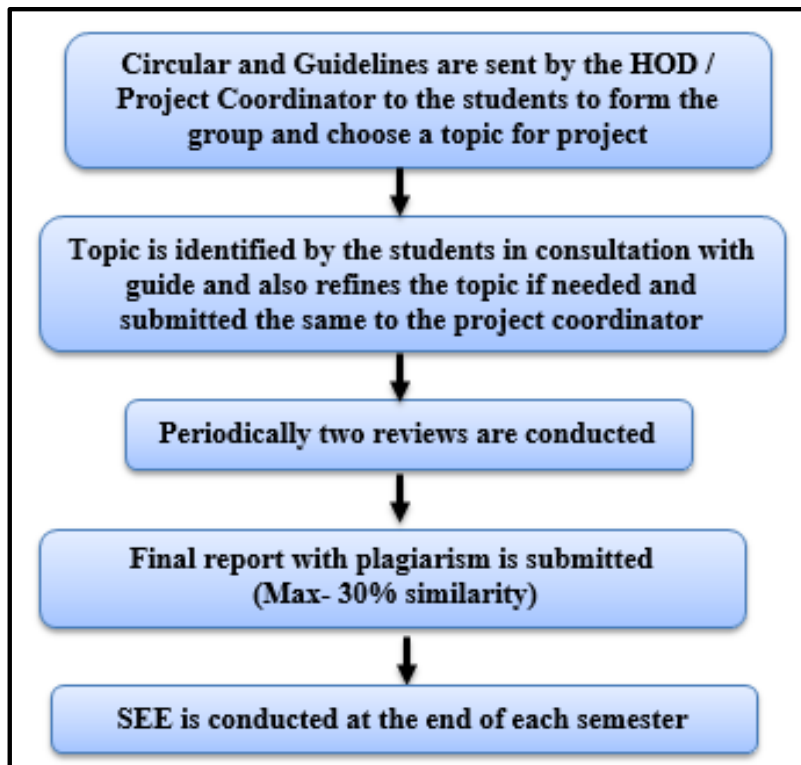


Figure 2.2.1.B.6: Flowchart showing the process of PBL



Figure 2.2.1.B.7: Faculty and student's involvement during Project Based Learning

A sample list of mini projects carried out in the intermediate semester are listed below in Table 2.2.1.A.1

A documentation sample of student's work carried out is also shown below following Figure

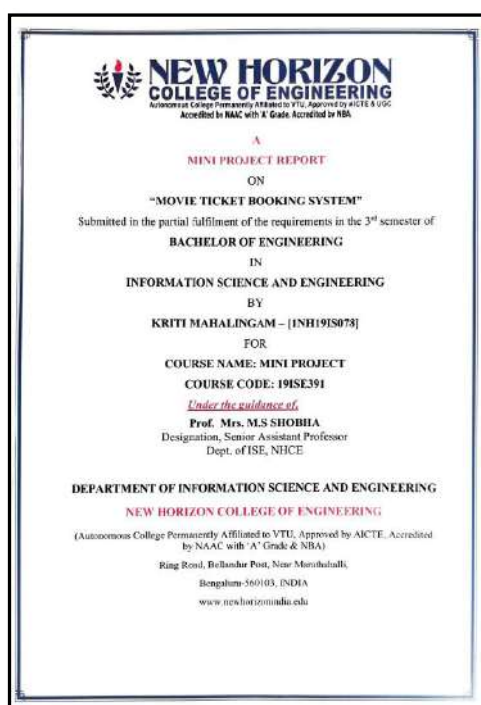
Table 2.2.1.A.1: Sample of Project Based Learning Topics and details

S.No	USN	Name	Sem/Year	Project Title	POs and PSOs
1	1NH18IS011	Ankitha K D	3 rd Sem /2 nd Year	Conversion of Number System	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2
2	1NH18IS030	Dhanush Biligiri	3 rd Sem /2 nd Year	Car Pooling System	
3	1NH18IS048	Keerthan H	4 th Sem /2 nd Year	Mind spark	
4	1NH18IS034	Gelli Sai Mani	4 th Sem /2 nd Year	Ludo -2D game Using GUI	
5	1NH18IS021	Bishal Singh	4 th Sem /2 nd Year	File Organizer	
6	1NH18IS019	Ayush Sinha	4 th Sem /2 nd Year	E-Retailer	
7	1NH17IS008	Akhila S	5 th Sem /3 rd Year	Diabetics Prediction System	
8	1NH17IS052	Manoj R	5 th Sem /3 rd Year	Distance Measurement in Aurduino	
9	1NH17IS017	Ayush AnandSahu	5 th Sem /3 rd Year	Cafeteria Management System	

Criterion-2 Program Curriculum and TLP



10	1NH17IS044	Hitesh Suhas	5 th Sem /3 rd Year	Car value Evaluation System	
11	1NH17IS036	Edwin Joshua	6 th Sem /3 rd Year	Encryption od Digital signature	
12	1NH17IS011	Pavel Anup	6 th Sem /3 rd Year	Website Blocker	
13	1NH17IS143	Rohit N	6 th Sem /3 rd Year	URL Shortner	
16	1NH17IS134	GS Nithya Shree	6 th Sem /3 rd Year	Implementation of chatbot for IoT devices	



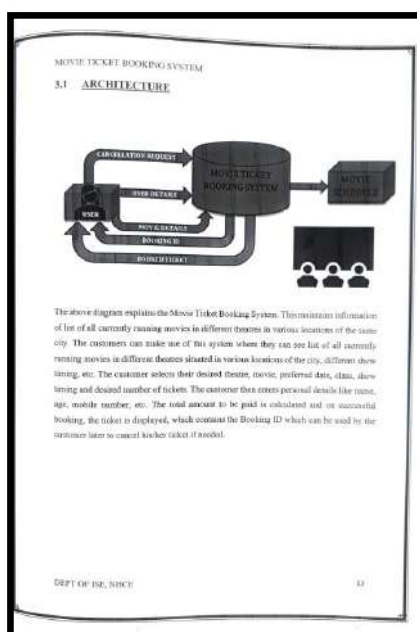


Figure 2.2.1.B.7: Front page & Sample of mini project work conducted by group of students

Table 2.2.1.B.2: Rubrics for Project Based Learning Mini Project Evaluation

Rubric Parameter	Marks	Exceeds expectation (80-100% Marks) (Marks 5-4)	Meets expectation(60-70% Marks) (Marks 3-2)	Does not meet expectation (40-60% Marks) (Marks 1-0)
Objective , State Existing method with proposed method	5	All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified.	Good justification to the objectives; Methodology to be followed is specified but Detailing is not done.	Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives.
Analysis / Description of the project	5	Complete explanation of the key concepts and strong description of the technical requirements of the project.	Complete explanation of the key concepts but in-sufficient description of the technical requirements of the project.	Incomplete explanation of the key concepts and in-sufficient. Description of the technical requirements of the project.
Implementation & Adherence to coding standards	5	Project approach/methods/ parameters were clearly outlined and justified	Project approach/ methods/parameters were outlined and justified satisfactorily.	No project approach/ methods/ parameters were insufficient.

Presentation Skills & Viva	5	Excellent body language use of additional via whiteboard , able to answer all questions, shows in depth knowledge	Confident body language and message delivery, able to answer questions	Not confident, less eye contact or low body language , unable to answer, shows lack of knowledge
Report	5	As per the standard format ,excellent representation of the architecture diagrams, methods, results adhere plagiarism standards	As per the standard format, representation of the architecture diagrams, methods, and results can be improved and adhere plagiarism standards	Not according to guidelines and standard formats, adhere plagiarism standards

2.2.1.C. Methodologies to support weak students and encourage bright students

The teaching learning process at ISE, NHCE inculcates a continuous assessment system for every course. The course handling faculty assess the performance of each student and report the same to the faculty advisor of the concerned student. Students are clustered in two tiers, based on their performances in examinations, as weak students (slow achievers) and bright students (fast learners). Weak students and bright students are identified on the basis of their Academic performance. Bright Students are encouraged to take online courses, certifications, projects from industry and honors courses. These students are trained in such a way to enhance their technological knowledge over the discipline. Deliverable outcomes are visualized through their projects and research publications. Such students are further encouraged to actively participate in various social coding events to showcase their capabilities and thereby getting various career related opportunities. Weak achievers are motivated and trained through remedial classes, where the course handling faculty covers the portions in the pace suitable for the respective students. The course content is divided into manageable chunks in such a way that it makes the students learning the contents easier. Further wherever possible, practical examples are given to the students so that they can relate the theoretical content with the practical applications. In addition, course faculty provides subjective notes and tutorials to those students. Thus, the students strive to get better in the subsequent assessments. Such students are also given regular class tests in order to improve their performance in the internal as well as end semester exam. Further faculty members revise the tough topics as per the students' requisition. Critical topics are re-explained for better understanding by the students. Appropriate counselling with additional teaching is done which eventually results in students attending the classes regularly.

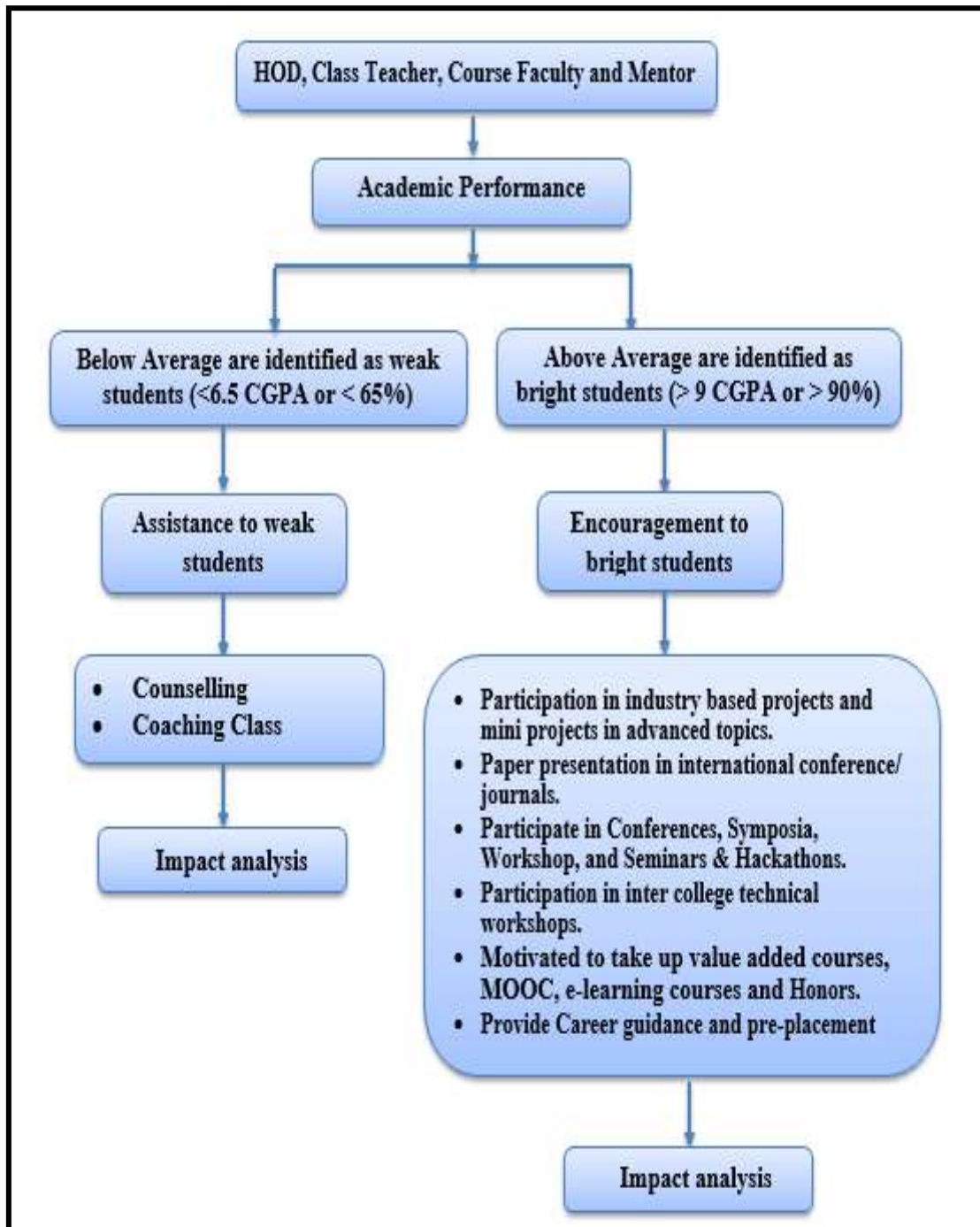


Figure 2.2.1.C.1: Process to identify and support weak students and encourage bright students

Methodology to Support Bright Students:

Actions Taken:

The bright students are encouraged to exhibit their learning on various platforms:

- Students are motivated to take up value added courses, MOOC and e-learning courses.
- Students are given opportunity to take up study-abroad program for one semester.
- Encourage students to do open ended or challenging lab based experiments.
- Students are motivated to take up competitive exams like GATE, GRE, TOEFL, IELTS, CAT, PG CET etc.
- Students are encouraged to become members of professional bodies like ISTE / IEEE / CSI and organize technical events.
- Bright and diligent students are motivated and inspired to get top ranks in their SEE and inter-collegiate examinations through mentoring.
- The bright students are encouraged to participate in symposia, workshops and seminars at National and International levels.
- They are provided with the guidance about technical paper writing, prototype building and patent filing.
- Financial support is given for bright students if needed for attending conferences/ workshops etc.

Impact observed on bright students:

- Improvement in CGPA.
- Improvement in communication skills, programming skills and interpersonal skills.
- Improvement in inter-college event participation.
- Improvement in placement and higher studies.
- The students were able to do quality projects and present papers in conferences

Table 2.2.1.C.1: Details of Autonomous college toppers (2019-20)

Student Name: SPANDANA S
USN: 1NH16IS110
CGPA: 9.873

Table 2.2.1.C.2: Details of Autonomous ISE Department toppers (2019-20)

SI No	USN	Student Name	CGPA	Rank
1	1NH16IS110	SPANDANA S	9.873	1
2	1NH16IS034	GEETHA B C	9.833	2
3	1NH16IS112	SUNIL K A	9.82	3
4	1NH16IS085	PRATYKSHA SHARMA	9.76	4
5	1NH16IS050	KOUSHALYA R	9.75	5

Table 2.2.1.C.3: Details of Autonomous ISE Department toppers (2020-21)

SI No	USN	Student Name	CGPA	Rank
1	1NH17IS008	AKHILA S	9.79	1
2	1NH17IS134	G S NITHYASHREE	9.71	2
3	1NH17IS099	SHOPHY TYAGI	9.73	3
4	1NH17IS111	SUJITH RAMPRASAD TELLAKULA	9.67	4
5	1NH17IS124	VAISHNAVI R	9.59	5

Table 2.2.1.C.4: Details of Autonomous ISE Department toppers (2021-22)

SI No	USN	Student Name	CGPA	Rank
1	1NH18IS041	JNANA P J	9.8667	1
2	1NH18IS106	SILPA S	9.6667	2
3	1NH18IS109	SONALI PREETHA NANDAGOPALAN	9.6667	3
4	1NH18IS129	ANUSHKA SEN	9.5852	4
5	1NH18IS056	MAHIMA S HEBBAR	9.5778	5



Figure 2.2.1.C.2: Winners of Toyathon 2021 – Digital Edition, Govt of India

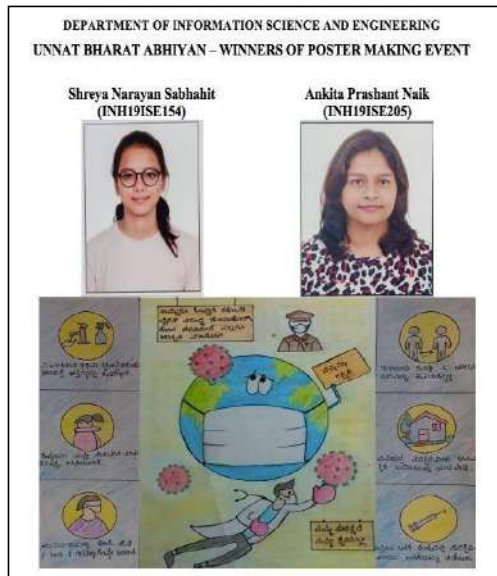


Figure 2.2.1.C.3: Winners of the poster making Competition for COVID-19 Awareness under UnnatBharat Abhiyan, Govt of India



Figure 2.2.1.C.4: Students NPTEL Elite + Silver Certificate



Figure 2.2.1.C.6: BE Degree Certificate with HONOURS

Methodology to Support Weak Students:

Actions taken:

- Department arranges remedial lectures for slow learners.
- Challenging subjects are identified by Course coordinator, Mentor, and from the previous batch of student's results of SEE examination. Subjects like Machine learning, Computer organization, Data Science, ADA, OOPS with JAVA were identified and accordingly extra hours of coaching, course materials and focused training are facilitated for students.
- Previous SEE question papers are revised during the coaching class to improve their learning.
- Mentor informs the parents regarding improvement in the performance of their ward on regular basis. Mentors are facilitated to understand personal and professional difficulties of students and it is resolved.
- Participative and progressive slow learners are given chance to improve team working skills and are motivated and appreciated for their efforts.

- Problem solving sessions are done and make sure that they understand it.

Table 2.2.1.C.7: Impact of coaching classes for weak Student (Less than 6.5 CGPA) - Batch: 2018-22

USN	Name	End of Sem. III CGPA	Failed in CIE-1 in Sem IV (OOPS Java)	End of Sem. IV CGPA
INH18IS004	Adhesh rakshith	6.01	1	5.57
INH18IS014	Anurag Dey	6.32	19	6.42
INH18IS036	G.Pranay Deepak reddy	6.4	11.5	6.75
INH18IS068	Naveen M	6.32	7	6.43
INH18IS098	Sathmika R	6.33	4	6.44
INH18IS061	Md asif kamal quadri	6.48	13	6.67
INH18IS144	Saraf Hrutwik Digamberrao	6.05	11	6.3
INH18IS145	B S sai pramath	5.87	14	6.21
INH18IS146	Kuraku Vinod	6.48	15	6.67
INH19IS406	Sachin gangadhar koparde	0	A	0
INH19IS411	Syed saqlain Ahmed	6.38	13	7.1
INH18IS047	Karthik.R	7.05	9	7.42
INH18IS074	Paluvara Maruthi Siva Sai Sreeveer	8.27	8	8.31
INH18IS101	Shaik Nyamathulla	7.09	9.5	7.19
INH18IS115	Syed Mateen	6.51	7.5	6.8
INH18IS119	Tejashwini R	7.6	5	7.46

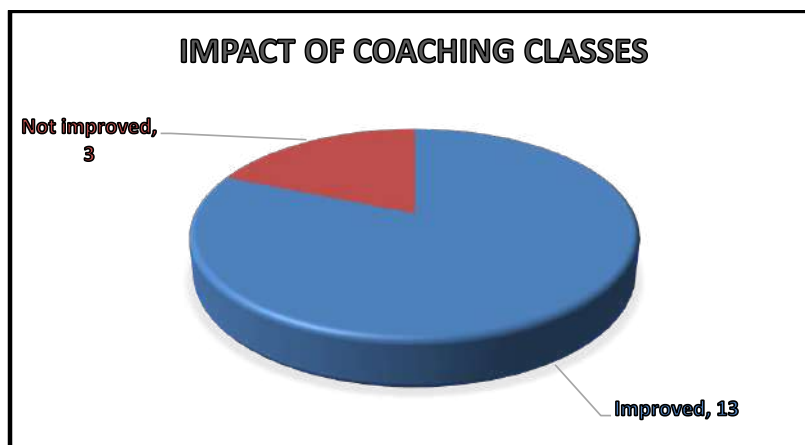


Figure 2.2.1.C.7: Impact of coaching classes for weak students

Impact Observed on Slow Learners

- Improvement in Semester End Examinations.
- Build a good student faculty interaction.
- Level of self-confidence increases.
- Improvement in analytical, communication and programming skills.

2.2.1 D. Quality of Class Room Teaching

Conducive learning ambiances in the classrooms are maintained through comfort seating arrangements, good ventilation with proper lighting. The faculty adopts various innovative practices to create and improve instruction methods using pedagogical initiatives such as real examples, collaborative learning for students. Quality of teaching is a very important factor for quality learning. The following aspects are considered to ensure a good quality classroom teaching:

- Classroom ambience is made interactive include traditional chalk & talk methods and various ICT Tools.
- Smart board is established across the institution for effective delivery.
- Smart boards allow integration of various technologies and interaction in order to improve the learning experience.
- Real components and models are taken by the faculty to the class room to demonstrate the concepts in a clear way to the students.
- Real time examples are cited in the form of videos.
- Complex tutorial problems are solved in the class rooms by the faculty and students together.
- Principal, Deans and Head of Department regularly visit classes to observe the teaching process and convey their suggestions and appreciations to the faculty member.
- Each hour begins with the review of topics discussed in the previous sessions, followed by the presentation/ problem solving of the new topic. Various pedagogies and innovative techniques are followed to keep the students engaged and active during the session.
- The members of QASDC will visit the live classes for evaluation of quality content delivery in prescribed format.



Figure 2.2.1.D.1: Classroom ambience

2.2.1.E Conduct of Experiments

At the beginning of every semester, the required software's are installed. Faculty members instruct the students about the syllabus, course objectives, course outcomes and grading methods and how to debug and test with different inputs of the laboratory course before doing the regular laboratory experiments. Scenario based problems are given to students for programming subjects such as Computer Programming, Object Oriented Programming Java Programming, Python Programming and C# .

For each laboratory course, 10-12 experiments are to be conducted in the syllabus. Extra experiments are also conducted beyond the specified list for relevant courses wherever necessary. Laboratory manual explaining the details of the experiment, designing issues are available with the course teacher and are provided to students at the commencement of the semester. These Manuals are checked and verified by Faculty member before the commencement of each semester. Viva voce is conducted for the students in order to test their knowledge in the experiment. The Laboratory assessment is performed on the basis of rubrics such as, submission of laboratory records, participation in performing the experiment, analysis and interpretation of experiments.



Figure 2.2.1.E.1: Laboratory ambience

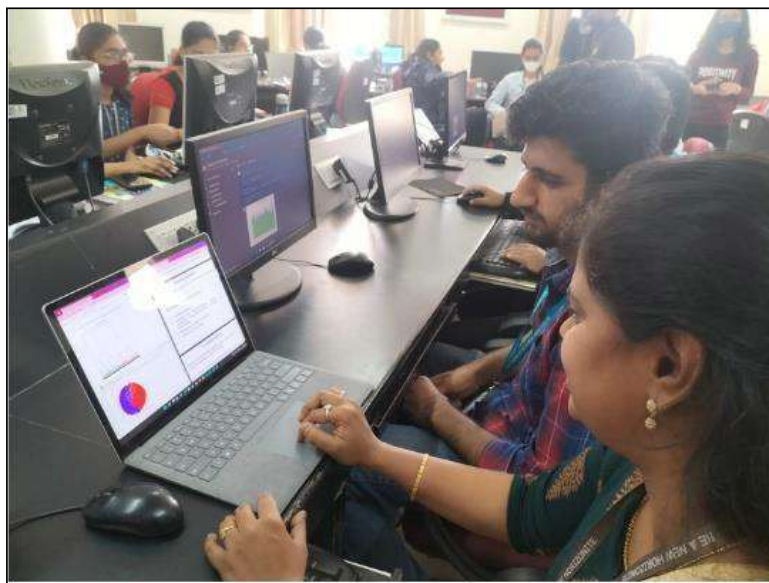


Figure 2.2.1.E.2: Laboratory ambience



Figure 2.2.1.E.3: Laboratory ambience

2.2.1.F Continuous Assessment in the laboratory (3)

➤ **Format for Continuous Evaluation in laboratory**

Laboratory Courses Evaluation: Observation, individual report, laboratory examination and viva, are conducted and evaluated. The distribution of marks for laboratory courses for Continuous Evaluation in Labs and Marks distribution for Laboratory courses is shown in Table 2.2.1.F.1 and Table 2.2.1.F.2 respectively.

Table 2.2.1.F.1: Format for Continuous Evaluation in Labs

SI No	Assessment	Marks
1	Performance in lab sessions	15
2	CIE (Average of two CIE)	10
Total		25

Table 2.2.1.F.2: Marks distribution for Laboratory courses

SI No	Assessment	Max marks	Scaled down Marks
1	CIE	25	25
2	SEE	50	25
Total			50

Table 2.2.1.F.3: Laboratory courses Assessment Pattern

SI No	Attributes	Descriptors	Marks
1	Program Write Up/Design of test cases(5)	Complete program without error	5
		Complete coded with error	3
		Not Written	0
2	Execution of program/ Execution of test cases(5)	Successful execution with expected output	5
		Partial execution	3
		Not executed	0
3	Result and RecordWriting (5)	Submitted on time and completed	5
		Incomplete submission	3
		Failed to submit	0

➤ **Format for SEE Evaluation in Labs**

- One experiment from part A & One experiment from part B to be given.
- Examination will be conducted for 50 marks and scaled down to 25 marks.
- Marks Distribution :
 - Procedure write-up – 20%
 - Conduction – 60%
 - Viva – Voce – 20%
- Change of the experiment is allowed only once and procedure write-up marks will be considered as '0'.

2.2.1.G Student Feedback and action taken

Student's feedback is taken from students on the effectiveness of teaching and subject learning at different points of time during the semester. Initially, feedback is taken from representative students from each class informally by HOD after 1-2 weeks of commencement of class work. If students are facing difficulty in any subject, the concerned faculty member is informed of the same. Necessary guidance and support is given by HOD and another senior subject faculty member. Besides the above, on-line students Feedback is taken anonymously once every semester. The feedback is summarized and communicated to all faculty members. This feedback is considered part of annual performance

Appraisal of the faculty member with a weightage of 25% in Teaching-learning and evaluation category. Table 2.2.1.G.1 indicates different performance parameters feedback.

Table 2.2.1.G.1: Performance Parameters

Sl No	Performance Parameters
Q1	Clarity in explaining the subject
Q2	Subject explained was easy to understand
Q3	Content quality is relevant and useful
Q4	Faculty answers to your queries/questions
Q5	Coverage of topic/subject is on time
Q6	The concepts were explained with examples
Q7	Faculty preparation for the class
Q8	Faculty guidance for preparation of seminar, conference and exam
Q9	Punctuality of the faculty for the class
Q10	Communicates distinctly and effectively
Q11	Treats students with respect and courtesy
Q12	Control of the classroom by faculty
Q13	Relevance of assignments to the subject
Q14	Overall satisfaction
Q15	Discussion of any interesting topic beyond the syllabus but relevant to the field
Q16	Usefulness of the question paper(s) of internal test(s) in your preparation for the examination
Q17	Helpfulness of the online course material (question bank, etc.) and assignments for you to understand and prepare for tests and examination
Q18	Accessibility and availability after the class hours in the college

Nar Horiun College of Engineering Student Feedback Report Sheet: 2018 Department: CSE Faculty Name: M. Divakar														
Sr. No.	Name of the Faculty	Subject	No. of students	Comments	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	Kali Subramanian	AVS	87	21	5.00	4.75	5.00	4.50	4.50	4.50	5.00	5.00	4.50	4.50
Overall avg.					4.74	4.73	4.95	4.49	4.50	4.43	4.92	4.90	4.54	4.53

Q1	Clarify in establishing the subject
Q2	Subject material was easy to understand
Q3	Content was easy to follow and useful
Q4	Faculty attempts to give assignments/questions
Q5	Percentage of IQAC/POs/PSOs in class
Q6	Prerequisites were explained with examples
Q7	Faculty provides the exercises
Q8	Faculty guidance for application of concepts, exercises and cases
Q9	Participation of the Faculty in the class
Q10	Communication, delivery and effectiveness
Q11	Faculty addresses student requests and concerns
Q12	Content of the classroom for the class
Q13	Relevance of assignments for the subject
Q14	Overall satisfaction
Q15	Disclosure of any interesting topics beyond the syllabus (as relevant to the Book)
Q16	Faculty sets off the question papers of internal tests in time preparation for the examination
Q17	Availability of the other course material (assignments, etc.) and suggestions for you to understand the course and the tests and preparation
Q18	Availability, availability of the class hours in the college

SCALE USED	
Not applicable	0
Very Poor	1
Poor	2
Good	3
Very Good	4
Excellent	5

Figure 2.2.1.F.1: Performance Rating Scale: Sample copy

Action taken

- Faculty members are encouraged to attend domain based FDPs.
- IQAC committee member do counselling to the concerned faculty and observes for the continuous improvement.
- Course handouts are reviewed by the mentors/senior faculty and suggestions are given to improvise it.

2.2.2. Quality of end semester examination, internal semester question papers, assignments and evaluation (15)

2.2.2 A. Process for internal semester question paper setting and evaluation and effective process implementation (3)

➤ Internal Question paper preparation:

1. Through HOD, Question paper requisition circular will be sent to all the faculty members asking to follow the RBT level and the Cos and POs and PSOs in the question paper (as per Dean Academics guidelines).
2. 5 days will be given for discussion among the course handling faculty members and preparation of question paper for submission.
3. Department level Board of Examination (BOE) will be constituted to scrutiny the internal test question paper.
4. After the scrutiny, if any discrepancies are found in the question papers, those question papers will be sent to the respective course handling faculty members for correcting and re-submitting the question paper else approved question papers are sent for printing.

5. Received question papers from the printing are sorted and bundled according to room allotment.
6. Question papers are distributed according to test time table. Figure 2.2.2. A.1 shown Process for internal semester question paper setting and evaluation and effective process implementation.

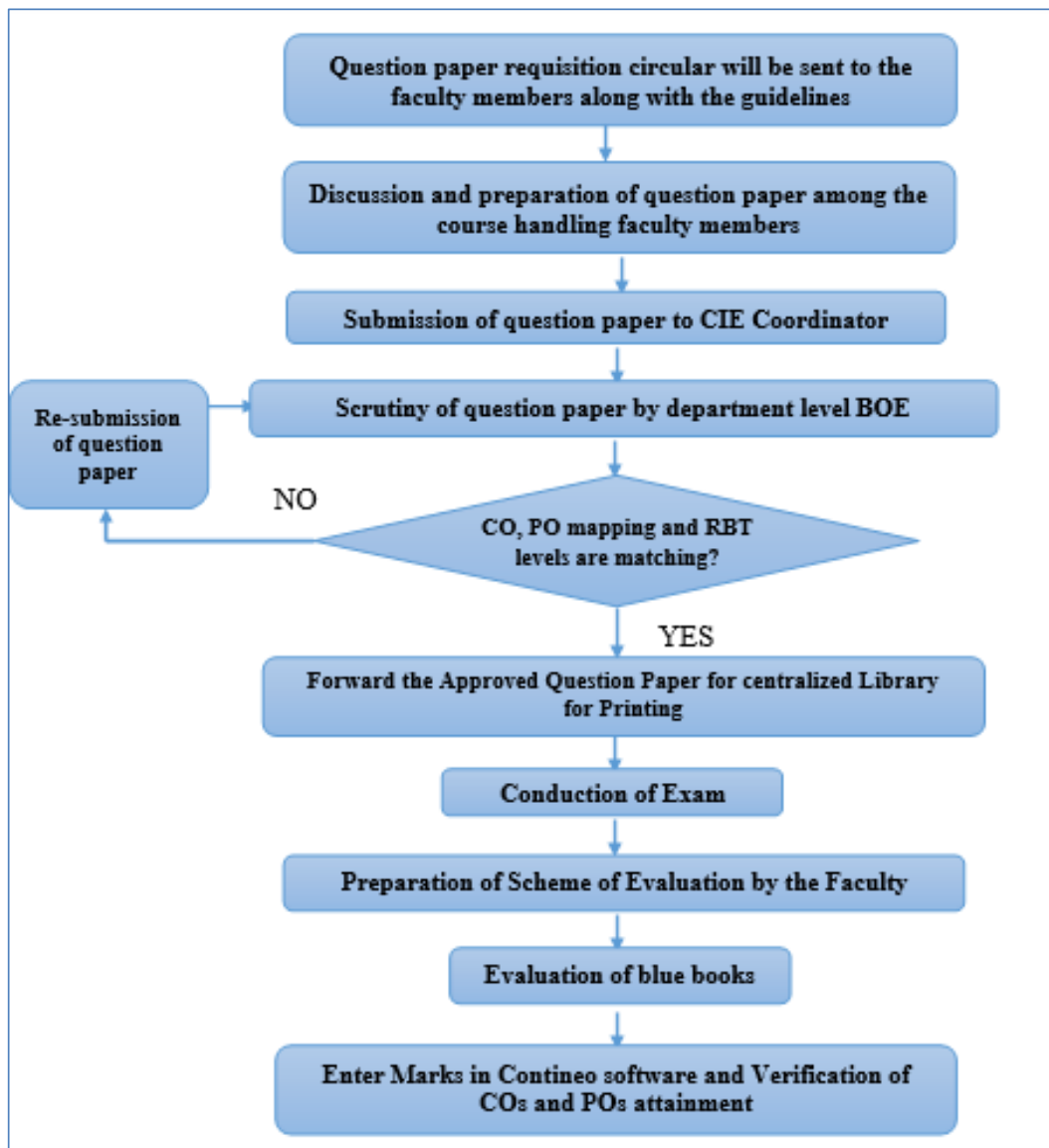
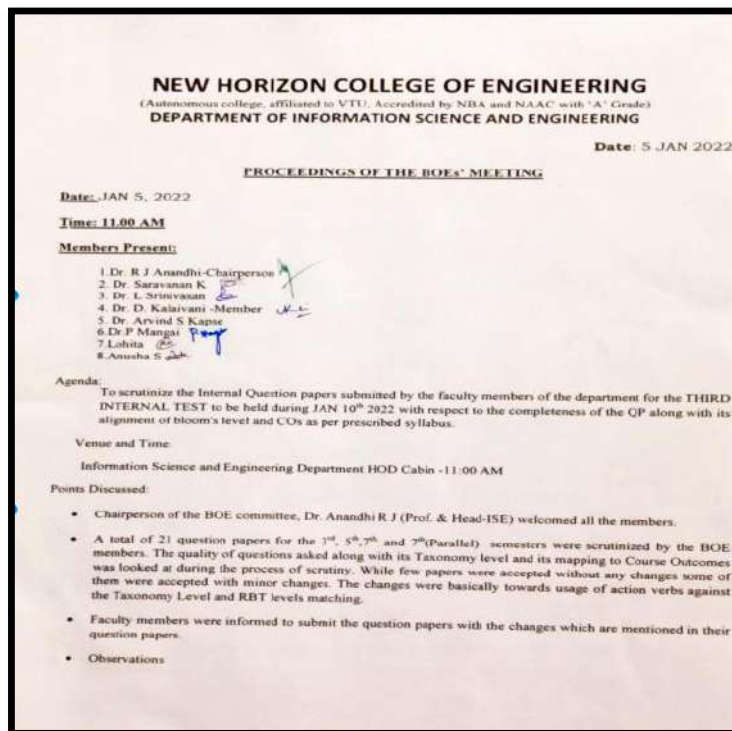


Figure 2.2.2.A.1: Process for Internal question paper setting and evaluation and effective process implementation




S.No	Semester	Course name	Course code	Name of the Scrutinizer	Remarks	Approved by
1	III	Digital Logic Design	20ISE33A	Dr. Saravanan K	RBT levels not matching	 CHAIRPERSON 05/1/22
2	III	Datastructures using C	20ISE34A	Dr. Saravanan K	correction in keywords	
3	III	Computer Organization	20ISE35A	Dr. Arvind S Kapse		
4	III	Python Programming	20ISE36A	Dr. Arvind S Kapse		
5	V	Web Internet programming	20ISE51A	Dr. P Mangai	RBT levels not matching	
6	V	Design and Analysis of Algorithms	20ISE52A	Dr. P Mangai	RBT levels not matching	
7	V	Data science	20ISE53A	Dr. D. Kalaivani	RBT levels not matching	
8	V	Software Engineering&Project Management	20ISE54A	Dr. D. Kalaivani		
9	V	NO SQL	20ISE55A	Dr. D. Kalaivani		
10	V	Internet of Things	20ISE552A	Dr. Arvind S Kapse	CO not matching	
11	VII	Software testing & Automation	20ISE71A	Dr. Saravanan K		
12	VII	Computer Networks	20ISE72A	Dr. Saravanan K	correction in keywords	
13	VII	Cryptography and Information Security	20ISE73A	Dr. Arvind S Kapse		
14	VII	Cloud computing	20ISE742A	Dr. D. Kalaivani		
15	VII	DevOps	20ISE753A	Dr. P Mangai		
16	VII	Digital Marketing	20ISE754A	Dr. R J Anandhi		
17	VII(Parallel)	Machine learning	ISE71	Dr. Arvind S Kapse	correction in keywords	
18	VII(Parallel)	Software testing & Automation	ISE72	Dr. Arvind S Kapse		
19	VII(Parallel)	OOMD	ISE731	Dr. Saravanan K	correction in keywords	
20	VII(Parallel)	Cryptography and Network Security	ISE741	Dr. D. Kalaivani		
21	VII(Parallel)	Human-Computer Interaction	ISE754	Dr. Saravanan K	RBT levels not matching	

Figure 2.2.2.A.2: Internal BOE meeting Report

Conduction of CIE

1. Seating arrangement details are displayed on each class room notice board.
 2. Students ID card will be checked and then allowed into the examination hall prior to five minutes only.
 3. In each desk two students will be allotted (not more than 32 students) and one invigilator in a room is allotted.
 4. Attendance sheet will be circulated among the students. Student signature in the attendance sheet will be checked by room invigilator and then room invigilator signs in the blue book.
 5. After the completion of CIE, invigilator will collect the blue books from students and handover to internal exam control room.

Quality of Evaluation

1. All the course coordinators are informed to prepare scheme of evaluation by discussion among the faculty members who are handling same course.
2. Faculty members evaluate the answer scripts according to the scheme of evaluation prepared by them.
3. Faculty members discuss the question paper and show the answer scripts to students in the respective classes. If any discrepancies are found in allocation of marks, then the faculty clarify their doubts and if necessary, marks will be updated.
4. The evaluated blue books are then maintained in the department library.

Continuous Internal Evaluation CIE:

Theory Courses Evaluation: Three IA exams, two assignments and two quizzes will be conducted per semester. With the prior approval from BOS, case study, seminar and NPTEL online certification may also be given as CIE compounds. These CIE compounds will vary among the courses. The Distribution of marks for theory courses and their weightage is as follows in Table 2.2.2.A.1

Table 2.2.2.A.1: Marks distribution for theory courses

S.No	Assessment	Marks	Weightage
1	CIE Test 1	25	25
2	CIE Test 2	25	
3	CIE Test 3	25	
4	Assignment 1	7.5	15
5	Assignment 2	7.5	
6	Quiz 1	5	10
7	Quiz 2	5	
Total			50

Table 2.2.2.A.2: Theory Course Total Assessment Pattern

S.No	Assessment	Marks
1	CIE	50
2	SEE	50
Total		100

The Figure below shows the Continuous Internal Evaluation marks break-up

NEW HORIZON COLLEGE OF ENGINEERING		New Horizon College of Engineering									
		IA FINAL REPORT									
Stream	: B.E	Department	: Information Science and Engineering								
Semester	: Semester 6	Section	: Division C								
Subject Name	: ADVANCED JAVA	Subject Code	: 20ISE62A								
Batch Name	: -	Max IA Marks	: 50								
Student Name	USN	Roll No	IA1	IA2	IA3	A1	A2	Q1	Q2	Total	
DINESH M	1NH17IS033		8.00	7.50	8.50	7.00	7.00	2.00	4.00	28	
RAVULA AKHIL SATISH	1NH16IS063		A	5.00	10.50	7.00	7.00	3.50	3.00	26	
SHASHWAT SHREY	1NH16IS149		25.00	24.00	25.00	7.50	7.50	3.00	3.50	47	
SHIVANAND SHRIVASTAVA	1NH16IS150		21.50	18.00	17.50	7.50	7.50	3.50	4.00	42	
SHIVANI SINGH	1NH16IS151		21.00	21.50	25.00	7.50	7.50	3.50	2.50	44	
SHREEVAMSHI	1NH16IS152		13.50	12.50	15.50	7.50	7.50	2.50	2.50	34	
SHRESHTA D N	1NH16IS153		15.00	18.00	21.50	7.50	7.50	3.00	3.00	40	
SHREYA NARAYAN SABHAJIT	1NH16IS154		25.00	25.00	25.00	7.50	7.50	3.00	3.00	46	
SHREYAS N ACHARYA	1NH16IS155		25.00	16.50	20.00	7.50	7.50	3.50	2.00	41	
SHUBHAM KUMAR	1NH16IS156		25.00	25.00	25.00	7.50	7.50	2.50	3.50	46	
SIDDAGUNTA YASASWINI	1NH16IS157		A	0.00	0.00	A	A	A	2.00	2	
SIMRAN SHARMA	1NH16IS158		19.00	20.50	16.50	7.50	7.50	3.50	3.00	41	
SIRISHA S	1NH16IS159		17.00	24.00	24.00	7.50	7.50	4.00	4.00	45	
SOMYA	1NH16IS160		20.00	15.50	19.00	7.50	7.50	2.00	3.00	39	
SOVMIYA SUBRAMANIAN	1NH16IS161		A	5.00	19.00	7.50	7.50	4.00	4.00	31	
SPOORTHY V REDDY	1NH16IS162		16.00	15.50	20.00	7.50	7.50	3.50	3.00	36	
SRIJAN REDDY B	1NH16IS163		16.50	20.50	25.00	7.50	7.50	3.50	2.50	42	
SLBHAJIT DHARA	1NH16IS164		A	5.00	10.00	7.50	7.50	4.00	3.00	27	

Figure 2.2.2.A.3: Sample Format of marks distribution in CIE from Contineo

2.2.2. B Process to ensure questions from outcomes/learning levels perspective

Each question in internal test is mapped to COs and RBT levels in each subject. The marks obtained by each student in each COs for each internal assessment component is considered and CO and PO attainments are calculated. Sample Question papers are given below:

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
(Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
Department of Information Science and Engineering
TEST-III (ODD SEM-2021-2022)

Academic Year: 2021-22 Sem: V A, B & C
Course: WEB INTERNET PROGRAMMING Code: 20ISE51A
Date: 10.01.2022 Max.Marks:25

SET - B
Answer ALL the following(Each question carries 5 marks)

S.No	Question	Marks	RBT Level	CO
1.	Explain how foreach, nested if, and switch statements are handled in PHP program with an example for each. OR	5	L2	CO4
2.	Discuss any five mysql commands used in the PHP program.	5		
3.	Classify elements, tags, entities, and attributes in XML programs with a programming example. OR	5	L3	CO5
4.	Illustrate DTD structure in XML program with an example.	5		
5.	Identify the steps involved in XSLT processing in the XML program. OR	5	L4	CO5
6.	Characterize the XML program structure with a programming example.	5	L4	
7.	Describe the problem of the state in web applications with an example. OR	5	L1	CO6
8.	Identify the difference between GET and POST methods while transferring information on the web.	5		
9.	Design a PHP program to sort the array elements in descending order using the insertion sort technique. OR	5	L6	CO4
10.	Construct a basic calculator with any five operations using a PHP program.	5		

NHCE/IQP/009

Corrected RBT levels are not matching. P. Magesh

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
(Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
Department of Information Science and Engineering
TEST-III (ODD SEM-2021-2022)

Academic Year: 2021-22 Sem: V A, B & C
Course: WEB INTERNET PROGRAMMING Code: 20ISE51A
Date: 20.01.2022 Max.Marks:25

SET - B
Answer ALL the following(Each question carries 5 marks)

S.No	Question	Marks	RBT Level	CO
1.	Explain how foreach, nested if, and switch statements are handled in a PHP program with an example for each. OR	5	L2	CO4
2.	Discuss any five mysql commands used in the PHP program.	5		
3.	Classify elements, tags, entities, and attributes in XML programs with a programming example. OR	5	L3	CO5
4.	Illustrate DTD structure in XML program with an example.	5		
5.	Examine the steps involved in XSLT processing in the XML program. OR	5	L4	CO5
6.	Categorize the XML program structure with a programming example.	5		
7.	Describe the problem of the state in web applications with an example. OR	5	L1	CO6
8.	List out the differences between GET and POST methods while transferring information on the web.	5		
9.	Design a PHP program to sort the array elements in descending order using the insertion sort technique. OR	5	L6	CO4
10.	Construct a basic calculator with any five operations using a PHP program.	5		

NHCE/IQP/009

Figure 2.2.2.B.1: Sample IA Question paper -2021-22 format (Before and After Scrutiny)

NEW HORIZON COLLEGE OF ENGINEERING
Internal Test Question Paper (AY: 2022 - 2023) – VI Semester

DEPT: ISE SEM: VI A, B,C *2018E644A*
 COURSE: COMPILER DESIGN COURSE CODE: 2018E644A
 DATE: 04-04-2023 DURATION: 1 Hr.
 CIE TEST: I MAX. MARKS: 25

NOTE: All questions are compulsory.

Q#	Question	RBT Level	CO s	POs & PSOs	Marks
Q1	Explain the Different Phases of Compiler OR	L2	CO1 CO6	PO1, PO2, PO3, PO4, PO8, PO9, PO11, PO12, PSO1, PSO2	5
Q2	Explain the Language Processing System with neat diagram				
Q3	Draw the structure how position= initial +rate *60 will converted to target code with different phases of compiler.	L1	CO1 CO6	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q4	Describe the Role of Lexical Analyzer with diagram.				
Q5	Discuss the terms Tokens, Patterns & Lexemes with examples			PO1, PO2, PO3, PO4, PO8, PO10, PSO1, PSO2	5
Q6	Explain the Input Buffering with diagram ? Discuss the tokens for E=m**2	L3	CO2 CO6		5
Q7	Explain the Regular Expression? And predict the Regular expressions for i) set of strings consisting of zero or more instances of a's and b's ii) set of strings consisting of even no. Of a's followed by odd b's.	L4 L5	CO2 CO6	PO1, PO2, PO3, PO4, PO8, PO10, PSO1, PSO2	5
Q8	Draw the NFA for the regular expression (a+b)*abb. show the steps.				
Q9	Describe the Regular Definition? Find the regular definition for C identifiers & unsigned integers	L6	CO2	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q10	Draw & Justify the transition diagrams for C identifiers & Unsigned integers using shorthand notations of both.	L5	CO6		5

NHCE/IQP/010

Recommended after the changes in course code & RBT levels of Action verb
Dr. Anand K. Kulkarni

NEW HORIZON COLLEGE OF ENGINEERING
Internal Test Question Paper (AY: 2022 - 2023) – VI Semester

DEPT: ISE SEM: VI A, B,C
 COURSE: COMPILER DESIGN COURSE CODE: 2018E644A
 DATE: 04-04-2023 DURATION: 1 Hr.
 CIE TEST: I MAX. MARKS: 25

NOTE: All questions are compulsory.

Q#	Question	RBT Level	CO s	POs & PSOs	Marks
Q1	Explain the Different Phases of Compiler OR	L2	CO1 CO6	PO1, PO2, PO3, PO4, PO8, PO9, PO11, PO12, PSO1, PSO2	5
Q2	Explain the Language Processing System with neat diagram				
Q3	Draw the structure how position= initial +rate *60 will converted to target code with different phases of compiler.	L1	CO1 CO6	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q4	Describe the Role of Lexical Analyzer with diagram				
Q5	Illustrate the terms Tokens, Patterns & Lexemes with examples			PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q6	Illustrate the Input Buffering with diagram ? Illustrate for the tokens for E=m**2	L3	CO2 CO6		5
Q7	Examine the Regular Expression? And Derive the Regular expressions for i) set of strings consisting of zero or more instances of a's and b's ii) set of strings consisting of even no. Of a's followed by odd b's.	L4	CO2 CO6	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q8	Derive the NFA for the regular expression (a+b)*abb. show the steps.				
Q9	Describe the Regular Definition? Evaluate the regular definition for C identifiers & unsigned integers	L5	CO2	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO2	5
Q10	Draw & Justify the transition diagrams for C identifiers & Unsigned integers using shorthand notations of both.		CO6		5

NHCE/IQP/010

Figure 2.2.2.B.2: Sample IA Question paper -2022-23 format (Before and After Scrutiny)

2.2.2.C Evidence of COs coverage in class test / midterm tests

In Reference to Figure. 2.2.2.B.2 shows CIE-1 question paper for Compiler Design Course. Each questions are mapped COs and Cos are correspondingly mapped with RBT levels, POs and PSOs. In the sample Question paper shown above all RBT levels are evenly distributed as mentioned in the syllabus and question reflecting CO1 is 40% and question reflecting CO2 is 60%.

2.2.2. D Quality of Assignment and its relevance to COs

1. Assignments is one of the assessment tools for all the courses. The assignment questions are framed in such a way to encourage self-learning between students.
2. Assignment issue date and submission dates are mentioned well in advance in calendar of events
3. Assignment questions are prepared according to RBT levels and Cos, three different set of Assignments are created for each section of students.

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
 (Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
 Department of Information Science and Engineering
ASSIGNMENT-II

Academic Year: (ODD SEM 2021-22) Sem: V – A, B & C
 Course: Software Engineering and Project Management Code: 20ISE54A
 Date of Announcement: 28/12/2021 Date of Submission: 05/01/2022

List of questions

S. No.	Questions	Marks	RBT Level	CO
SET-A (USN ending with 0, 3, 5, 7)				
1.	Illustrate the importance of Data design in Design process model.	5	L3	CO3
2.	Illustrate the various software architectures available for the developer.	5	L3	CO3
3.	Examine the difference between cohesion and coupling.	5	L4	CO4
SET-B (USN ending with 1, 6, 8)				
1.	Illustrate the golden rules for interface design.	5	L3	CO3
2.	Illustrate the Data-centered architecture with a neat diagram.	5	L3	CO3
3.	Examine the Features of Software Code.	5	L4	CO4
SET-C (USN ending with 2, 4, 9)				
1.	Illustrate the different Coding Guidelines.	5	L3	CO4
2.	Illustrate the various stages of Software testing process.	5	L3	CO4
3.	Examine the various design concepts considered during design process.	5	L4	CO3

Figure. 2.2.2.D.1: Sample Assignment Question Paper

Semester End Examination:

1. Semester End Examination is conducted by Controller of Examination.
2. COE communicates to the external and internal faculty members to prepare the questions as per the guidelines.
3. BoE of the department ensures that the question papers are set to covers the COs and Revised Bloom's Taxonomy (RBT) levels of learning.
4. Total Ten Questions, two from each module to be set uniformly covering the entire syllabus.
5. Student must attempt one compulsory question from each module, (Internal Choice is given).

Impact Analysis

The semester end examination for all the courses is conducted for 100 marks and is scaled down to 50 while calculating the final grade. The determination to adapt to the Bloom's taxonomy is to maintain the quality of the question papers that will ensure a great improvement in the ability of the students to apply and analyze solutions for tricky and challenging questions. The institution has witnessed an enhancement in the student's problem-solving ability, imagination and creativity. Students are able to answer questions of higher order thinking level with ease in semester examinations and during placement interviews.

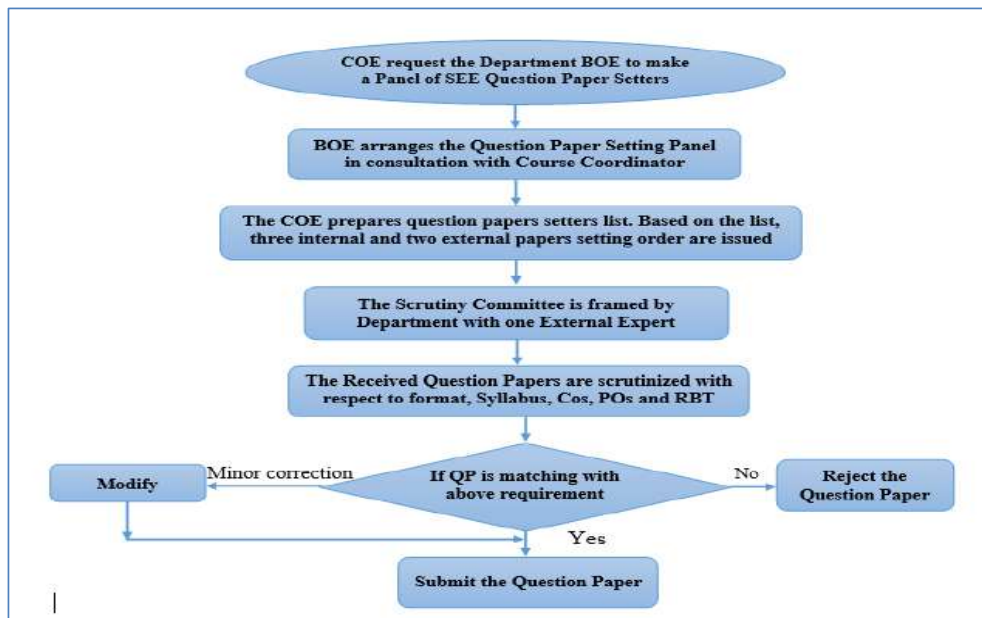


Figure 2.2.2.D.2: Process for Semester End Examination question paper setting

2.2.3 Quality of student projects (20)

2.2.3 A. Identification of projects and allocation methodology to Faculty Members (2)

- According to curriculum design, students will undergo projects at various levels, starting from course level project to capstone projects.
- The students will be asked to form a project batch with maximum 4 in a team and a faculty will be allotted as a project coordinator for each batch.
- The project coordinator instructs the project team to identify the project area/title of the project and to submit one page write up about their project at the beginning of the project phases and discussion on the same will happen to carry out the project further.
- Project review schedule and rubrics will be prepared and the same will be followed. Separate guidelines and monitoring process will be there for the students who do project in industries.
- The head of department and the project coordinator categorize the projects as application oriented, product oriented or research oriented. The process of project identification and approval is the Phase -1 of the project and is shown in Figure 2.2.3.A.1 and the implementation and report submission with plagiarism is the Phase -2 of the project and is shown in Figure 2.2.3.A.2

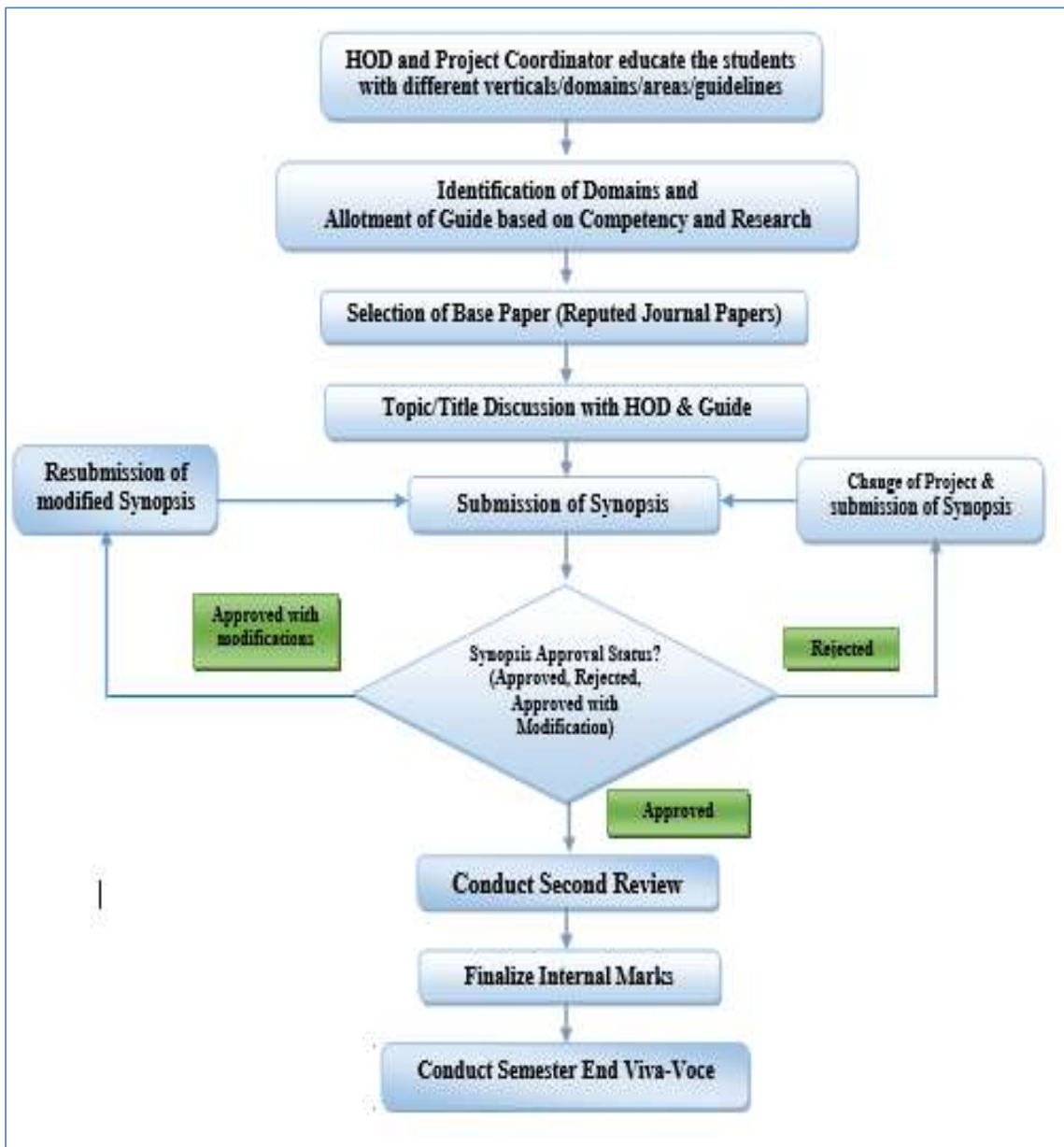


Figure 2.2.3.A.1: Process Flow of Phase I Final Year Project



Figure 2.2.3.A.2: Process Flow of Phase II Final Year Project

2.2.3 B. Types and relevance of the projects and their contribution towards attainment of POs and PSOs. (2)

All projects carried out by the students are mapped with PO's and PSO's based on the type of project and their applications addressing issues related to environment and societal safety.

Table 2.2.3.B.1: Mapping of Course Outcomes to Program Outcomes

CO#	Outcomes	POs
CO1	Identify an issue and derive problem related to society, environment, economics, energy and technology	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2
CO2	Formulate and analyze the problem and determine the scope of the solution chosen	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2
CO3	Determine, dissect, and estimate the parameters, required in the solution and evaluate the solution by considering the standard data / Objective function and by using appropriate performance metrics.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2
CO4	Compile the report and take part in present / publishing the finding in a reputed conference / publication	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12, PSO1, PSO2

Table 2.2.3.B.2: List of samples of student final year projects Batch 2019-23

Sl. No.	Name of the Student	Title of the Project	Type of Project (Application /Product/ Research)	Environment Related	Ethics	Societal Safety	Mapping with POs/PSOs
1.	Joyston Leyton Dsouza 1NH19IS066 Krithiksha 1NH19IS076 Kriti Mahalingam 1NH19IS078 Mohamed Mujaddid Mohiyuddin 1NH19IS094	A feasible IoT-based system for Precision Agriculture	Product	YES	YES	YES	PO1-PO12, PSO1, PSO2

Criterion-2 Program Curriculum and TLP



2	Ekkurthi Sai Bhavana 1NH19IS043 Harshitha D K 1NH19IS051 Divya M 1NH19IS042 Anarghya Rao 1NH19IS012	IoT Based Smart Toy for an Education	Product		YES	YES	PO1-PO12, PSO1, PSO2
3	M Keerthi Reddy 1NH19IS083 Savneet Kaur 1NH19IS141 Shalini L 1NH19IS145 Vedashree Meda 1NH19IS179	An Application to scan the Resume using NLTK and Spacy	Application		YES	YES	PO1- PO12, PSO1, PSO2
4	Mounika BR 1NH19IS097 Anju Minayar 1NH19IS143 Sanjeevani Sharma 1NH19IS139 Navya Sood 1NH19IS099	Jeevandaan-An Enhanced Ambulance Booking App	Application		YES	YES	PO1- PO12, PSO1, PSO2
5	Apurva Nagar 1NH19IS016 Arjeet Kumar 1NH19IS018 Aakash Chandra 1NH19IS003 Ankit Upadhyay 1NH19IS013	Solvr - Academic Solution Search	Research		YES	YES	PO1-PO12, PSO1,PSO2
6	Yashas P 1NH19IS187 Sameer Pasha 1NH19IS199 Mohammed Ismail 1NH19IS200 Vimjam Tharun	Far Sight- A novel Election Prediction System using Machine Learning	Research	YES	YES	YES	PO1-PO12, PSO1, PSO2

Criterion-2 Program Curriculum and TLP



	1NH19IS204						
7	K. Mani Sai Goud 1NH19IS074 P.Chethan Reddy 1NH19IS106 P.Surendra Reddy 1NH19IS219 P.Bharath Aurn 1NH19IS107	Toward Detection and Attribution of Cyber-Attacks in IoT-enabled Cyber-physical Systems.	Application	YES	YES	YES	PO1-PO12, PSO1,PSO2
8	Aditya Purswani 1NH19IS190 Aditya Mishra 1NH19IS211 Ankurit Bhakta 1NH19IS193 Karan 1NH19IS073	NFT Club: A NFT marketplace	Application	YES	YES	YES	PO1-PO12, PSO1,PSO2
9	Shreyas Acharya 1NH19IS155 Suhas K M 1NH19IS167 Surya S 1NH19IS170 Tharun Kumar P 1NH19IS173	Lend A Hand - "Assistive Application for Alzheimer Patient"	Product	YES	YES	YES	PO1-PO12, PSO1,PSO2
10	Pranav 1NH19IS108 Reshav 1NH19IS117 Raman 1NH19IS113 Mayank 1NH19IS196	Opinion Mining for social networking platform	Research		YES	YES	PO1-PO12, PSO1,PSO2

Table 2.2.3.B.3: List of samples of student final year projects Batch 2018-22

Sl. No.	Name of the Student	Title of the Project	Type of Project (Application /Product/ Research)	Environment Related	Ethics	Societal Safety	Mapping with POs/PSOs
1.	T. Balaji Sai Swapnil 1NH18IS116 Nidhish V Prabhakar 1NH18IS070 Nikhil CH 1NH18IS071 Stebin Sebastian 1NH18IS140	Rural development in regards to agriculture	Application		Yes	Yes	PO1-PO12, PSO1, PSO2
2	Narender Yadav 1NH18IS066 Anshuman Samal 1NH18IS012 Ketan Thakur 1NH18IS049 Nitesh Kumar 1NH18IS072	COVIBOT- A Social distancing maintaining robot	Product	Yes	Yes	Yes	PO1-PO12, PSO1, PSO2
3	C H Ramya Bhargavi 1NH18IS025 Guda Bhargavi 1NH18IS038 Shaikh Nyamathulla 1NH18IS101 Gaddam Jaithra Reddy 1NH18IS130	Garbage Monitoring system using IoT	Product	Yes	Yes	Yes	PO1- PO12, PSO1, PSO2

Criterion-2 Program Curriculum and TLP



4	Atharva Malandkar 1NH18IS017 Charan Krishnamurthy 1NH18IS023 Ibrahim Ansar 1NH18IS040 Keerthan M 1NH18IS138	Tripwire - an anti theft application for mobiles	Application		Yes	Yes	PO1- PO12, PSO1, PSO2
5	Shubhodeep Sarkar 1NH18IS104 Manan Agrawal 1NH18IS059 MD Asif Kamal Quadri 1NH18IS061 Dhruv Gulati 1NH18IS031	Andoid based application development for enhanced logistics of e waste	Application	Yes	Yes	Yes	PO1-PO12, PSO1,PSO2
6	Sangeetha D 1NH18IS096 R H Shravya 1NH18IS081 Suchala K L 1NH19IS409 Soundhaarya 1NH18IS110	Plantae disease recognition	Research	Yes	Yes	Yes	PO1-PO12, PSO1, PSO2
7	Pooja T 1NH18IS076 Punith Kumar S 1NH18IS079 Shankar Y 1NH18IS136 Gowtham V 1NH18IS037	IoT based farm freshness mobile application	Application		Yes	Yes	PO1-PO12, PSO1,PSO2

Criterion-2 Program Curriculum and TLP



8	Prakriti Sharma KP 1NH18IS078 Medha Vinod 1NH18IS132 Pushkar Sinha 1NH18IS080 Sourav Adhikari 1NH18IS111	Bluetooth embedded robotic with agriculture seeding plowing and grass cutting powered by solar energy	Product	Yes	Yes	Yes	PO1-PO12, PSO1,PSO2
9	Sunil Kumar H 1NH19IS410 B M Pramod 1NH19IS400 Kartik Bhinge 1NH19IS402 Shubham Annappa Kharade 1NH19IS407	Object detection using helmet for Visually Impaired.	Research	Yes	Yes	Yes	PO1-PO12, PSO1,PSO2
10	Syed Mateen 1NH18IS115 Saifulla Sharief 1NH18IS142 Hrutwik 1NH18IS144 Tanmay Tiwari 1NH18IS117	Image regeneration	Research		Yes	Yes	PO1-PO12, PSO1,PSO2

Table 2.2.3.B.4: List of samples of student final year projects Batch 2017-21

Sl. No	Name of the Student	Title of the Project	Type of Project (Application /Product/ Research)	Environment Related	Ethics	Societal Safety	Mapping with POs/PSOs
1.	Vaishnavi R 1NH17IS124 Akhila S 1NH17IS008 Varna Murali 1NH17IS126	Automatic social distancing system using Thermal Scanners in huge auditorium or conference hall entrances	Research	Yes	Yes	Yes	PO1-PO12, PSO1, PSO2
2.	G.S Nithyashree 1NH17IS134 S. Karthik 1NH17IS084 Aneesh Mohan Kumar 1NH17IS012 Ashwin Venkatakrishnan 1NH17IS140	Acoustic Echo Cancellation for Learning Platform	Application		Yes	Yes	PO1-PO12, PSO1, PSO2
3.	Anusha. K 1NH17IS015 Hamsa P O 1NH17IS039 Girish R 1NH17IS038 Prajwal G 1NH17IS069	ದೂರಸ್ಥ ಮೇಲ್ವಿಚಾರಣೆ : Remote Monitoring And Control Unit of Solar Photo Voltaic Plants Using IoT.	Product	Yes	Yes	Yes	PO1-PO12, PSO1, PSO2
4.	Dharani 1NH17IS032 Edwin Joshua 1NH17IS036 Brunda S G 1NH17IS022 A Jamuna 1NH17IS001	ರಹಸ್ಯ ಸಂಪರ್ಕ: A robust approach for secured communication in steganography using combined key points	Application		Yes	Yes	PO1-PO12, PSO1, PSO2
5.	Anitha B 1NH17IS013 Disha Singh 1NH17IS034 Divya Shree M 1NH17IS035 Kushala R 1NH17IS050	Automatic detection of crimes captured in CCTV images for safety of senior citizens.	Product		Yes	Yes	PO1-PO12, PSO1, PSO2

Criterion-2 Program Curriculum and TLP



6.	Sneha M 1NH17IS104 Meghana S 1NH17IS135 K N Bhanu Priya 1NH17IS046	Smart Band for Monitoring Vitals for Elderly People in Quarantine	Product		Yes	Yes	PO1- PO12, PSO1, PSO2
7.	Malavika N 1NH17IS051 Bhumika V 1NH17IS020	ಮಕ್ಕಳ ಕ್ಷಮಣಿ ಉತ್ಸಾಹ ಜನ: Speech assistance and learning application for Autism Individuals.	Applications		Yes	Yes	PO1- PO12, PSO1, PSO2
8.	Aditya Kokanay 1NH17IS004 Dhanush R 1NH17IS031 Manoj R 1NH17IS052 Mervin Shibu George 1NH17IS053	ವೈಜ್ಞಾನಿಕ ನಿರೀಕ್ಷೆ ಹಾನಿಪರಿಹಾರ: Crop damage compensation calculation using Machine Learning technique	Applications		Yes	Yes	PO1- PO12, PSO1, PSO2
9.	N G Divya 1NH17IS060 Rachana M S 1NH17IS078 POOJA M SAJJAN 1NH17IS067 N Manvitha Reddy 1NH17IS057	ರೋಗನಿರೀಕ್ಷಣೆ : Effective growth monitoring using IoT devices.	Product		Yes	Yes	PO1- PO12, PSO1, PSO2
10.	Andrew Winston 1NH16IS144 Sabari das 1NH16IS092 Prabhat Kumar Sahu 1NH16IS077 Sai Vinay Reddy E 1NH16IS095	Drone Application	Application	Yes	Yes	Yes	PO1-PO12, PSO1

Table 2.2.3.B.5: List of samples of student final year projects Batch 2016-20

Sl.No.	Name of the Student	Title of the Project	Type of Project (Application/Product/Research)	Environment Related	Ethics	Societal Safety	Mapping with POs/PSOs
1.	Gagan Prasad 1NH16IS033 Abhishek Ranjan 1NH16IS003 Harshitha Shankar K 1NH16IS038	Deforestation Control- A small change for big impact	Application	Yes	Yes	Yes	PO1- PO12, PSO1, PSO2
2.	B Lakshmi Deepika 1NH16IS020 Ashika P 1NH16IS017 Kommi Sai Sindhu 1NH16IS142	Automatic detection of violent incidents from video footage of CCTV cameras	Application	Yes	Yes	Yes	PO1- PO12, PSO1, PSO2
3.	Ramakanth.A 1NH16IS089 Amina Anwar Puthiya Veetil 1NH16IS140 Samya Mannuru 1NH16IS096	Smart trash which can detect dry/wet waste and collect data on dashboard	Product	Yes	Yes	Yes	PO1- PO12, PSO1, PSO2
4.	Ashwini Singh 1NH16IS019 Deepa S 1NH16IS030 Pavithra PS 1NH16IS073	ಕೌಶಲ್ಯ ಬರ್ಪೆಯ ಡಿಸ್ಪೋಸಿಟಿ [K ASA BERPADIS UVIKE]- Waste Bifurcation (KSCST Proposal)	Product		Yes	Yes	PO1- PO12, PSO1, PSO2
5.	Rajeshwari 1NH16IS088 Sarah Tabassum Razvi 1NH17IS402 Shri Lakshmi. U 1NH16IS102	Obstacle Sensing Wheelchair for Elderly/Differently abled (KSCST Proposal)	Product		Yes	Yes	PO1- PO12, PSO1, PSO2

6.	Likitha R 1NH16IS052 Meghana C.A 1NH16IS058 Sathya 1NH16IS099	Traffic surveillance using smartdrone (KSCST Proposal)	Product		Yes	Yes	PO1- PO12, PSO1, PSO2
7.	Akhilendu 1NH16IS008 Meghashree. K 1NH16IS059 Anakha Amal 1NH16IS012	Leaf disease detection	Research		Yes	Yes	PO1- PO12, PSO1, PSO2
8.	Nawaz Khan 1NH16IS065 Joseph B Antony 1NH16IS042 Karthik.K 1NH16IS048	Predictive analysis in stock market	Research		Yes	Yes	PO1- PO12, PSO1, PSO2
9.	Ajay.H 1NH16IS006 Vinod Kumar Y.S 1NH16IS122 M.S.Veeresh Prasad 1NH16IS054	Android based mobile phone to work as a hearing aid	Applications		Yes	Yes	PO1- PO12, PSO1, PSO2
10.	Prashanth Paul D 1NH16IS083 Prashanth. V 1NH16IS084 Prem Kumar 1NH16IS086	Fake News Detection using ML	Applications		Yes	Yes	PO1- PO12, PSO1, PSO2

Classification of Projects based on Domain Area:

Students Projects are categorized on the basis of types of projects such as application-based projects, products-based, research-based projects. The projects which are implemented based on application of practical concepts have been classified as application type. The projects demonstrated with hardware working prototype model have been identified as product type. The projects based on innovative design, improved simulation and comparative analysis of algorithm performance have been classified as research-based projects.

The summary of analysis report of the projects is given in the following table.

Table 2.2.3.B.6: Classification Projects based on domains

Academic Year	Category of project			Total
	Application	Products	Research	
2022-2023	28	14	17	59
2021-2022	16	17	05	38
2020-2021	16	13	07	36
2019-2020	19	14	08	41

2.2.3 C Project related to Industry

Students are encouraged to carry out their project outside the campus (i.e.) preferably in Industries. If the students do their project in industries, they could get exposure to real time problems faced by the industries. Also, the students can utilize the opportunity to undergo such kind of real time projects. Further, the relationship between the industries and the institute is enhanced. It could be a chance for the students to get placement in the same companies after completing their degree. A sample list of projects that were done in Industry are listed below:

Table 2.2.3.C.1: A Sample List of Projects done in Industry

Sl.no	Student Name	USN	Name of the Company	Academic Year
1.	Anusha D Singh	1NH16IS015	IBM INDIA PVT LTD	2019-2020
2.	Shanmathi Kailasam	1NH16IS100	VMWARE	2019-2020
3.	Sakthi Sridevi	1NH17IS401	ISRO	2019-2020
4.	Syed Nadeem Pasha	1NH16IS114	MINDSET IT SOLUTIONS	2019-2020
5.	Raahul	1NH17IS077	DEBEL	2020-2021
6.	Tejaswini Sd	1NH17IS118	HAL	2020-2021
7.	Dhanush Biligiri N H	1NH18IS030	DRDO	2021-2022
8.	Prakriti Sharma K P	1NH18IS078	DRDO	2021-2022
9.	Sanjana A	1NH18IS097	ISRO	2021-2022
10.	Sathmika R	1NH18IS098	HAL	2021-2022
11.	Medha Vinod	1NH18IS132	DRDO	2021-2022

2.2.3 D Process of monitoring and evaluation: Continuous Monitoring:

- A department level Project Review Committee is formed by the HOD for assessing the project batches. Also, rubrics and project review schedule will be prepared and shared among the students.
- All project batches need to submit the synopsis to the internal guide.
- The project guides give suggestions towards completing the project successfully.
- Based on these inputs, students commence their project work. If the students are doing project at external agency, then they need to consult with internal as well as external guide towards completion of project.
- The students must present their projects in front of Project Review Committee members twice in a semester according to the project review schedule where the ongoing process will be assessed.
- The students are also informed to present their project methodologies in any of the national or international level conferences for getting more valuable ideas. Also, they are encouraged to publish their project ideas in any of the reputed journals and special consideration will be given for such projects during assessment.
- The review committee along with guide finalizes the Internal marks of the project for each student.

Project Evaluation:

- All the project batches will submit the project report which comprises Scope, objectives, literature survey, Methodology, flow diagrams, hardware and software requirements, output, conclusion and future enhancement and list of references.
- The external examiner will be invited from other affiliated college or Universities for assessing the projects.
- The examiners conduct viva-voce examination for the students in which the students will be asked to explain the projects.
- The final project reports are evaluated by Internal and External examiners based on methodologies, conference presentation and journal publication.
- Based on the performance in viva-voce examination, final marks are awarded to the students.

2.2.3 E. Process to assess individual and team performance:

Table 2.2.3.E.1 : Assessment Rubrics of Project Phase-1

Review #	Rubric Parameter	Marks	Exceeds expectation (80-100% Marks)	Meets expectation (60-70% Marks)	Does not meet expectation (40-60% Marks)
REVIEW-1	Identification of Problem Domain and Detailed Analysis	5	Detailed and extensive explanation of the purpose and need of the project	Adequate explanation of the project's purpose and need	Minimal explanation of the purpose and need of the project
	Literature Review	10	Able to detail the scope and purpose of the study. Explain previous studies related with insightful pros and limitations.	Adequate explanation of purpose of study and not insightful pros and limitations.	Incomplete explanation of purpose of study and not insightful pros and limitations.
	Presentation Skills & Viva	5	Excellent body language use of additional means e.g. whiteboard, Able to answer all questions, shows in depth knowledge	Confident body language and message delivery, Able to answer questions	Not confident, less eye contact or low body language, Unable to answer, shows lack of knowledge
REVIEW-2	Objectives of the Study.	5	All objectives of the proposed work are well defined.	Good justification to the objectives specified.	Incomplete justification to the objectives proposed.
	Methodology of the Proposed Work	10	Steps to be followed to solve the defined problem are clearly specified.	Methodology to be followed is specified but detailing is not done	Steps are mentioned but unclear; without justification to objectives.
	Paper Publication	10	Paper Communicated to journals, Done with conference and waiting for publication.	Paper Communicated, waiting for conference/Publication	Paper not communicated to Journals.

	Project Phase-1 Report	5	As per the Standard format, Excellent representation of the Architecture Diagrams, Methods, Results Adhere Plagiarism Standards	As per the Standard Format, Representation of the Architecture Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards	Not according to guidelines and Standard Formats, Adhere Plagiarism Standards
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Table 2.2.3.E.2: Assessment Rubrics of Project Phase-2

Review #	Rubric Parameter	Marks	Exceeds expectation (80-100% Marks)	Meets expectation (60-70% Marks)	Does not meet expectation (40-60% Marks)
REVIEW-1	Design Methodology	20	Division of problem into modules and good selection of computing framework Appropriate design methodology and proper justification	Division of problem into modules but inappropriate selection of computing framework Design methodology not defined properly	Modular approach not adopted. Design methodology not defined
	50% Demonstration of the Project Work	20	Able to apply the specified computing framework and meet 50% of objectives defined.	Able to apply the specified computing framework but didn't meet 50% of objectives.	Not able to apply the specified Computing framework.
	Presentation Skills & Viva	10	Excellent body language use of additional means eg .whiteboard , Able to answer all questions, shows in depth knowledge	Confident body language and message delivery, Able to answer questions	Not confident, less eye contact or low body language , Unable to answer, shows lack of knowledge
REVIEW-2	100% Demonstration and presentation of the Project Work	30	Complete Demonstration of the all the objectives of the Project with suitable testing methods applicable for all the modules.	Met the objectives Implementation of the Project, All modules are not tested.	Not all objectives are met.

	Project Phase-2 Report	20	As per the Standard format, Excellent representation of the Architecture Diagrams, Methods and Results Adhere Plagiarism Standards	As per the Standard Format, Good Representation of the Architecture Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards	Not according to guidelines and Standard Formats, Adhere Plagiarism Standards
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Table 2.2.3.E.3: Assessment Rubrics for Mini Project

Rubric Parameter	Marks	Exceeds expectation (80-100% Marks) (Marks 5-4)	Meets expectation (60-70% Marks) (Marks 3-2)	Does not meet expectation (40-60% Marks) (Marks 1-0)
Objective, State Existing method with proposed method	5	All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified.	Good justification to the objectives; Methodology to be followed is specified but detailing is not done.	Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives.
Analysis / Description of the project	5	Complete explanation of the key concepts and strong description of the technical requirements of the project.	Complete explanation of the key concepts but in-sufficient description of the technical requirements of the project.	Incomplete explanation of the key concepts and in-sufficient description of the technical requirements of the project.
Implementation & Adherence to coding standards	5	Project approach/methods/ parameters were clearly outlined and justified	Project approach/methods/ parameters were outlined and justified satisfactorily.	No project approach/ methods/ parameters were insufficient.
Presentation Skills & Viva	5	Excellent body language use of additional means e.g. whiteboard, Able to answer all questions, shows in depth knowledge.	Confident body language and message delivery, able to answer questions	Not confident, less eye contact or low body language, Unable to answer, shows lack of knowledge

Report	5	As per the Standard format, Excellent representation of the Architecture Diagrams, Methods, Results, adhere Plagiarism Standards.	As per the Standard Format, Representation of the Architecture Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards.	Not according to guidelines and Standard Formats, Adhere Plagiarism Standards.
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Table 2.2.3.E.4: Distribution of Marks for Mini Project and Final Year Project

Course	Assessment Tool		Maximum Marks	Marks Scaled to	Weight age
MINI PROJECT	CIE	Review-1 & Review-2	50	25	50%
	SEE	Review	50	25	50%
PROJECT PHASE-I	CIE	Review-1 & Review-2	50	50	50%
	SEE	Review	50	50	50%
PROJECT PHASE-II	CIE	Review-1 & Review-2	100	100	50%
	SEE	Review	100	100	50%

2.2.3 F. Quality of completed projects/working prototypes (5)

The sample best Projects in the Academic year: 2019-2020

1. SMART GLASSES FOR VISUALLY IMPAIRED

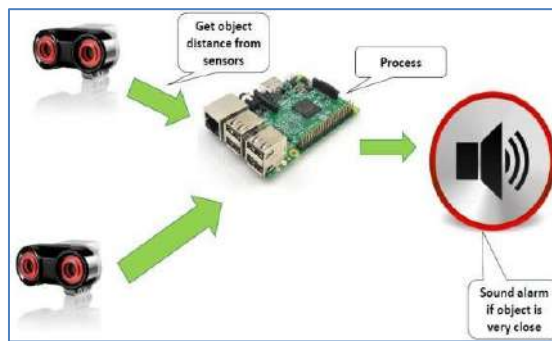
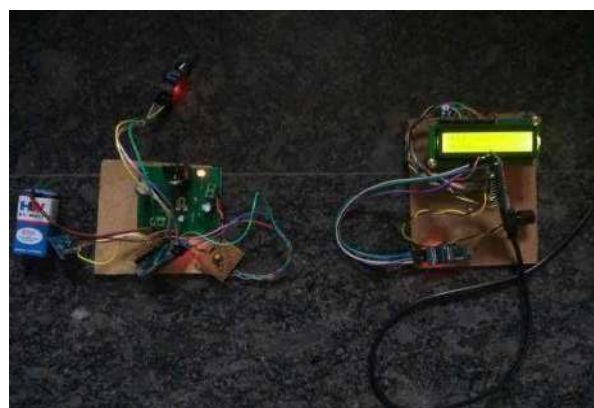
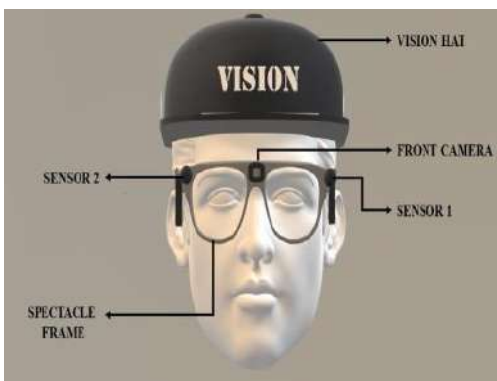


Figure 2.2.3.F.1: Sample Output: SMART GLASSES FOR VISUALLY IMPAIRED

2. VOICE FOR PARALYTIC VICTIMS



Outcome of Proposed System:



Figure 2.2.3.F.2: Transmitter End

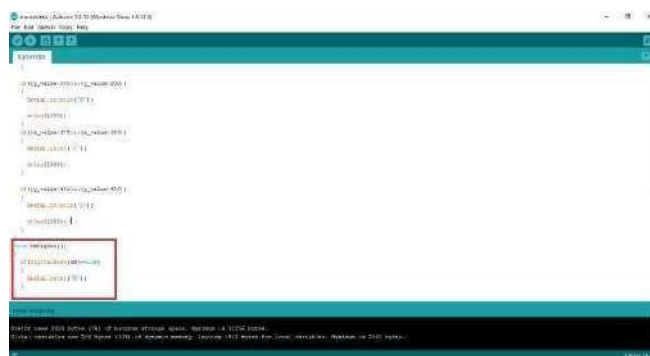


Figure 2.2.3.F.3: Buzzer analysis at Transmitter end



Figure 2.2.3.F.4: Alerts and messages displayed at Receiver end-1



Figure 2.2.3.F.5: Alerts and messages displayed at Receiver end-2

3. BLUETOOTH EMBEDDED ROBOTIC WITH AGRICULTURE PLOWING SEEDING AND GRASS CUTTING POWERED BY SOLAR ENERGY



Plowing method



Seeding method

Figure 2.2.3.F.6: Sample Output: Bluetooth Embedded Robotic with Agriculture

4. KSCST – Best Project of the AY 2019-2020



Figure 2.2.3.F.7: Best Project of the AY 2019-2020

5. KSCST – Best Project of the AY 2020-2021



Figure 2.2.3.F.8: Best Project of the AY 2020-2021

6. Toycathon 2021 – Winners of Digital Edition(AY 2021-2022)



Figure 2.2.3.F.9: Winners of Digital Edition (AY 2021-2022)

2.2.3 G. Evidences of papers published /Awards received by projects etc. (3)

Table 2.2.3.G.1: Students Paper Publication for Academic Year 2021-22

S.No	Student Name	USN	Title of Paper	Journal/ Conference Details
1	Silpa S	1NH18IS106	Survey on IoT based Pot Hole Detection	IEEE control System Letters
	Sonali Preetha Nandagopalan	1NH18IS109		
	Shripriya J	1NH18IS133		
2	Stebin Sebastian	1NH18IS140	Review on IoT-Mobile App based on Rural Development in Terms of Agriculture	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
	Tadepalli Balaji Sai Swapnil	1NH18IS116		
	Nikhil Ch	1NH18IS071		
	Nidhish Vemula Prabhakar	1NH18IS070		
3	Keerthana H	1NH18IS138	Raspberry Based robotic Device for women Safety	International Journal of Mechanical Engineering
	Mala H R	1NH18IS057		
	Mohammed Faizan	1NH18IS062		
	Mohammed Ismail	1NH18IS063		
4	Vismaye M	1NH18IS126	Soft Support: Specially Abled Communication	International Conference on Advanced Computing Technologies and Applications
	Keerthishree V	1NH18IS135		
	Harshitha R	1NH18IS039		

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	Pradeepthi K	1NH18IS050		
5	Abhishek V Rai	1NH18IS003	Secured Eye Pay: An E-payment a Application for visually impaired people	International Mobile and Embedded Technology Conference (MECON)
	R Likhith	1NH18IS053		
	R Abhiram	1NH18IS002		
	Amogh V Pai	1NH18IS007		
6	Ritom Tamuli	1NH18IS086	Android Based Fall Detection and Tracking App for Aged People	Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)
	Ayush Sinha	1NH18IS019		
	Srutibanta Samantara	1NH18IS112		
7	Arpita Chowdary Vantipalli	1NH18IS016	IOT based AquaSwach	2nd International Conference on Artificial Intelligence and Signal Processing (AISP)
	Darshana Sailu Tanti	1NH18IS028		
	K Malvika Ravi	1NH18IS058		
	Krtin Kannan	1NH18IS044		
8	Yashmitha R	1NH18IS128	IoT based Divyang Assistant Technology: Your Hearing Support	International Conference on Electronics and Renewable Systems (ICEARS)
	Tejal Lalji Rangani	1NH18IS118		
	Anushka Sen	1NH18IS129		
9	B Mounica	1NH18IS065	A Survey of Real-time Health Care Tracking System for Post Covid Patients	Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)
	M Akshatha	1NH18IS006		
	Anupam Kumar	1NH18IS013		
10	Vinay Hegde	1NH18IS124	Securo Point for the Application of Malware Detection in android Apps	International Conference on Software Engineering and Computer Science
	Chrisel Fernandes	1NH18IS026		
11	Sanjana Hombal	1NH18IS134	Health Monitoring System Using IoT	International Conference on Emerging Trends in Engineering and Technology - Signal and Information Processing
	Sanchitha BS	1NH18IS095		
	Shreya L	1NH18IS139		
	Sharanya G	1NH18IS035		
12	Pooja T	1NH18IS076	Survey on IoT based Farm Freshness Mobile Application	International Conference on Advanced Computing Technologies and Applications (ICACTA)
	Punith Kumar S	1NH18IS079		
	Shankar Y	1NH18IS136		
	Gowtham V	1NH18IS037		
13	Samrudh G R	1NH18IS094	Developing an Intelligent Model to Detect Micro Facial Expression	2022 International Conference on Advanced Computing Technologies and Applications (ICACTA)
	Tejasvi Patil	1NH18IS120		

	Sagar Shankar	1NH18IS090		
14	Sangeetha D	1NH18IS099	Survey on IoT based E-Farming Technology Enabled Farming	2022 International Conference on Sustainable Computing and Data Communication Systems
	K L Suchala	1NH18IS409		
	R H Shravya	1NH18IS110		
	B Soundhaaryha	1NH18IS059		
15	Manan Agarwal	1NH18IS104	A Survey on Various Approaches to e-waste management	2022 International Conference on Computer Communication and Informatics
	Shubhdeep sarkar	1NH18IS061		
	Md Asif Kamal Quadri	1NH18IS031		
	Dhruv Gulati	1NH18IS031		
16	G. Pranay Deepak	1NH18IS036	IoT Based Low-Cost Robotic Agent Design for Covid-19 affected people	2022 International Conference on Electronics and Renewable Systems
	BS Sai Pramath	1NH18IS145		
	J.A. Trivedh	1NH18IS043		
17	Jnana P J	1NH18IS041	Smart Glove for Blind	2022 IEEE Delhi Section Conference
	Monisha C	1NH18IS064		
	Pallavi V	1NH18IS073		
	Saloni K	1NH18IS093		
18	Karthik R	1NH18IS097	Blockchain-based IoT Device Security	2nd International Conference on Artificial Intelligence and Signal Processing, AISP
	Sanjana A	1NH18IS0		
19	G Sai Mani Kumar	1NH18IS034	Review Paper on E-Traffic Police IoT Based Auto-Detection of Traffic Rule Violation	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
	B Aravind Kumar	1NH18IS022		
	M Vinay Kumar Reddy	1NH18IS054		
	B Sree Harsha	1NH18IS020		

Table 2.2.3.G.2: Students Paper Publication for Academic Year 2020-21

S.No	Student Name	USN	Title of Paper	Journal/ Conference Details
1	Swasti Choudhary	1NH17IS115	An Approach to Credit Card Fraud Detection	International Journal of Research in Engineering and Science (IJRES)
	Thakur Kiran Singh	1NH17IS119		
	Narendra Kumar Reddy	1NH17IS141		
	Vishal S Balan	1NH17IS146		
2	Yashaswini S	1NH17IS132	IoT Based Hygiene Monitor for Senior Citizens and Mentally Challenged	International Journal of Scientific Research in Computer Science, Engineering and Information
	Charitha V	1NH17IS148		
	Varsha Gowda S J	1NH17IS127		
	Judy Kennedy	1NH17IS142		

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				Technology IJSRCSEIT
3	Nithya B S	1NH17IS137	Traffic Analysis Using Artificial Neural Network	International Journal of Scientific Research in Science and Technology
	Rakshitha N	1NH17IS080		
	Sirisha M	1NH17IS102		
4	Sneha M	1NH17IS104	Smart Band for Monitoring Vitals for Elderly People in Quarantine	International Journal for Research in Applied Science & Engineering Technology
	Meghana	1NH17IS135		
	Bhanupriya	1NH17IS046		
5	Joicy Castilino	1NH17IS045	Cost effective social distance maintenance in primary schools	International Journal of Advance Research Ideas and Innovations in Technology
	Harshitha Sundarvelu	1NH17IS139		
	Helen Hephzibah	1NH17IS042		
	Simran Fathima	1NH17IS0101		
6	Purab Shreeniwas A	1NH17IS073	VR simulation of chemistry lab using blender and unity	International Research Journal of Engineering and Technology (IRJET)
	Shijo Yohannan	1NH17IS098		
	Shailesh P.M	1NH17IS094		
	Syed Sahil Abbas	1NH17IS149		
7	A Sassank Gopal Reddy, RS	1NH17IS007	Land Use Case and Utilization Classification using CNN	International Journal of Research in Engineering and Science (IJRES)
	Sathvik Reddy	1NH17IS076		
	T Praneeth	1NH17IS116		
	Vardhini V	1NH17IS125		
8	Hamsa p o	1NH17IS039	Remote Monitoring And Control Unit Of Solar Photo Voltaic Plant Using IoT	International Journal of Research in Engineering and Science (IJRES)
	Anusha k	1NH17IS015		
	Girish R	1NH17IS038		
	Prajwal	1NH17IS069		
9	Sneha B K	1NH17IS103	Face and Hand Gesture Recognition System for Controlling VLC Media Player	International Journal of Scientific Research in Science and Technology
	Sahana K M	1NH17IS088		
	Tejaswini S M Patil	1NH17IS144		
10	Raahul Narayana Reddy K	1NH17IS077	Statistical Analysis and Visualization of Covid-19	International Research Journal of Engineering and Technology (IRJET)
	Prasanna Bhat	1NH17IS071		
	Apurba Bhattacharjee	1NH17IS016		
	Srinivas M	1NH17IS107		
11	Vibhav Giri	1NH17IS129	A communication aid application for the physically handicapped	International Research Journal of Engineering and Technology (IRJET)
	Tarun Sharma	1NH17IS117		
	Sushant Chaudhary	1NH17IS113		
	Kshitij Raj	1NH17IS049		
12	Akhila S	1NH17IS008	Automatic Social Distancing System Using Thermal	International Research Journal of
	Vaishnavi R	1NH17IS124		
	Varna Murali	1NH17IS126		

			Scanners In Huge Auditorium Or Conference Hall Entrances	Engineering and Technology (IRJET)
13	G.S Nithyashree	1NH17IS134	Acoustic Echo Cancellation For E-Learning Platform	International Research Journal of Engineering and Technology (IRJET)
	Ashwin Venkatakrishnan	1NH17IS140		
	S. Karthik	1NH17IS084		
	Aneesh Mohan Kumar	1NH17IS012		
14	Abhinav Anand	1NH17IS002	Designing a prototype for Mentally Challenged and Alzheimer Patients	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Chinmaya Kumar Nayak	1NH17IS027		
	Ayush Anand	1NH17IS017		
	Deepak Kumar	1NH17IS029		
15	Uma Maheshwari	1NH17IS085	Mask Detection Application	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Sahana N Reddy	1NH17IS089		
	Sanjana Sivakumar	1NH17IS091		
16	Nethan Shaik	1NH17IS059	An Enhanced Surveillance Bot for Identification of Mask Defaulters	International Research Journal of Engineering and Technology (IRJET)
	Pavel Anup	1NH17IS011		
	Kirti Devi	1NH17IS048		
	Stevenson Jacob	1NH17IS152		
17	Shami K	1NH17IS096	Feature Learning and Analysis of Pre Existing Conditions Prone to Covid Virus During Second Wave	International Journal of Innovative Research in Technology
	Sharmistha C	1NH17IS097		
	Sowjanya V	1NH17IS106		
	Aneja P	1NH18IS400		
18	Anitha B	1NH17IS013	Automatic Detection of Crimes Captured in CCTV Images for Safety of Senior Citizens	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Disha Singh	1NH17IS034		
	Divya Shree M	1NH17IS035		
	Kushala R	1NH17IS050		
19	Akshay S Prathap	1NH17IS009	Implementation of Voice based Touchless Lift System	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Aiswarya V Kumar	1NH17IS005		
	Raviteja Kaki	1NH17IS047		
	Ranjitha R	1NH17IS075		

Table 2.2.3.G.3: Students Paper Publication for Academic Year 2019-20

S.No	Student Name	USN	Title of Paper	Journal/ Conference Details
1	Abhishek Ranjan	1NH16IS003	Deforestation Control and Forest Monitoring using Internet of Trees	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Gagan Prasad	1NH16IS033		
	Harshitha Shankar	1NH16IS038		
2	Harish E	1NH16IS037	Hand Gesture Recognition and Voice Conversion for Hearing and Speech Aided Community	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Nikhil Jain D	1NH16IS067		
	Nirdesh Reddy	1NH16IS069		
3	Lakshmi K	1NH16IS020	Voice for the Paralytic Victims	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Amithesh K	1NH16IS011		
	Vishak J	1NH16IS123		
4	P Nymisha	1NH16IS070	Covid-19 Visualizer	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Shanmathi Kailasam	1NH16IS100		
	Bhawik Tanna	1NH16IS024		
5	Vijay Hegde S	1NH16IS121	Crop Yield Prediction using Machine Learning Algorithm	International Research Journal of Engineering and Technology (IRJET)
	Yashvanth C V	1NH16IS126		
	S Chandra Kiran	1NH16IS129		
6	Prashanth Paul	1NH16IS083	A review on data science approach towards decision-making	International Journal of Scientific Research in Computer Science, Engineering and Information Technology 2019 IJSRCSEIT
7	Prashanth Paul	1NH16IS081	A Machine Learning Perspective towards Detecting Fake News	International Journal for Research in Applied Science and Engineering Technology
	Prashanth V	1NH16IS084		
	Prem Kumar	1NH16IS086		
8	Muhammad Shahbaz Khan	1NH16IS063	Smart Vision System for Visually Impaired People	International Research Journal of Engineering and Technology (IRJET)
	Sunil K A	1NH16IS112		
	Pramod Sencha	1NH16IS080		
9	Akhilendu	1NH16IS008		

	Anakha A S	1NH16IS012	Fake Indian Currency Note Recognition	International Research Journal of Engineering and Technology (IRJET)
	Meghashree K	1NH16IS059		
10	Vachan B D	1NH16IS123	Landmine Detection Using Wireless Robot	International Research Journal of Engineering and Technology (IRJET)
	B S Deepthi	1NH16IS021		
	Geetha B	1NH16IS016		
11	Janav S	1NH16IS049	Solar based Automatic Speed Control of Vehicles in Sensitive Zones	International Journal of Engineering Research & Technology (IJERT)
	Monisha S M	1NH16IS063		
	Pavan Kumar M G	1NH16IS118		
12	Prapul Kumar A	1NH16IS082	Food and Nutrition Evaluation for the Visually Impaired	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Pawan jewan	1NH16IS075		
	Pavan Kumar	1NH16IS072		
13	N Swetha	1NH16IS064	Charging station for E-Vehicles using solar with IOT	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Malika G	1NH16IS055		
	Pavithra S	1NH16IS073		
14	Anuj prakash	1NH16IS014	Drone Assisted Effective Pesticide Sprayer	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Arnab bhowal	1NH16IS016		
	Monisha taj D	1NH16IS062		
15	Anusha D Singh	1NH16IS015	Human Detection using Unmanned ground vehicle	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Bharani Prabhakaran	1NH16IS022		
	Joshua Linton J	1NH16IS043		
16	Asha K	1NH17IS400	A Review on Bluetooth embedded robot for agriculture applications	International Research Journal of Engineering and Technology (IRJET)
	Sakthi Sridevi	1NH17IS401		
	Manisha Samal	1NH16IS056		
17	Sudarshan C	1NH16IS111	Breast Cancer Prediction Using ML Techniques	International Journal of Engineering Research & Technology
	Pranav Pandhi	1NH16IS081		
	Somya Singh	1NH16IS109		

	Ashwini Holla	1NH16IS018		
18	Sathya N	1NH16IS099	Traffic Surveillance Using Smart Drone	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Likitha R	1NH16IS052		
	Meghana C A	1NH16IS058		
19	Amina Anwar Puthiyaveetil	1NH16IS140	Traffic Density Management using Movable Divider and RFID	International Research Journal of Engineering and Technology (IRJET)
	Ramakanth A	1NH16IS089		
	Samya Mannuru	1NH16IS096		
20	Koushalya R	1NH16IS050	Color Blindness Algorithm Comparison for Developing an Android Application	International Research Journal of Engineering and Technology (IRJET)
	Vishal Roshan J	1NH16IS124		
	Gowtham M N	1NH16IS035		
21	A.Amir Sohail Baig	1NH16IS010	Heart arrhythmia Detection using Deep Learning	International Research Journal of Engineering and Technology (IRJET)
	Amal Singh Bhadauria	1NH16IS009		
	Hemanth Kumar	1NH16IS039		
22	Vrinda Raveendran	1NH16IS125	Machine Learning approaches on Diabetic Retinopathy Prediction	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Sri Vidya B M	1NH17IS403		
	Tejavati Hedge	1NH16IS115		
23	Aashika M suresh	1NH16IS001	Solar Energy Equipped IoT Based Vacuum Cleaner	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Nikita nanju K	1NH16IS068		
	Sanjana V	1NH16IS097		
24	Abhishek Kumar	1NH16IS002	Implementation of Improved Billing System	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Ishu Kumar	1NH16IS040		
	Vathsavi Venkat	1NH16IS143		
25	Siddharth Indoria	1NH16IS105	A literature review on sentiment analysis	International Journal of Scientific Research in
	Sinchana Bhaskar	1NH16IS107		

	Sharan Gouda	1NH16IS101		Computer Science, Engineering and Information Technology
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Table 2.2.3. G.4. List of Funded/Sponsored Projects- Academic Year-2022-23

Sl.no	Project No	Title of the Project	Funds provided (INR in lakhs)	Name of the Funding agency	Type (Government/ Non-Government)	Year of Award
1	46S_BE_0876	A STUDY ON COMMUNICATION SKILL AND PERSONALITY TRAITS DETECTION USING AVI	5000	46 th Series KSCST	Government	2022-23
2	46S_BE_1864	A NOVEL APPROACH TO RECORD AND NARRATE THE SUMMARY OF CONVERSATION FOR ALZHEIMER PATIENTS	5000	46 th Series KSCST	Government	2022-23
3	46S_BE_4419	MULTILINGUAL TOXIC COMMENT CLASSIFIER	4000	46 th Series KSCST	Government	2022-23
4	46S_BE_3719	AN APPLICATION TO SCAN THE RESUME USING NLTK AND SPACY	3000	46 th Series KSCST	Government	2022-23
5	46S_BE_1112	(NALINA RAITHA) GREENWORKLINE- AN AI BASED ASSISTANT FOR SELF FARMING	3000	46 th Series KSCST	Government	2022-23
6	46S_BE_1330	BIOMETRIC AUTHENTICATION IN ATMS USING RFID	4000	46 th Series KSCST	Government	2022-23
7	46S_BE_1008	WIRELESS VOICE CONTROLLED ROBOT	5000	46 th Series KSCST	Government	2022-23
8	46S_BE_5443	QR CODE BASED AUTHENTICATION FOR LOGIN / PAYMENT	3500	46 th Series KSCST	Government	2022-23
9	46S_BE_3748	AUDIO AND TEXT TO SIGN LANGUAGE CONVERTER	4000	46 th Series KSCST	Government	2022-23

Table 2.2.3.G.5:List of Funded/Sponsored Projects- Academic Year-2021-22

1.	45S_BE_1635	ಗಾಂಡಿಗಳವತ್ ಹೆಚ್ಚುವಿಕೆ – (Enhancement) ANDROID BASED APPLICATION TO DETECT POTHOLES AND UNEVEN ROADS	6000	45 th Series KSCST	Government	2021-22
2.	45S_BE_3116	ಭದರ ತಾಂತ್ರಿಕತೆ – A RASPBERRY PI BASED ROBOTIC DEVICE FOR WOMEN SAFETY	5000	45 th Series KSCST	Government	2021-22
3.	45S_BE_3117	ಸುರಕ್ಷಿತ ತಾಂತ್ರಿಕತೆ : SECURE HAVEN – AN ANTI-THEFT APPLICATION FOR ANDROID	4500	45 th Series KSCST	Government	2021-22
4.	45S_BE_3118	ಆರೋಗ್ಯದ ದಾಖಲೆಗಳ ಸುರಕ್ಷಿತ ಸಂಗ್ರಹಣೆ : HYBRID CRYPTOGRAPHIC TECHNIQUE FOR SECURED STORAGE OF HEALTH RECORDS	4500	45 th Series KSCST	Government	2021-22
5.	45S_BE_3125	ಸ್ವಯಂಚಾಲಿತ ಕಸುಬು ಸಂಗ್ರಹಣೆಗಾಗಿ ಡೈನಾಮಿಕ್ ರೂಟ್ ಸೆಡ್ಯೂಲ್ : DYNAMICRoute SCHEDULE FOR GARBAGE COLLECTION.	5000	45 th Series KSCST	Government	2021-22
6.	45S_BE_3126	APP FOR ENHANCED LOGISTICS AND EFFECTIVE MANAGEMENT OF E-WASTE	3000	45 th Series KSCST	Government	2021-22
7.	45S_BE_3129	IOT BASED SYSTEM FOR SANDALWOOD TREES PROTECTION AND CULTIVATION	5000	45 th Series KSCST	Government	2021-22

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8.	45S_BE_3132	CUSTOMER FRIENDLY IOT BASED TOUCH LESS SHOPPING.	5000	45 th Series KSCST	Government	2021-22
9.	45S_BE_3134	E-TRAFFIC POLICE IOT BASED AUTO-DETECTION OF TRAFFIC RULE VIOLATION	5000	45 th Series KSCST	Government	2021-22
10.	45S_BE_3152	OPTIMIZATION IN SOLAR ENERGY HARVESTING	5000	45 th Series KSCST	Government	2021-22
11.	45S_BE_3163	e-ಶರವಣಬಲಿಃ e HEARING AID	5000	45 th Series KSCST	Government	2021-22
12.	45S_BE_3381	E-ASSISTANT: SUPPORT FOR ELDERLY/PARKINS ON PATIENTS	5000	45 th Series KSCST	Government	2021-22

Table 2.2.3.G.6:List of Funded/Sponsored Projects- Academic Year-2020-21

1.	44S_BE_0064	ACOUSTIC ECHO CANCELLATION FOR E-LEARNING PLATFORM - ಪರ ತಿಧ್ಲಿ ನಿರದ್ಲಿ	3000	44 th Series KSCST	Government	2020-21
2.	44S_BE_0071	FEATURE LEARNING AND ANALYSIS OF PRE EXISTING CONDITIONS PRONE TO COVID VIRUS DURING SECOND WAVE USING BINARY MARKOV RANDOM FIELDS	3000	44 th Series KSCST	Government	2020-21
3.	44S_BE_0082	3ಡಿಢುರತಢುರ : 3D PRINTED MODEL FOR TOOTHBRUSH WITH TOOTHPASTE POUCH FOR ELDERLY	4000	44 th Series KSCST	Government	2020-21

Table 2.2.3.G.6:List of Funded/Sponsored Projects- Academic Year-2019-20

1.	43S_BE_2699	ಮಾನಸಿಕ ಆರೋಗ್ಯ ಯ :CHATBOT FOR MONITORING MENTAL HEALTH	4500	43 rd Series KSCST	Government	2019-20
2.	43S_BE_2702	SMART GLASSES FOR VISUALLY CHALLENGED PEOPLE	4500	43 rd Series KSCST	Government	2019-20
3.	43S_BE_2710	ಕೃಷಿಗಾರಿಕಾಯಂತ್ರ - “BLUETOOTH EMBEDDED ROBOTIC WITH AGRICULTURE PLOWING, SEEDING AND GRASS CUTTING POWERED BY SOLAR ENERGY	4500	43 rd Series KSCST	Government	2019-20
4.	43S_BE_2713	ಪ್ರಾಣಿ ಯವಾಯವರಿಗೆ ಧ್ವನಿ ನಿ: “VOICE FOR PARALYTIC VICTIMS	4500	43 rd Series KSCST	Government	2019-20



2.2.4 Initiatives related to Industry Interaction (10)



Program curriculum provides various ways for industry interaction in addition to the initiatives taken by the management. The ISE department has signed MoU with VMWare IT Academy, Eurifins IT Solutions Lab and 5G communication Lab. In addition to these, the institute has various Center of Excellences which are listed in the table 2.2.4.A.1.


2.2.4.A Industry supported laboratories (2)



The industry supported laboratories develop best learning process using a comprehensive understanding of industry’s best practices for both students and faculties. This initiative imbibes professionalism, behavior aspects and awareness about industry expectations and also aligns aspirations of the students with the needs of the industries and promotes career counseling by organizing guidance lectures by senior corporate personnel. The industry supported Laboratories details are shown in Table 2.2.4.A.1


Table 2.2.4.A.1 Details of Industry supported Laboratories


Sl.No	Name of the Company	Objective	Outcome
1.	VMWare ITAcademy 	<ul style="list-style-type: none"> The Program is designed to introduce students to VMware technologies and equip them with technical skills needed for the modern IT world. Faculty/ Students will gain access to technology and contents from VMware, which in turn prepare them for the new IT world. 	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2 <ul style="list-style-type: none"> To introduce the students to Virtualization & Storage concepts and equip them with technical skills needed for the modern IT World. Faculty & Students have been granted access to Technology, Course content and softwares from VMware. Regular Faculty Development Programmes and Workshops conducted by VMware official Courses are offered as an elective
2.	Eurofins IT Solutions Lab 	<ul style="list-style-type: none"> To develop an international framework of “academic-industry” links, training program in continuing education for technical teachers, training of young engineers and technicians and to prepare them for the job market in the field of computers. 	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2 <ul style="list-style-type: none"> Faculty at NHCE received training on C# & .Net at Eurofins company by their expert team The lab serves as an excellent platform for developing real time application and serve research environment for students to work on efficiently
3.	CISCO Networking Academy	CCNA Routing and Switching	PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12



		<p>provides an integrated and comprehensive coverage of networking topics, from fundamentals to advanced applications and services, while providing opportunities for hands-on practical experience and career skills development.</p>	<p>PSO1, PSO2</p> <ul style="list-style-type: none"> • To inculcate networking skills to meet the current and future needs of the Information Technology (IT) industry. • To enrich the young minds with intellectual, technical and practical skills for serving the fast growing industry. • NHCE gets access to all resources, course materials, services, websites or other deliverables • The Cisco CCNA Routing and Switching curriculum is designed for Cisco Networking Academy to pursue more specialized ICT skills.
4.	<p>Schneider Electric India Private Limited</p> 	<ul style="list-style-type: none"> • Framing Curriculum according to industry standards and using state-of-the-art industry device software. • Giving industrial exposure in the field of Industrial & Building Automation and bringing opportunities for mutual growth. • Providing a platform for experimental learning through 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <p>Training the students in the basics for industrial automation: equipment, architecture, design, input output connection, programming language, software programming, enabling the graduates to work in modern</p>


		<p>projects, training, hands on workshops and internships.</p> <ul style="list-style-type: none"> • Opening a two way communication between institution and industry with various opportunities. 	<p>industries.</p> <ul style="list-style-type: none"> • Student Exchange Program • Study Abroad Program • Training the different industry partners of Schneider Electric India. • Various Industry Institute Interaction programs in the form of FDP's, Workshops and Industrial Visits.
5.	<p>HP Vertica</p> 	<ul style="list-style-type: none"> • The objective is to make fresh engineers and business management graduates more capable, creative & have innovative approach in thinking. • To develop resources those can be absorbed from College & ready to perform in various sectors like Banking, Telecom, Manufacturing, E-commerce, Retail etc. • HP will be engaged in overall development of students will invite Industry professional to enhance Big Data Analytics skills through hands on sessions, guest lecturers etc. 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • To give students on two major insight on big data platforms: VERTICA and HADOOP • Regular Faculty Development Programmes and Workshops conducted on Big Data technologies. • Both circuit and non-circuit branch students learn the courses offered by this lab to make a career in data analytics




6.	<p>SAP Next Generation Lab</p> 	<ul style="list-style-type: none"> To mould the students to become industry ready by empowering them on fundamentals of ERP and machine learning and to advance the knowledge on SAP by providing hands-on sessions for different case studies 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> SAP Nextgen lab provides learning platform in various technologies like SAP-ERP so that students can build their career as a techno functional consultant. SAP also provides learning on most emerging technologies like machine learning and AI so that students can get exposed to trending programming knowledge like Python and R. SAP next-gen club associated with this lab regularly conducts hands on sessions in various technologies
7.	<p>Amazon</p> 	<p>To inculcate the students to Build, Deploy and Manage sites, Apps or Processes as services in Cloud environments.</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> All branches of Engineering Students can opt AWS tools as an open elective to earn credit as approved in the curriculum. To enhances the employability quotient of the students across IT industry including Amazon. Students registered under this



			program are also provided an opportunity to pursue AICTE approved internship with Amazon
8.	<p>Capgemni Industry 4.0Lab</p> 	<p>To provide platform to create an ecosystem of resources for the digital needs in industrial segment and providedigital solutions from the engineering service industry and enhance their knowledge in Industry 4.0 through classroom and online trainings, hackathon and live projects.</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <p>Industry 4.0 lab will serve as a platform to create an ecosystem of resources for the digital needs in industrial segment.</p> <ul style="list-style-type: none"> • To interact with subject matter experts in the digital solutions from the engineering service industry and enhance their knowledge in the field of Industry 4.0. • The students will be mentored through online trainings, hackathon and live projects. • Students are provided with internship and full time offer by Capgemini. • Live and interactive projects will be provided and mentored by Capgemini experts. • Visit by the students to Capgemini and freedom to interact with Capgemini Experts on technical solutions



			<p>to projects.</p> <ul style="list-style-type: none"> • Visit to IoT related Technical Expos and Conferences.
9.	<p>IBM Open PowerLab</p> 	<p>Artificial enables creation of intelligent machines and through the establishment of COE for AI our endeavor is to create Intelligent humans</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • Conducting research on rapidly advancing AI technologies • Enabling and facilitating industry-academia partnerships in research and development and fostering relationships through collaborative projects • Encouraging cross-disciplinary research in applied computing, in critical scientific and industrial domains, via research proposal submissions to funding agencies • Providing a state-of-the-art R&D facility for students, faculty and collaborators • Offering a comprehensive and meaningful computing environment for education by complementing the theoretical coursework with appropriate • laboratory coursework for

			students, and encouraging team participation and cross-disciplinary problem solving
10.	<p>Robotic Process Automation</p> 	<ul style="list-style-type: none"> • To enhance the problem-solving skills, critical thinking and design thinking skills for creating bots to serve in socio-economic perspectives • To create their digital workforces and transform the way they operate, enabling them to manage and scale business processes with unprecedented speed. 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • Faculty at NHCE have received training at Automation Anywhere premises on IQ BoT • They also got BoT insight to gain real-time, actionable insights into BoT activity across the enterprise for your digital workforce. • NHCE incorporated Robotic Process Automation into its curriculum.
11.	<p>Capgemini PLM Lab</p> 	<p>To Develop students and make them industry ready by imparting the current trends of technology. Newer learning methods by industry and academia experts in the field of PLM</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <p>The Digital Engineering and Manufacturing services lab will open several opportunities for students in the field of Project Life Cycle Management. PLM Software on 3D Experience by Dassault will be used to train the students. The faculty have undergone an exclusive faculty development program on the same.</p>

12	<p>CapgemniVLSI Lab</p> 	<p>To mould the students to thrive in a constantly growing semiconductor industry focusing on innovation and productivity</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • Capgemini Engineering accelerates end-to-end design, implementation • and testing for ASICs, SoCs and FPGAs: from spec to silicon. RTL to • GDSII turn key delivery. • This Centre of excellence has greater focus towards Chip Design and Physical Design of VLSI. • Faculty & Students have great access to Technology, Course content, software. • 90 ECE and EEE Students enrolled for this program are being trained and hired by Capgemini Engineering along with internship. • Massive Open Online Courses on Physical Design (VLSI) is encouraged. • Students perform the synthesis, floor planning, placement and routing as per the industrial standards using state of the art tools.
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13	<p>Altair</p> 	<ul style="list-style-type: none"> To train students and educators for creating better ML model by accumulating the knowledge, innovation, skills development, and diversity in AI technology. To create an AI professional with adequate knowledge to interpret both structure & unstructured data. 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> Students can be certified by attending the certification examination provided by the Altair University, which is an added advantage for Internships and placement opportunities. Students and Research scholars will start working on the advanced technologies will enable them to work on many real time projects.
14	<p>5G Communication Lab</p> 	<p>To explore the avenues of Next-Gen communication and to address the promising applications of 5G systems</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> Faculty members also undergo various certification courses on 5G technology. Exclusive sessional talks and workshop are conducted on 5G by experts from Capgemini engineering.
15	<p>Fanuc Robotics</p> 	<p>To make the students industry-ready by enriching them with intellectual, technical and practical skills in the field of Industrial Robotics and Automation.</p>	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> Students are provided with internship certification programs by Fanuc India Ltd. Visit by the students to Fanuc India and freedom to interact with Fanuc India

			<ul style="list-style-type: none"> • Experts on technical solutions to industrial automation projects. • Faculty & Students have access to Robo-guide software, lab manual and Robot specifications for automation programming. • Faculties of Fanuc India Lab have undergone extensive training program for teaching this course.
16.	<p>Intel</p> 	<ul style="list-style-type: none"> • To inculcate an industrial environment in VLSI Design for innovation and enablement in semiconductor industry • To make students acquire and contribute to front end VLSI design and make a difference in the society by innovating novel ways of modelling digital system 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • Intel lab aims at producing the next generation of FPGA designers. • Faculty members have undergone rigorous training program by experts from Intel • Faculty members & Students have academic access to the latest generation of Intel • FPGAs and can engage in research on Intel FPGA
17.	<p>Siemens</p> 	<ul style="list-style-type: none"> • To impart technical skills in Machine learning, Data Analytics, Industrial IoT Technologies. • To strengthen the research culture of the institute by offering Research and Consultancy • To provides a platform for digital 	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • The industry provides industry- based courses to the students.

		transformation.	<ul style="list-style-type: none"> • Students become skilled in automation services, cloud platforms and technologies, cybersecurity etc. • Students are benefitted with Internship opportunities and work on industry projects to gain real world experience.
18.	<p>Juniper Networks</p> 	To make the student industry ready by enabling them to be responsible for configuring and monitoring devices running the Junos OS.	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <p>Faculty at NHCE received training at Juniper company LMS.</p> <ul style="list-style-type: none"> • The courses are provided a brief overview of the Junos device families architectural components of the software and delves into foundational routing & configuration. • Students are trained by experienced faculty • Regular FDP's and workshops conducted by Juniper official
19.	<p>Brillio</p> 	To shape the industry relevant curriculum that includes contextual digital strategy and technology big bells with hands on immersive program enabling engineers to be industry ready.	<p>PO1, PO2, PO3, PO4, PO5, PO6, PO9, PO10, PO11, PO12 PSO1, PSO2</p> <ul style="list-style-type: none"> • Training the students and enabling them to work in modern industries. • Promoting knowledge spill-overs from the laboratories to

Criterion-2 Program Curriculum and TLP



			<p>the industry.</p> <ul style="list-style-type: none">• Designing special industry focused curriculum for students.• Faculty development programs and workshops for faculty.• Building core engineering skills through hands on training in new age technologies.• Build modern data architectures to accelerate decision making.
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Figure 2.2.4.A.1: Industry supported Laboratories - VMWARE LAB



Figure 2.2.4.A.2: Industry supported Laboratories – Eurofins IT Solution LAB

2.2.4. B Industry involvement in the program design and curriculum (3)

Involvement of industrial experts in curriculum design plays a vital role in acquiring the required knowledge in current IT trends. The list shown in Table 2.2.4.B.1 contains the involvement of industrial experts in the designing the curriculum from the year 2019 to 2023. Through learning such industry aligned courses, the students learn the current and most demanded industry requirements and practices. This enables the students to consider appointing them in projects from the day 1 after their appointment. Industrial experts suggest the curriculum with current trends that are needed for industries.

Table 2.2.4.B.1 : Industry BOS members

Sl No	Industry Expert	Expert Details	Academic Year
1	Ms. Madhuvanathi Ravi	Global Manager (India, Asia, Europe) Talent Acquisition and attraction, A.P.Moller – Maersk, Bengaluru	2022-2023
2	Mr. Sachinkumar R S	Regional Program Manager, IT Academy, Asia-Pacific & Japan, VMware, Bengaluru	2022-2023
3	Mr. Prashanth V	Alumni-Project Manager, Trinity Mobility, Bengaluru	2022-2023
4	Mrs. Sannutha S Holla	Alumni -Technical Program Manager, Harman International, USA	2022-2023
5	Mr. VenkatSurendra	Alumni -Consultant , Deloitte consulting, Bengaluru	2022-2023
6	Ms. Pavitra Nagendrappa	Alumni -Colleague Support Engineer, VMware, Bengaluru	2022-2023
7	Ms. Madhuvanathi Ravi	Global Manager (India, Asia, Europe) Talent Acquisition and attraction, A.P.Moller – Maersk, Bengaluru	2022-2023
8	Mr. Sachinkumar R S	Regional Program Manager, IT Academy, Asia-Pacific & Japan, VMware, Bengaluru	2022-2023
9	Mr. Prashanth V	Alumni -Project Manager, Trinity Mobility, Bengaluru	2022-2023
10	Mr. Venkat Surendra,	Alumni -Consultant, Deloitte consulting, Bengaluru	2022-2023
11	Ms. Madhuvanathi Ravi	Global Manager (India, Asia, Europe) Talent Acquisition and attraction, A.P.Moller – Maersk, Bengaluru	2021-2022
12	Mr. Sachinkumar R S	Regional Program Manager, IT Academy, Asia-Pacific & Japan, VMware, Bengaluru	2021-2022
13	Mrs. Sannutha S Holla	Alumni-Technical Project Management, Analytics, Intel	2021-2022
14	Ms. Pavitra Nagendrappa	Alumni-Colleague Support Engineer, VMware, Bengaluru	2021-2022

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15	Mr. Venkat Surendra,	Alumni -Consultant, Deloitte consulting, Bengaluru	2021-2022
16	Mr.Deva P.Seetharam	Co-Founder and Entrepreneur, Dataglen Technologies Pvt.Ltd, Bengaluru	2020-2021
17	Mr. Sachinkumar R S	Regional Program Manager, IT Academy, Asia-Pacific & Japan, VMware, Bengaluru	2020-2021
18	Mrs. Sannutha S Holla	Alumni-Technical Project Management, Analytics, Intel	2020-2021
19	Ms. Pavitra Nagendrappa	Alumni -Colleague Support Engineer, VMware, Bengaluru	2020-2021
20	Mr. Venkat Surendra,	Alumni -Consultant, Deloitte consulting, Bengaluru	2020-2021
21	Mr.Deva P.Seetharam	Co-Founder and Entrepreneur, Dataglen Technologies Pvt.Ltd, Bengaluru	2019-2020
22	Mr. Sachinkumar R S	Regional Program Manager, IT Academy, Asia-Pacific & Japan, VMware, Bengaluru	2019-2020
23	Mr.Ranjan Das Gupta	Alumni -Team Leader and Business Analyst, British Telecom Bengaluru	2019-2020

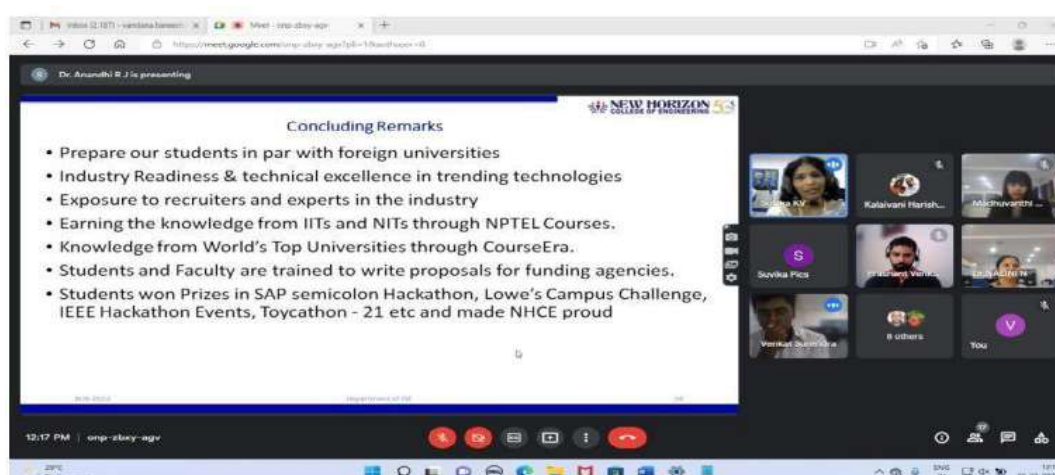
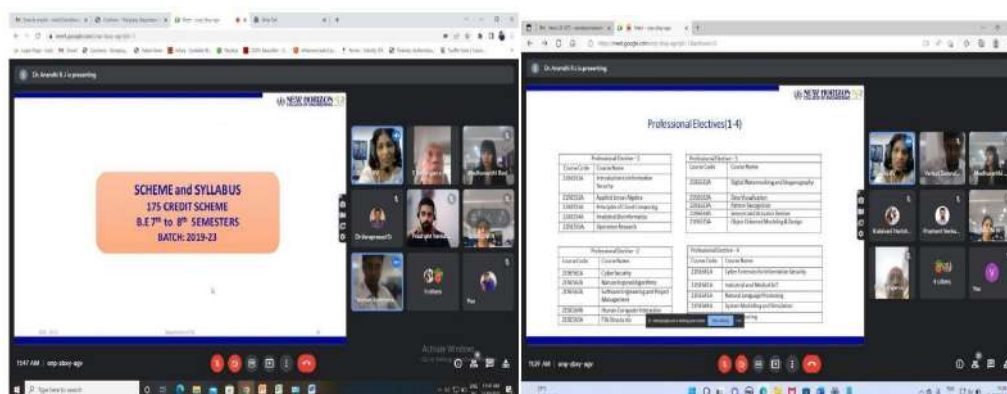


Figure 2.2.4.B.2: BOS Meeting of Academic Year: 2021-2022

Additionally Open Electives Syllabus is also been designed from the industry experts are included in the curriculum and the same is shown in Table 2.2.4.B.3

Table 2.2.4.B.3: List of Open Electives Designed by Industries Experts

Sl. No	Industry Associated with Centre of Excellence	Course Code	Course Name	Department
1.	MICRO FOCUS	20NHOP601	Big Data Analytics using HP Vertica- 1	CSE
2.	VMWARE IT Academy	20NHOP602	VMWare VirtualizationEssentials-1	ISE
3.	SAP Labs	20NHOP607	SAP	ME
4.	Schneider	20NHOP608	Schneider - Industrial Automation	EEE
5.	Cisco	20NHOP609	Cisco - Routing & Switching - 1	ECE
6.	Micro Focus	20NHOP614	Blockchain	CSE
7.	Capgemini	20NHOP615	Product LifeCycle Management	ME
8.	IBM	20NHOP619A	AI Data Analysis with Python	AI&ML
9.	Automation Anywhere	20NHOP620A	Robotic Process Automation	CSE
10.	Capgemini	20NHOP621A	Industry 4.0	ME
11.	Fanuc	20NHOP622A	Programming of Industrial Robot	ECE
12.	Capgemini	20NHOP623A	5G Communication	ISE
13.	Eurofins	20NHOP624A	C# and .Net	ISE
14.	Capgemini	20NHOP625A	VLSI PhysicalDesign-I	ECE
15.	AWS Academy	20NHOP627A	AWS Fundamentals	CE

2.2.4.C Industry involvement in partial delivery of any regular courses for students (3)

The curriculum provides significant space for having interaction with industry experts. The industry aligned courses are offered in various categories as follows:

- Complementary Course Offering by Industries to Students:
- Workshop conducted by Industry Experts
- Guest Lectures Conducted by Industry Experts
- Training Provided by Industries to Student
- Value Added Course Provided by Industries to Student

Table 2.2.4.C.1: List of Expert lectures conducted by Industry experts AY: 2022- 2023

S.No	Date	Topic Name	Semester	Resource Person Name
1.	16/08/2022	Deep Learning for computer vision	7 th Semester	Dr. Tausif Diwan Professor and Head of CSE, IIIT Nagpur, Maharashtra
2.	02/11/2022	Evolving nature of cyber security crime in the present era	5 th Semester	Mr. Shashidhar T.K Principal Consultant, Data Security Council of India, Bengaluru
3.	08/11/2022	Product Management	5 th Semester	Ms. Rinku Stephen Product Manager, Microsoft, Bengaluru
4.	11/11/2022	Role of IT Sector in Virtual Reality	8 th Semester	Dr.Brindha Associate Professor, NIT- Tiruchirapalli
5.	23/12/2022	Machine Learning and its applications	5 th Semester	Mr. Darpan Majumder, Principal Engineer, Zebra Technologies
6.	06/01/2023	IT Industry and its evolution	3 rd Semester	Mr. Asim Parveez Technical Account Manager, Chargebee Technologies, Bangalore
7.	02/02/2023	1)How will you Measure your life 2) How to figure out what you really want 3)Become the personyou can't imagine	3 rd Semester	1)Mr. Clay Christensen 2)Mr. Norman Bacal 3)Mr. Ashlev Stahl Academic & Business Consultant at world Economic Forum, Author, Motivational Speaker, canada Journalist, Career Coach, USA

8.	03/02/2023	Understand Cyber Security and Career Opportunities	3 rd Semester	Mr. Satyam Jakkula Senior Program Manager, IBM, Bengaluru
9.	13/04/2023	Awareness on intellectual property rights and application filing	6 th Semester	Mrs. Sabari Banu Women Scientist, Government NIPAM Volunteer, New Delhi
11.	8/04/2023	Cloud AWS	6 th Semester	Mr. Satish N Subramanyam, Trainer, Alpha Tech Technology
12.	8/04/2023	Overseas Education	6 th Semester	Mr Nanjappa Marketing manager, Edwise International Consultants
13.	31/05/2023	TEDX Expert Talk	6 th Semester	Imran Chaudhri Greg Brocknan Clive Loseby
14.	13/06/2023	Relevance of DS Algorithm in today's Software Development	4 th Semester	Mr P Maheshwaran Principal Fullstack Engineer, Connect & Heal Care Pvt Ltd, Bangalore
15.	14/06/2023	TEDX Expert Talk	4 th Semester	Ali Hajimiri Lonneke Gordijin Sal Khan

Table 2.2.4.C.2: List of Expert lectures conducted by Industry experts AY: 2021- 2022

	Date	Topic Name	Semester	Resource Person Name and Designation
1.	29/07/2021	Security for the internet of drones	6 th Semester	Dr. Vasileios Vasilakis University of York England
2.	24/07/2021	Agile Methodology	4 th Semester	Mrs. Harsha Menda Application Developer and Developer and Analyst Senior Consultant, Bangalore
3.	29/01/2022	Application Layer and	8 th Semester	Mr. Prasad Vukoti Sr Embedded Software Er. Robert Bosch Engineering and Business Solution Pvt Ltd Bangalore

4.	19/01/2022	Automation testing tools and application	8 th Semester	Ms. Padmashree Automation Test Engineer, Accenture, Bangalore
5.	23/05/2022	Future of Deep Learning	4 th Semester	Dr. Debbie Rankin Course Director, Ulster University, Ireland
6.	15/06/2022	Convolution Neural N/W	6 th Semester	Mr. Shaurya Sinha Software Developer Fastenal
7.	15/06/2022	Embedded SQL	4 th -Semester	Mr. Vaibhav Nandkule, Senior Consultant Prowess software, Hyderabad
8.	20/06/2022	Operating system concepts and case study using power Systems	4th-Semester	Dr.Satyadhyan Chickerur, Quantum Computing
9.	15/06/2022	Embedded SQL	4 th -Semester	Mr. Vaibhav Nandkule, Senior Consultant Prowess software, Hyderabad
10.	20/06/2022	Operating system concepts and case study using power Systems	4th-Semester	Dr.Satyadhyan Chickerur, Quantum Computing

Table 2.2.4.C.3 : List of Expert lectures conducted by Industry experts AY: 2020- 2021

Sl. No.	Date	Topic Name	Benefitted Semester	Resource Person Name
1.	22/07/2020	Latest updates in the field of Data Science Machine Learning	4 th & 6 th Semester	Dr. Kai Qin, Dr.Sebastain, Swinburne University (Australia)
2.	19/09/2020	Digital Signature in Webapplication	5 th Semester	Aditya Srivastav, Wipro Technologies, Bengaluru
3.	23/10/2020	.NET MVC	3 rd & 5 th Semester	M d Faisal Alam Capgemini India Pvt Ltd. Bangalore
4.	07/11/2020	Cloud Computing	3 rd & 5 th Semester	Vinya Reddy DELLEMC Bangalore
5.	4/12/2020	GOLANG	4 th Semester	Rajendra, NRMinds Bangalore

6.	20/04/2021	Applications of Web Technology	6 th Semester	Mr.PMaheshwaran
7.	20/04/2021	Sales force in Cloud computing	6 th Semester	Padmashree. M
8.	24/06/2021	Microsoft Azure in Cloud Computing	4 th Semester	Mrs.Malini
9.	25/06/2021	Cyber Security	4 th Semester	Mr.Samarth Bhaskar Bhat.

Table 2.2.4.C.4 : List of Expert lectures conducted by Industry experts AY: 2019- 2020

Sl. No.	Date	Topic Name	Benefitted Semester	Resource Person Name
1.	26/10/2019	Software Engineering and best practices in Industry	5 th Semester	Mr. Darpan Majumder, Principal Engineer, Symbol Technologies Indian Pvt. Ltd. ,Bangalore
2.	14/09/2019	Machine Learning Algorithms and its applications	7 th Semester	Mr. Vinay M Haritsa, Data Science Engineer, Vtricks Technologies iweave solutions Pvt. Ltd., Bangalore
3.	14/09/2019	Transactions Management in Database	5 th Semester	Mrs. Deepthi Lakshmi, Arisa-Demo Solutions Manager, SAP Labs, Banagalore
4.	11/09/2019	Data Structures and its Application	3 rd Semester	Mr.Nagesh V Operational Head, Trinity solutions, Bangalore
5.	27/08/2019	Technology Trends And Industry in Future	5 th Semester	Mr.Veerendra V, Schneider Electric, Bangalore

Value Added Course by Industry experts

Higher education institutions must augment the curriculum to better educate students to meet industry demands while also allowing them to develop their own interests and aptitudes. Value Added Courses (VAC) offered on a regular basis in ISE department ensures the above. These classes are taught by professionals and industry experts, and they help students stand out in the job market by adding value to their resumes. Each value-added course syllabus will be prepared by the Industry Expert with minimum experience of 4 years. The 45 hours course syllabus, after being duly approved by the BoS, will be offered to the students. The Table 2.2.4.C.5 shows the value-added courses offered by industries to the students. The Value added short term training is also executed in the department which aims to provide additional learner centric, skill oriented technical training, with the primary objective of improving the employability skills of students.

The main objectives of the program are:

1. To provide students an understanding of the expectations of industry
2. To improve employability skills of students.
3. To bridge the skill gaps and make students industry ready.
4. To provide an opportunity to students to develop interdisciplinary skills.

Table 2.2.4.C.5: List of Value Added Course by Industry experts AY: 2018-22

Sl.No	Program	semester	No. of hours	No. of Global Professional students	Status
1.	AWS	VIII	42	52	Completed
2.	Full Stack Web Development	VII	42	52	Completed
3.	Cyber Security	VI	42	52	Completed
4.	IOT Based Applications	IV	42	52	Completed

2.2.4.D Impact analysis of industry institute interaction and actions taken thereof (2)

The students of the department have shown keen interest to undertake courses offered by the Centre of Excellences. Students have successfully completed the enrolled courses. There is an enhancement in the employability of students and also it is observed that POs and PSOs attainment has increased.

Impact of Industrial MoUs

- Two industrial labs “VMware IT Academy” and “Eurofins IT Solutions Lab” are established, which acted as a catalyst for various student projects and faculty research.
- Faculty Training in terms of FDP are organized for various industry-oriented courses. The knowledge is inculcated in the teaching-learning process.
- Technical training is conducted to the students as part of training in relevant courses.

Impact of Industrial Experts in Curriculum and Syllabus

- Stream oriented professional electives are included in the curriculum. Periodic revision of syllabus on state-of-the-art courses are carried out to meet the current industrial standards.
- MOUs also provide means to introduce courses offered by industry experts in the curriculum. Get opportunity to express skills required as per industry need.
- Guest lectures by industry experts.
- Membership of industry experts in Department BoS and Department Advisory committee.
- Industrial visits by students.
- Student Project works with involvement of industry

Industry supported Laboratory activities conducted in VMWare IT Academy

Table 2.2.4.D.1: VMWare IT Academy Activities

Sl.no	Event Name	Trainers /Participants	Date
1	VMware Forum 2K19	Mr. Jackie Barker Weeks, Global Program Manager, USA, Mr. Sachin Kumar, Regional Manager, India	14/09/2019
2	VITA Day	Self-Paced Online certification for students	25/01/2020
3	Five Day Virtual FDP on VMware vSphere	Mr. Sachin Kumar, Regional program Manager, VWARE Mr Rohit Sachdev, Technical Evangelist, VMWARE INDIA,	22/06/2020-26/06/2020

2.2.5 Initiatives Related to Industry Internship /Summer Training (10)

2.2.5 A. Industrial training/tours for students (2)

The department organizes industrial visits for students once in semester to relevant organizations/companies to enable the students to experience the practical implementation of theoretical knowledge in real world. This gives them an insight of the work culture ethics prevailing in Industries.

Table 2.2.5.A.1: Industrial Visit

Sl. No.	Organization	Date of Visit	Outcomes
1	IISC Bangalore	04/03/2023	PO1, PO2, PO3, PO6, PO7, PO9, PO11, PO12, PSO1, PSO2
2	Bluelearn	27/03/2023	PO1, PO2, PO3, PO6, PO7, PO9, PO11, PO12, PSO1, PSO2
3	IISC Bangalore	29/02/2020	PO1, PO2, PO3, PO6, PO7, PO9, PO11, PO12, PSO1, PSO2
4	Schneider Electric R&D labs	29/10/019	PO1, PO2, PO3, PO6, PO7, PO9, PO11, PO12, PSO1, PSO2
5	Bharat Fritz Werner	13/09/2019	PO1, PO2, PO3, PO6, PO7, PO9, PO11, PO12, PSO1, PSO2

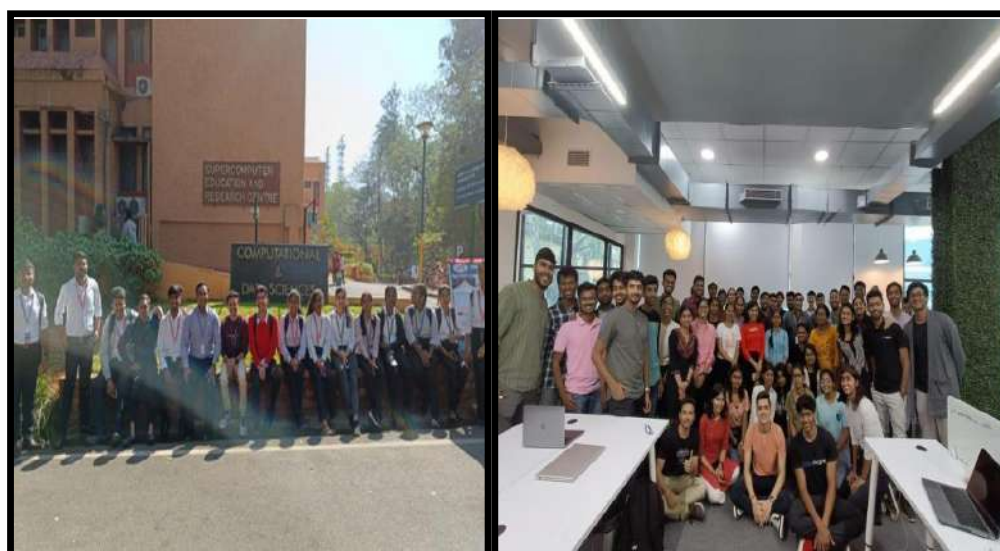




Figure 2.2.5.A.1: Visit to IISC Bangalore



Figure 2.2.5.A.2: Visit to Bluelearn

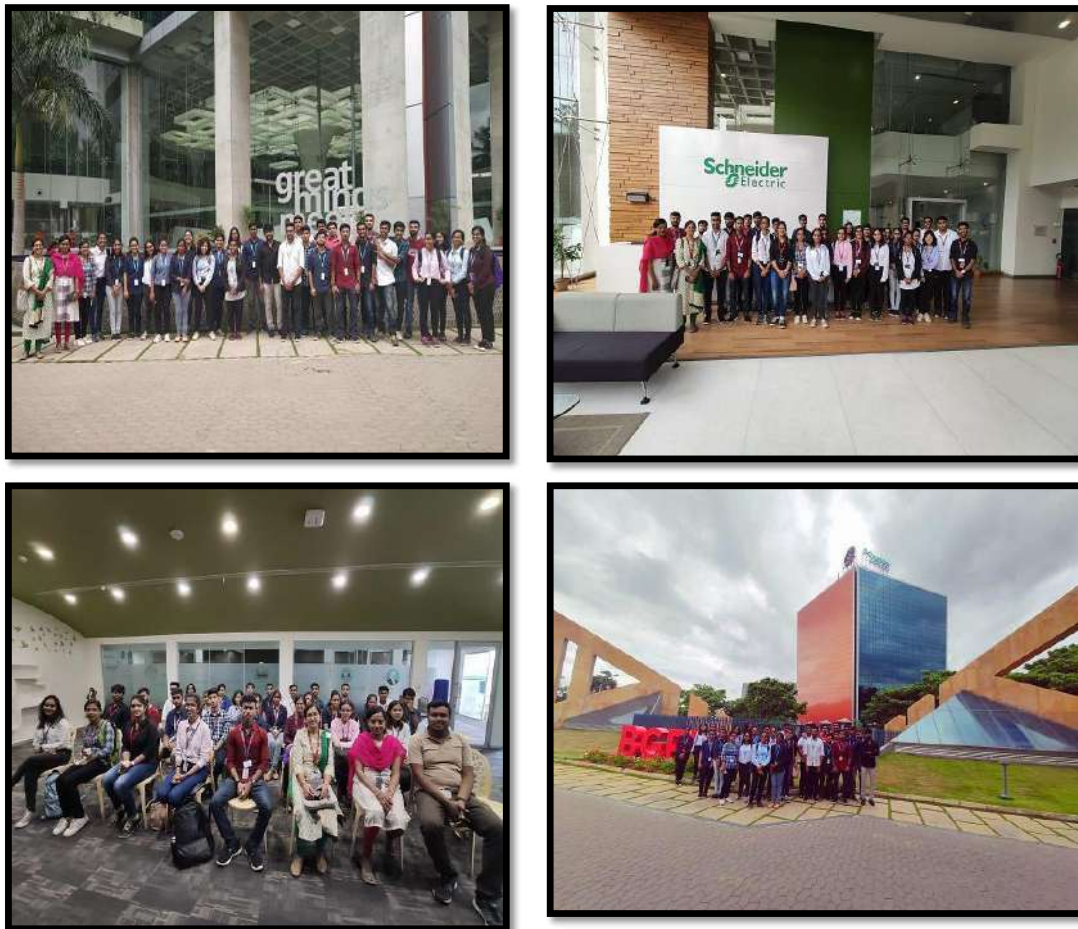


Figure 2.2.5.A.3: Visit to Schneider Electric R&D Labs



Figure 2.2.5.A.4: Visit to Bharat Fritz Werner

2.2.5.B. Industrial /internship /summer training of more than two weeks and post training Assessment (3)

The department of ISE motivates students to undertake internship programs in various well known firms both public and private sector. Students take up the industry internship training programs for their professional growth. Students are encouraged to undergo industry internship/summer training of their areas of interest / specialization for a duration of 45 days during the course of study. In addition to this, the department organizes training programs related to emerging industry trends and job functions. External trainers from reputed industrial organizations bring the latest technological evolutions to the students. Initiatives /Implementation and Impact Analysis of industry Internship/ Summer Training are as under

- The internships are arranged collaboratively by the industrial internship coordinator of the department with the industry associates and student volunteers.
- A copy of the Offer/Confirmation letter for internship is submitted to the Department
- The Joining Report providing the following information sent to the Department by the student immediately after joining the organization
- The faculty mentor visits / remains in touch with the industry supervisor to monitor the progress of the intern.
- Every student will be scheduled with two reviews during the session. The presentation will be reviewed by a panel constituted by the HOD and Professors of the department
- On completion of Internship a report and completion certificate are submitted to the Department.

- This is followed by a viva voce to gauge the course outcome / program outcome achieved.

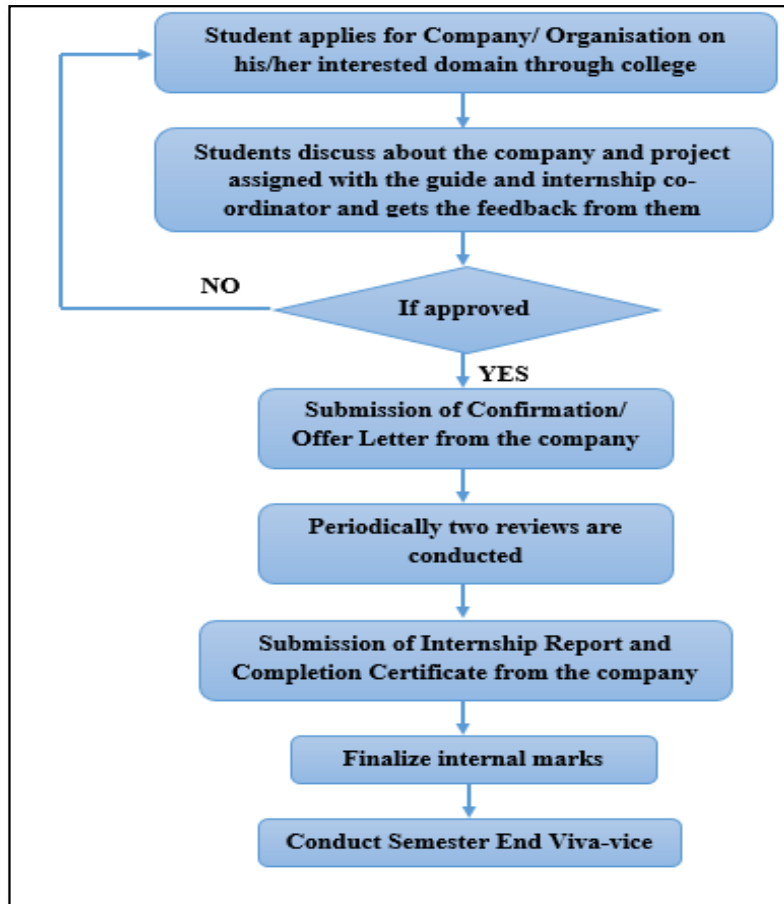


Figure 2.2.5.B.1: Process flow of Final year internship

Table: 2.2.5.B.1: No of students undertaken Internship details

Academic Year	No of students Undertaken Internship
2022-2023	228
2021-2022	145
2020-2021	134
2019-2020	124

Table 2.2.5.B.2: Internship details Academic Year 2021-22

Sl. No.	Student Name	Internship Project Title	Organization	Duration
1.	A HARSHEL SRIVATSAVA	Full Stack Product Development	Incadea	7/4/2022 - 30/6/2022
2.	ABHIRAM R	Full Stack Web Development	Prinstone Smart Engineers	11/3/2022 - 11/5/2022
3.	ABHISHEK V RAI	Full Stack Web Development	Prinstone Smart Engineers	11/3/2022 - 11/5/2022
4.	AISHWARYA KRISHNA BHAT	Web Development	Keleyra	04/04/2022 - 30/6/2022
5.	AKSHATHA M	Web Development	Esko	14/2/2022 - 31/7/2022
6.	AMOGH VISHNU PAI	Full Stack Web Development	Prinstone Smart Engineers	11/3/2022 - 11/5/2022
7.	ANAMIKA BHATTACHARYA	PHP	Innerwork Solutions	6/7/2020 - 6/11/2020
8.	ANISHA S HIREMATH	Python With Django Framework	Cobian Software	4/4/2022 - 30/5/2022
9.	ANKIT SINGH	UX	BOTSPOTAI	20/1/2022 - 25/2/2022
10.	ANKITHA K D	Data Science	Prinstone Smart Engineers	11/3/2022 - 11/5/2022
11.	ANSHUMAN SAMAL	Graduate Rotational Internship	Spark Foundation	01/09/2021 - 20/10/2021
12.	ANUPAM KUMAR	UI/UX	Upskillz	1/4/2022 - 1/6/2022
13.	ANURAG DEY	Android App Development	Smart Knower	1/4/2022 - 31/5/2022
14.	ANUSHA K M	Full Stack Web Development	Runshaw	5/4/2022 - 31/5/2022
15.	ARPITA CHOWDARY VANTIPALLI	Information Security	22/7 Solutions	8/3/2022 - 31/5/2022
16.	ATHARVA HEMANT MALANDKAR	Under Grad Technical	Intel	28/2/2022 – 30/6/2022
17.	AYUSH MIHARIA	Front End Development	Pepcoding Pvt. Ltd.	28/2/2022 - 29/4/2022
18.	AYUSH SINHA	Front End Development	ESKO	14/02/2022 - 31/07/2022
19.	BATHULA SREE HARSHA	Full Stack Web Development	Prinstone Smart Engineers	11/3/22 - 11/5/2022
20.	BISHAL SINGH	Full Stack Web Development	Prinstone Smart Engineers	11/3/22 - 11/5/2022
21.	BODDU ARAVIND KUMAR	Full Stack Web Development	Prinstone Smart Engineers	11/3/2022 - 11/5/2022
22.	CHARAN KRISHNAMURTHY	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022 - 11/05/2022
23.	CHINTHAPALLI RAMYABHARGAVI	Web Developer	Iventors Initiatives	9/04/2022 - 11/05/2022
24.	D V V ASWANTH	Cyber Security	Skill Vertex	05/04/2022-05/05/2022
25.	DARSHANA SAILU TANTI	Internship	Intel	28/02/2022-30/06/2022
26.	DHANUSH BILIGIRI N H	Automated Parametric Analyser For Radar Calculation	DRDO	24/03/2022- 24/06/2022
27.	DHRUV GULATI	Data Analytics Using SAP Analytics Cloud	Futurexready	10/04/2022-10/05/2022

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28.	DUGGI SRAVAN	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022-11/06/2022
29.	G KRISHNA TEJA	Consulting Technology Practice	EY	14/03/2022-30/06/2022
30.	GELLI SAI MANI KUMAR	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
31.	GONDRALA SAI SHARANYA	Data Science And Business Analytics	Spark Foundation	25/02/2022-25/04/2022
32.	GOSALA PRANAY DEEPAK REDDY	Web Technologies And Development	Spectra Assistive Technologies Pvt	01/03/2022-05/05/2022
33.	GOWTHAM V	Data Science	Ani Technologies	21/08/2021-30/09/2021
34.	GUDA BHARGAVI	“Internship Engagement Program”	Visionet Systems Pvt Ltd	07/03/2022-30/06/2022
35.	HARSHITHA R	‘Web Technologies And Development’	Spectra Assistive Technologies Pvt.	01/03/2022-05/05/2022
36.	IBRAHIM ANSAR	Graduate Intern	Amadeus Software labs india pvt. Ltd.	07/02/2022-07/07/2022
37.	JNANA P J	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
38.	JONNALAGADDA VENKAT	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
39.	JULAGANTI ANANTHA TRIVEDH	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
40.	K KRTIN	Intern	Sky defi	28/02/2022-30/06/2022
41.	KALYAN KUMAR N	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
42.	KAMINI YESESWINI	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
43.	KARTHIK R	Data Science	Future X Ready	07/09/2021- 30/03/2022
44.	KEERTHAN H	Testing	IDFC Bank	14/03/2022-13/07/2022
45.	KETAN THAKUR	Full Stack Application Development	Future X Ready	10/04/2022-10/06/2022
46.	KOLLI PRADEEPTHI	Full Stack Application Development	Take It Smart IT Solutions	01/3/2022-18/04/2022
47.	KOTHURI VENKATESH	IOT	Spectra Assistive Technologies Pvt.	01/03/2022-05/05/2022
48.	KUMAR AMAN	Android App Development	Smart Knower	01/04/2022-31/05/2022
49.	LIKHITH R	SDET Intern	CYWARE	03/01/2022-30/06/2022
50.	MACHI REDDY VINAY KUMAR REDDY	Data Science	Prinstone Smart Engineers	11/03/2022- 11/05/2022
51.	MADDURI SANKETH	Data Analytics	Cognizant	23/03/2022-30/6/2022
52.	MAHIMA S HEBBAR	Consulting Technology Practice	EY	14/03/2022-30/06/2022
53.	MALA H R	Developer	Thoughtworks	02/03/2022-26/05/2022
54.	MALVIKA RAVI KUDARI	Programmer Analyst	Cognizant	20/01/2022-30/06/2022
55.	MANAN AGRAWAL	Developer	Codeplayers Business Pvt Ltd	07/04/2022-02/05/2022
56.	MD ASIF KAMAL QUADRI	Web Development	Teachnook	01/04/2022- 31/05/2022
57.	MOHAMMED FAIZAN	Web Development	Smart Knower	01/04/2022-31/05/2022
58.	MOHAMMED ISMAIL M	Consulting	EY	14/03/2022- 30/06/2022

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59.	MONISHA C	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/05/2022
60.	MOUNIKA B	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022-11/5/2022
61.	NARENDER YADAV	Graduate Rotational Internship	Spark Foundation	07/07/2021- 30/09/2021
62.	NARREDDY NIKHILESWAR REDDY	Full Stack Web Developer	Prinston Smart Engineers	11/03/2022- 11/05/2022
63.	NAVEEN M	IOT And Robotic	Skill Vertex	05/05/2022-05/06/2022
64.	NESAR B GANGULI	Web Development	Kaleyra	04/04/2022-30/6/2022
65.	NIDHISH VEMULAPRABHAKAR	Sales Analyst	Dell Technologies	14/02/2022-14/08/2022
66.	NIKHIL CH	Data Science And Business Analytics	Spark Foundation	25/02/2022-25/04/2022
67.	NITESH KUMAR	Web Development	The Mentor	25/02/2022-25/04/2022
68.	PALLAVI VASUDEV KULKARNI	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022-11/05/2022
69.	PALUVARA MARUTHI SIVA SAI SREEVEER	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022-11/05/2022
70.	B S SAI PRAMATH	Full Stack Application Development	Take It Smart IT Solutions	04/04/2022-23/04/2022
71.	ADHESH RAKSHITH	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022-11/05/2022
72.	PINAKI MUKHERJEE	Web Development	Teachnook	01/04/2022-31/05/2022
73.	POOJA T	Web And Android Developer	Sakshama needy welfare foundation	15/11/2021-16/01/2022
74.	PRAJWAL P	IT Intern	More Retail Private Limited	18/04/2022-15/07/2022
75.	PRAKRITI SHARMA K P	Software Trainee	DRDO	24/03/2022-24/06/2022
76.	PUNITH KUMAR S	Web & Android Developer	Sakshama needy welfare foundation	15/11/2021-16/01/2022
77.	PUSHKAR SINHA	Web Development	Karam Machine Tools	01/03/2022-31/05/2022
78.	R H SHRAVYA	Engineer Intern	Easy shiksha.	06/03/2022-17/04/2022
79.	RAHUL V	Web Development	IQVIA	6/4/2022 – 06/10/2022
80.	REEM FATIMA AZEEZ	Machine Learning And AI	Inventron	28/03/2022 – 14/05/2022
81.	RIA CAROL MOHAN	Engineer Intern	Hiver	28/02/2022 – 03/06/2022
82.	RITOM TAMULI	Software Development	Technomechanics	01/06/2020 – 30/06/2020
83.	S VASANTH	Salesforce	Wipro	26/03/2022 – 31/07/2022
84.	SAGAR SHANKAR	Java FSD	IBM	28/03/2022 – 25/05/2022
85.	SAKSHI ARYAL	Web Development	Egen Technologies	01/05/2022 – 15/06/2022
86.	SALONI K	Web Development	Oasis Info Bytes	03/02/2022 – 02/05/2022
87.	SAMRUDH G R	Product Support Analyst	Epsilon	27/04/2022 – 30/06/2022
88.	SANCHITHA B S	Software Development	Cerner	31/12/2021 – 03/06/2022

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89.	SANGEETHA D	Javascript Programming Start To End	Easy shiksha.	06/03/2022 – 17/04/2022
90.	SANJANA A	Anomaly-Based Intrusion Detection System	ISRO	02/08/2021- 15/09/2021
91.	SATHMIKA R	Web Development	HAL And E-Gen Technologies	19/04/2022 – 23/06/2022
92.	SAVEEN C V	Web Development	Egen Technologies	23/5/2022 – 23/06/2022
93.	SEELA VENKATA CHARAN REDDY	Full Stack Web Development	Prinstone Smart Engineers	11/03/2022 – 11/05/2022
94.	SHAIK NYAMATHULLA	Data Science	Prinstone Smart Engineers	11/03/2022 – 11/05/2022
95.	SHARANYA G	Data Analytics	The Sparks Foundation	01/09/2021 – 31/10/2021
96.	SHUBHODEEP SARKAR	Asure Fundamentals	Capgemine	15/04/2022 – 27/06/2022
97.	SILPA S	Web Development	Cerebro Kids	14/07/2021 – 14/01/2022
98.	SINGUPURAM ATULYA	Python With Machine Learning	Acranton Technologies	06/04/2022 – 21/05/2022
99.	SONALI PREETHA NANDAGOPALAN	Engineer Intern	Hiver	28/02/2022 – 03/06/2022
100.	SOUNDHAARYHA B S	Android Development	Teachhook	01/05/2022 – 30/06/2022
101.	SOURAV ADHIKARI	Internship	Intel	28/02/2022 – 30/06/2022
102.	SRUTIBANTA SAMANTARA	Web Development	PEP Coding	28/02/2022 – 29/04/2022
103.	SUJAY M	Java Script	Intellivision Network	14/03/2022 – 14/05/2022
104.	SURAJ SURYAVAMSHI	Automation Testing	IDFC First Bank	14/03/2022 – 13/07/2022
105.	SYED MATEEN	Web Development	Smart Knower	01/04/2022 – 01/06/2022
106.	TADEPALLI BALAJI SAI SWAPNIL	'Web Technologies And Development'	Spectra Assistive Technologies Pvt.	01/03/2022-05/05/2022
107.	TANMAY TEWARI	Web Developmem	IBM	28/03/2022 – 25/05/2022
108.	TEJAL LALJI RANGANI	Technology Consulting	Ernst & Young	14/03/2022 – 30/06/2022
109.	TEJASHWINI R	Java Programming	Hawakcode	12/03/2022 – 25/04/2022
110.	TEJASVI PATIL	Web Development	Mcafee Web Gateway Essentials	17/02/2022 – 17/05/2022
111.	VANGA SRUJANJA REDDY	Web Development	Oasis Info Bytes	03/02/2022 – 02/05/2022
112.	VIGNESH K S	Intern	Amendaues Software Solutions	07/02/2022 – 30/06/2022
113.	VINAY UMAMAHESHWAR HEGDE	Web Development	Business Web Solutions	28/03/2022 – 28/05/2022
114.	VIROCHAN A C	Infomatica Professional Service	Infomatica	21/02/2022 – 22/08/2022
115.	VISMAYE M	Web Development	PROTOCOL10	07/03/2022 – 05/05/2022
116.	Y NANDUSAI	Web Development	The Spark Foundation	01/03/2022 – 30/06/2022
117.	YASHMITHA R	System Design	HugesSysteque	11/01/2022 – 11/06/2022

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118.	ANUSHKA SEN	Data Analytics	The Sparks Foundation	01/11/2020 – 01/12/2020
119.	JAITHRA REDDY	Web Application	Technocloud Global	10/03/2022 – 13/05/2022
120.	G R KARTHIK	Web Application	Hughes Systique Corporation	11/01/2022 – 30/06/2022
121.	MEDHA VINOD	Automated Parametric Analyser For Radar Calculation	DRDO	24/03/2022 – 24/06/2022
122.	SHRIPRIYA J	Web Development	Cerebro Kids	14/07/2021 – 14/01/2022
123.	SANJANA HOMBAL	Graduate Rotational Internship	Spark Foundation	01/02/2022 -26/05/2022
124.	KEERTHISHREE V	IT Infrastructure Solutions	CERNER CORPORATION	13/12/2021 – 13/06/2022
125.	SHANKAR Y	Graduate Rotational Internship	Spark Foundation	02/12/2021- 30/04/2022
126.	K RESHMA	Graduate Internship	Capgemine	04/03/2022 – 26/05/2022
127.	KEERTHAN M	Web Development	Prinston Smart Engineers	11/03/2022 – 11/05/2022
128.	SHREYA L REDDY	Mcafee Web Gateway Essentials	Mcafee	17/02/2022 – 17/05/2022
129.	STEBIN SEBASTIAN	Intern Technical	Intel	28/02/2022 – 30/06/2022
130.	AAYUSH VIDHANI	Resume Builder And Student Networking Platform	FUTUREXREADY	10/04/2022 – 10/06/2022
131.	SAIFULLA SHARIEF	Web Development	Smart Knower	01/05/2022 – 01/07/2022
132.	HARSH ANKIT	Data Analytics	The Sparks Foundation	01/05/2022 – 30/06/2022
133.	SARAF HRUTWIK DIGAMBERRAO	Web Development	Smart Knower	01/05/2022 – 01/07/2022
134.	KURAKU VINOD	Data Science	Prinstone Smart Engineers	11/03/2022 – 11/05/2022
135.	B M PRAMOD	Web Development	Zeel Codes Lab	07/03/2022 – 28/04/2022
136.	IRENDRA MAHADEVKALKAMB	Web Development	Teachnook	01/04/2022 – 31/5/2022
137.	KARTIK BHINGE	Web Development	Automation Anywere	11/03/2022 – 11/05/2022
138.	MOHAMMED KAIFULLA D K	Android App Development	Internshala	06/11/2021 – 06/06/2022
139.	PAVAN KUMAR S	Web Development	Automation Anywere	11/03/2022 – 11/05/2022
140.	PRAVEEN VISHWANATHHEGDE	Cyber Security	Teachnook	23/04/2022 – 31/07/2022
141.	SHUBHAM ANNAPPA KHARADE	Web Development	Zeel Code Lab	07/03/2022 – 28/04/2022
142.	SOMA SHEKAR J	Web Development	Teachnook	01/04/2022 – 31/05/2022
143.	SUCHALA K L	Web Development	Teachnook	01/04/2022 – 31/05/2022
144.	SUNIL KUMAR H	Data Analytics	Cognisure	24/4/2022 – 30/06/2022
145.	SYED SAQLAIN AHMED	Web Development	Teachnook	01/04/2022 – 31/05/2022

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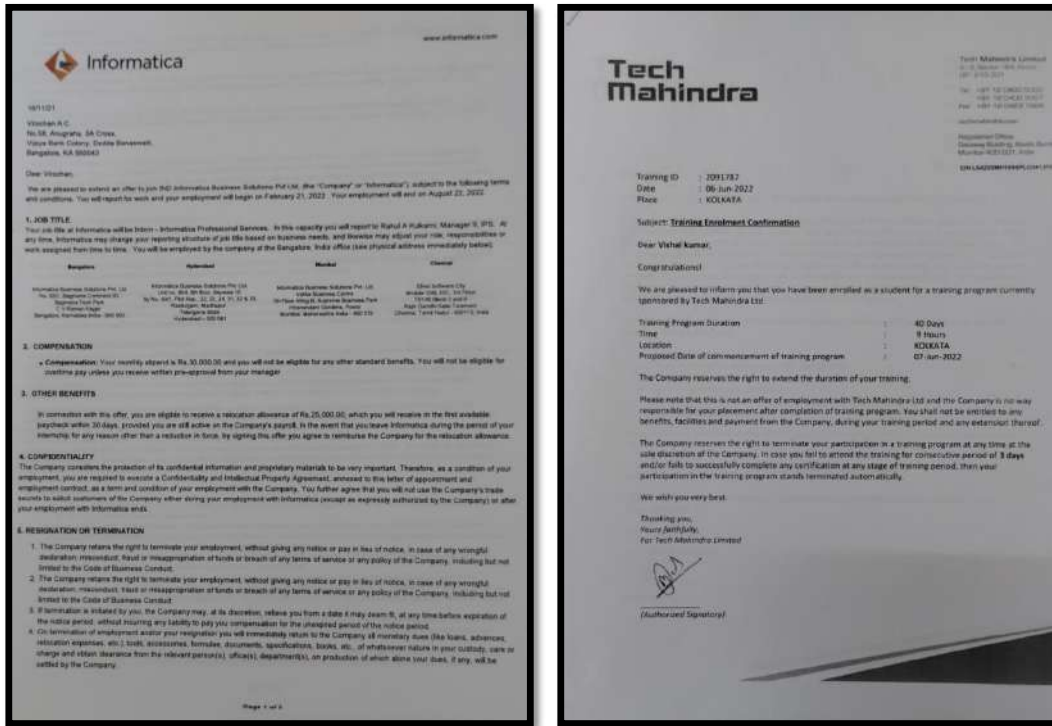


Figure 2.2.5.B.1: Sample Internship offer Letters



Figure 2.2.5.B.2: Sample Internship Completion Certificates

Table 2.2.5.B.3: Rubrics For Internship Evaluation

Criteria/Level (Marks)	Does not meet expectation (70% of Weight age)	Meets expectation (90% of Weight age)	Exceeds expectation (100% of Weight age)
Selection of Latest Technology (10)	Irrelevant, downloaded from internet, unformatted	Relevant content, meets formal guidelines	Innovative representation of topic
Presentation (20)	Not confident, less eye contact or low body language	Confident body language and message delivery, Able to answer questions	Excellent body language Able to answer all questions, shows in depth knowledge
Viva(10)	Unable to answer, shows lack of knowledge	Able to answer questions	Able to answer all questions, shows in depth knowledge
Report(10)	Not according to guidelines, plagiarized	Meets all specified guidelines	Extensive research on the topic presented in the report

2.2.5 .C Impact analysis of industrial training (2)

Impact Analysis Internships in the industries endow the students with the following benefits.

- Hands on experience provides better understanding of the basic concepts.
- Students learn the industrial standards, current trends and practices.
- Real environmental exposure enhances student's learning.
- Training and/or testing becomes easier.
Helps in building inter personal skills and team work.
- Application of academia in industrial environment.
- Students had seen live project site and from this they have gained practical knowledge.
- The industry standards and workplace culture is exposed to students, and they also understand the importance of being punctual and meeting the deadlines.
- Communication skills of the students improved.
- Students are inspired to work hard and get placed in such industries.

2.2.5 D Student feedback on initiative (3)

1. For feedback from training, faculty take viva examination of students.
2. Depending upon this result those who have poor knowledge on that particular topic, faculty encourages the students to participate in industrial workshops or other field visit for increasing their core knowledge.
3. Department in association with professional bodies conduct distinguished lectures, technical seminars, workshops and conferences to enhance the knowledge of students in program specific domains.
4. Various stakeholders feedbacks are collected and analyzed. The samples for parent feedback, Alumni feedback, Graduate feedback and course feedback is shown below

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
(Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
Department of Information Science and Engineering

PARENTS FEED BACK FORM

Name of the Parents: Srinivasa YN Phone No: 9480051141
Postal Address: Srinivasapura Taluk, Kolar

Name of the Student: Vinod Kumar YS USN: _____
Name of the Degree Completed BE Year of Graduation 2018

You are here by informed to give your healthy comment for the following

Sl. No.	Parameters	Excellent	V Good	Good	Satisfactory	Poor
		(5)	(4)	(3)	(2)	(1)
1	How do you rate the overall personality development of your son/daughter during their 4 years of stay?	✓				
2	How do you feel about infrastructural facilities such as library, Laboratories, Workshops, Canteen, Hostel and other campus facilities?		✓			
3	Did your son/ daughter got encouragement for participation in various co-curricular activities (Say seminar, Conference, guest lectures etc.) ?	✓				
4	How do you rate the quality of academic resource (Say teaching faculty, course material etc.)?	✓				
5	Your reaction about placement activities conducted.		✓			
6	Encouragement towards extra-curricular activities (Sports tec.)	✓				
7	How is mentoring facility in the campus ?		✓			
8	Do you recommend NHCE as a college of your choice for admission to your siblings, friends, relatives etc. ?	Yes				
9	Any other suggestion for improving the college as a college of excellence or a model college.	-				

Srinivasa
Signature of Parent

Figure 2.2.5.D.1 Sample of Parent Feedback survey Form

Criterion-2 Program Curriculum and TLP



NEW HORIZON COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

ALUMNI FEEDBACK FORM

We shall be thankful to and appreciate you, if you can spare some of your valuable time to fill up this feedback form and give us your valuable suggestion for further improvement of the Institute program. Your valuable input will be of great use to improve the quality of our academic program and enhance the credibility of the Institute.

Yours Truly,
PRINCIPAL

Name of the Alumnus: B. S. Srinivas S. S. Year of Graduation: 2021
Name of the organization: Peer University Designation: Higher Studies

Please give your assessment of the Institute academics.

	5	4	3	2	1
Outstanding	Excellent	Very Good	Good	Satisfactory	

Sl. #	Questions	Program Outcome	5	4	3	2	1
1	Rate the engineering knowledge obtained during course period.	PO1		✓			
2	How do you find the program related to problem analysis?	PO2		✓			
3	How do you rate this program for developing solutions for the problems in the field of information science & engineering?	PO3	✓				
4	How do you rate the program helped for investigating the problems in the field of information science & engineering?	PO4		✓			
5	How fit is this program helped in applying modern tool usage for your problems?	PO5		✓			

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1	How do you rate this program helped you in getting knowledge related to engineering and sustainability?	PO7	✓				
6	How do you rate your professional ethics related to the program?	PO8	✓				
9	How do you rate your exposure for industry training and research work?	PO9	✓				
10	How do you rate your communication skills related to the program?	PO10	✓				
11	How do you rate your project and seminar papers related to the program?	PO11	✓				
12	How do you rate your project related to linking training?	PO12	✓				
13	How do you rate your personal solution for challenges and problems in various domains of information science & engineering?	PO13	✓				
14	How do you rate your complex engineering problems using latest hardware and software tools using work methodologies to contribute in world, local and your family industries?	PO14	✓				

Your suggestions

1. Will special curriculum helping in your job?
2. Do we need any change in curriculum and syllabi?
3. Suggestions for teaching learning process.
4. Rate concepts learned through your projects.

5. What did you like more in the department curriculum?

B. S. Srinivas S. S.
Higher Studies

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Figure 2.2.5.D.2: Sample of Alumni Feedback survey Form

NEW HORIZON COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

SURVEY QUESTIONNAIRE TO EMPLOYER

Sir,

Our Institute is offering in line with outcome based education in conformity with the international practices (as per Washington Accord). The assessment of the outcome has to be through a survey.

The following questions need your valued consideration. Please find some time and send in your answers to the following questions. This report will be kept confidential.

Yours Truly,
PRINCIPAL

Company Name: HARDCOAST INFOSYS
Mailing Address: NSR LAYERS, BANGALURU
City: BANGALURU State: KARNATAKA Pin Code: 560082
Employment Details: Year: 2019 Dept: Legal & Support services

Sl. #	Questions	Program Outcome	Best	Very Good	Good	Satisfactory	Poor
1	How do you rate our graduates in applying the knowledge of our graduates?	PO1	✓				
2	How do you find our students in applying the knowledge of their learned in the solution of complex engineering problems?	PO2		✓			
3	How do you find our students with respect to design and development of new products or services?	PO3	✓				
4	How do you rate our students on investigating new problems in the industry?	PO4	✓				
5	How fit is our graduates in applying modern tools for solving problems?	PO5	✓				

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6	How responsible is our graduates in getting modern health, safety, legal and ethical issues?	PO6	✓				
7	How responsible is our graduates in understanding the impact of the information science & engineering solutions on societal and environmental aspects?	PO7	✓				
8	How do you rate our students with respect to their ethical and social values?	PO8	✓				
9	How do you rate our students with respect to work and team work?	PO9	✓				
10	How do you rate our students with respect to being open to constructive criticism in complex information science & engineering activities?	PO10	✓				
11	How do you find our graduates performance in understanding project management and financial strategies of the company?	PO11	✓				
12	How do you rate our students with respect to, understanding the linking learning?	PO12	✓				
13	How do you rate our graduates with respect to their exposure to placement process?	PO13	✓				
14	How do you rate our graduates ability to find innovative solutions for challenges and problems in various domains of information science & engineering?	PO14	✓				
15	How do you rate our students ability to deal with complex engineering problems of information science & engineering.	PO15	✓				

Your detailed comments on our graduate employees

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Figure 2.2.5.D.3 Sample of Employer Feedback survey Form

Criterion-2 Program Curriculum and TLP



NEW HORIZON COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

GRADUATE SURVEY FORM

Name: Pooja In UIN: 20181515028
Year / SEM: 2018-19 Program: BT

Sl.No	Program Outcomes (POs)	Met	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)
1	Engineering Knowledge: Have you able to apply the knowledge of mathematics, science, engineering fundamentals, and engineering applications to the solution of complex engineering problems?			<input checked="" type="checkbox"/>		
2	Problem analysis: Were you comfortable in identifying, formulating, reasoning and research literature, and studying complex engineering problems reaching substantiated conclusions using the principles of mathematics, science, science, and engineering sciences?			<input checked="" type="checkbox"/>		
3	Design / Development of solutions: Were you able to design solutions for complex engineering problems and design systems components or processes that meet the specified needs with health, safety and the cultural, environmental, and environmental considerations?			<input checked="" type="checkbox"/>		
4	Conduct investigations of complex problems: Were you able to use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions?			<input checked="" type="checkbox"/>		
5	Modern tool usage: Were you able to create, select, and apply appropriate computer resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations?			<input checked="" type="checkbox"/>		

Sl.No	Program Outcomes (POs)	Met	Excellent (5)	Very Good (4)	Good (3)	Satisfactory (2)
6	The engineer and society: Did you apply reasoning judgment to the societal knowledge to assess societal, health, safety, legal and cultural issues and the environment professional engineering practice?			<input checked="" type="checkbox"/>		
7	Environment and sustainability: Did you understand the impact of the professional engineering practice on the environment and demonstrate the knowledge of and commitment to the environment?			<input checked="" type="checkbox"/>		
8	Were you able to apply ethical principles and conduct professional ethics and responsibilities and norms of engineering practice?			<input checked="" type="checkbox"/>		
9	Individual and team work: Did you function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings?			<input checked="" type="checkbox"/>		
10	Communication: Did you communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions?			<input checked="" type="checkbox"/>		
11	Project management and finance: Did you demonstrate knowledge and understanding of the engineering and management principles and apply them to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments?			<input checked="" type="checkbox"/>		
12	Life-long learning: How far you recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadness of technological change?			<input checked="" type="checkbox"/>		

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Figure 2.2.5.D.4 Sample of Graduate Feedback survey Form

NEW HORIZON COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade, Accredited by NBA

Department of Information Science and Engineering

COURSE FEEDBACK FORM (for courses under Autonomy)

Academic Year: 2021-2022
Semester: 4th

Rating System: 5- Excellent, 4- Best, 3-Very Good, 2-Good, 1 - Satisfactory

About the Course information on the Respondent: (Tick (✓) Appropriately)

Complete	Course Name	Partial				
		DIS. MATHS	EVS	DRMS	OOPS WITH JAVA	OPERATING SYS.
	Course Code	20ISE41A	20ISE423A	20ISE43A	20ISE44A	20ISE45A
	Organization of the Courses	5	4	5	5	5
	Emphasis on fundamentals/prerequisites	5	4	5	5	4
	Timely coverage of all the modules	5	5	5	5	5
	Availability of text books / study materials	5	4	5	5	4
	Usefulness of tests, quizzes and assignments	5	5	5	5	4
	Contents of the courses include the latest advancements and technologies	5	5	5	5	5
	Overall rating of the Courses	5	4	5	5	4
	What benefits have you derived from the courses that you have studied?	1. <u>learned a lot from these subjects</u> 2.				

The expectations for taking the courses by the student are:

	Yes/No:
(a) Enhancement by skill base in/for the area of specialization	yes
(b) Getting exposed to the relevant course contents required	yes
(c) Applying the gained knowledge in higher semesters	yes
(d) Completing the degree requirements	yes
(e) Better Employment Opportunity	yes
(f) To improve upon CGPA	yes

From your point of view is there any new recommended courses to include in the curriculum.

Signature of the Student: [Signature]

Figure 2.2.5.D.5 Sample of Course Feedback survey Form

Student Testimonial on industry institute activities

Sonali Preetha Nandagopalan



The internship was done with a customer-service based SaaS company called Hiver. During the course of 6 months, the job role given was that of a Frontend developer. The initial part of the internship was focused on training. The project that was majorly worked on was Analytics part of Hiver. Analytics helps gain clear insights into the team's performance and helps identify the areas of improvement. Multiple reports can be viewed with a single click within Gmail. An in-depth understanding of the reports can be obtained by clicking on Analyze button. Analytics was at that time applicable for Conversations, Users, Tags, and CSAT. A new feature called "Customer Module Analytics" was to be implemented and that what was what I majorly worked on. Besides this, I worked on multiple design revamps for different platforms of the extensions. The internship helped me associate with all teams within the company, have a sense of ownership, being artistic, working as a team and knowledge sharing.

Silpa S



I interned as a web developer in CerebroTeam - The Financial literacy academy for a period of 2 months. I worked on the backend using PHP and MySQL mostly and occasionally in the front end. I performed tasks such as creating PHP based certificate generator, making the main page of the website dynamic, updating the footer based on design provided, adding functionality to programs and many more. On the whole, it was a great experience for me as a beginner to get an insight as to how the work will be moving forward.

**Department of Information
Science & Engineering**

Criterion-3

**Course Outcomes and
Program Outcomes**

CRITERION 3	175
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3. COURSE OUTCOMES AND PROGRAM OUTCOMES (175)

3.1. Establish the correlation between the courses and the Program Outcomes (POs) & Program Specific Outcomes (25)

Introduction about the Courses in the Program

Information Science and Engineering Department focuses on current Information Technology trends and Domain Specific Applications. The program facilitates the evolution of skills in students to help them attain a higher degree of knowledge, global competency and excellence, for the betterment of the society. The syllabus emphasizes in-depth technical knowledge and practical application skills in all disciplines of Information Science and Engineering. The curriculum of the program is designed with core, elective, open courses by considering the Vision, Mission, Program Educational Objectives (PEOs), Program Outcomes (POs), Program Specific Outcomes (PSOs), requirements from stakeholders, suggestions from industries.

Program Outcomes (POs) & Program Specific Outcomes (PSOs) of Information Science and Engineering department is furnished below:

Program Outcomes & Program Specific Outcomes (POs and PSOs)

At the time of graduation, students from the Information Science and Engineering program will possess:

Program Outcomes (POs)

PROGRAM OUTCOMES		
PO1	Engineering knowledge	Apply the knowledge of Engineering Mathematics, Basic Sciences, Engineering Fundamentals, and Engineering Specialization to the solution of complex Information Science and Engineering problems.
PO2	Problem analysis	Identify, formulate, review research literature, and analyze complex engineering problems of Information Science and Engineering reaching substantiated conclusions using first principles of Engineering Mathematics and Engineering Sciences.
PO3	Design/development of solutions	Design solutions for complex Information Science Problems and design system components or processes of Information Science and Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4	Conduct investigations of complex problems	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in Information Science and Engineering.
PO5	Modern tool usage	Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations in Information Science and Engineering.
PO6	The engineer and society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in Information Science and Engineering.
PO7	Environment and sustainability	Understand the impact of the professional engineering solutions in Information Science and Engineering in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of the Information Science and Engineering practice.
PO9	Individual and team work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communication	Communicate effectively on complex Information Science engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	Project management and finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

Program Specific Outcomes	
PSO1	The ability to understand, analyse and develop computer programs in the areas related to Algorithms, System Software, Web Design, Big Data Analytics, Machine Learning, Internet of Things, Data Science and Networking for efficient design of computer based systems of

	varying complexity.
PSO2	The ability to apply standard practices and strategies in software project development using innovative ideas and open ended programming environment with skills in teams and professional ethics to deliver a quality product for business success.

COURSE OUTCOMES (COs)

Course Outcomes are the statements that help the students to understand the reason for pursuing the course and helps them to identify what they will be able to do at the end of the course. A Course outcome should define the knowledge, skills, the application of the knowledge and the skills the learner has acquired which he/she is able to demonstrate as the result of pursuing the course. Each course has 4-6 course outcomes depending on its significance which are mapped to the Program Outcomes (POs) and Program Specific Outcomes (PSOs).

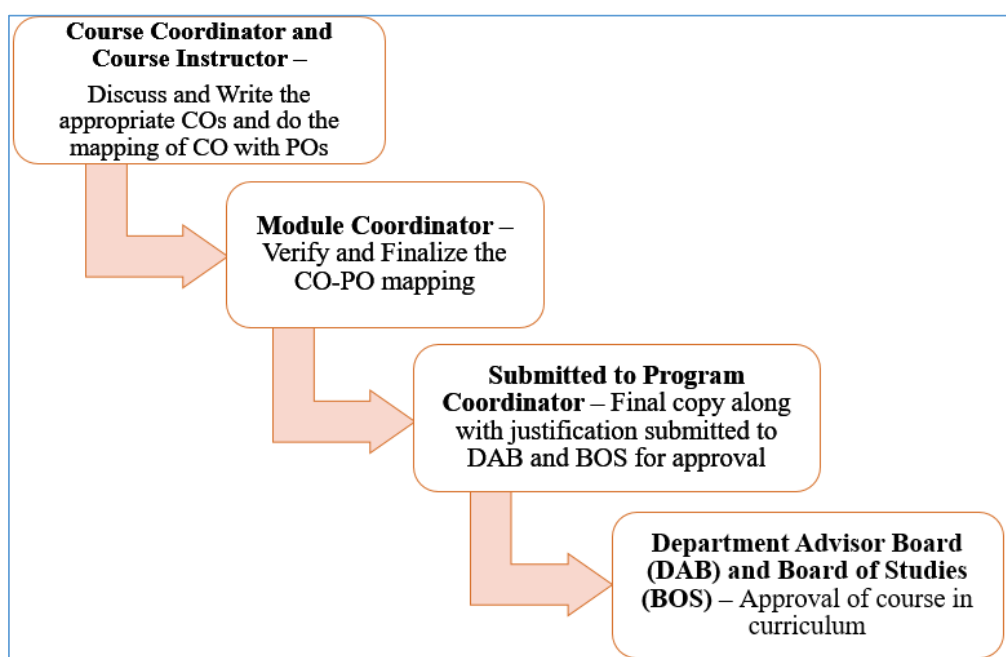


Figure 3.1.1 Hierarchy of faculty involvement in CO Statement and mapping of COs- POs.

The following section describes how COs are defined for a course namely, 19ISE34 - DATA STRUCTURES USING C are derived. The contents of the DATA STRUCTURES USING C

course are:

Module 1: Basic Concepts of Data Structures and classification.

Module 2: Stacks and Queues

Module 3: Linked Lists

Module 4: Trees and Graphs

Module 5: Searching and Sorting

Six COs (CO1 to CO6) are defined as below: On completion of the course the students will be able to:

CO1: Understand the fundamentals of data structures and their applications essential for programming/problem solving.

CO2: Analyze the operational aspects of linear data structures: stacks, queues in problem solving.

CO3: Apply the appropriate data structures for a specific application.

CO4: Understand and implement linked list data structures in Problem-solving.

CO5: Analyze the operational aspects of non-linear data structures: Trees, Graphs in Problem-solving.

CO6: Interpret the working of various searching and sorting algorithms.

Mapping of CO with POs & PSOs

For all the courses mentioned in the programme, the Course outcomes are mapped by the course coordinator and course instructors with the defined twelve POs and two PSOs. The mapping has been done based on the correlation levels defined by Board of Accreditation.

The various correlation levels are,

“3” - Substantial (High) Correlation

“2” - Moderate (Medium) Correlation

“1” - Slight (Low) Correlation “dash” - No Correlation

Table 3.1.4 shows the Program Articulation Matrix for all the courses for the regulation 2018-2022 batch students.CO-POs and CO-PSOs matrices of all courses are framed. However matrices for one course per semester are selected and presented in Table 3.1.1.It shows the Course Articulation Matrix for 6 core courses. To explain the mapping of CO with POs & PSOs, one core course 19ISE34 - DATA STRUCTURES USING C is taken into consideration.

Table 3.1.1: CO-PO Mapping for the Course DATA STRUCTURES USING C

COURSE CODE: 19ISE34		COURSE NAME: DATA STRUCTURES USING C												
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
19ISE34.1	3	3	3	-	-	-	-	-	-	1	-	2	2	2
19ISE34.2	3	3	3	-	-	-	1	-	-	1	-	2	2	2
19ISE34.3	3	3	3	2	-	-	-	-	-	1	-	2	2	2
19ISE34.4	3	3	3	2	1	-	-	-	-	1	-	2	2	2
19ISE34.5	3	3	3	-	1	-	1	-	-	1	-	2	2	2
19ISE34.6	3	3	3	2	1	-	1	-	-	1	-	2	2	2

Table 3.1.2: Justification - CO-PO Mapping for the Course DATA STRUCTURES USING C

19ISE34- DATA STRUCTURES USING C	
CO-PO	Justification
CO1-PO1(3)	Provides a strong knowledge on various types and operations on data structures for problem solving, deals with applying basic Engineering Mathematics, the basis for solving complex engineering problems.
CO1-PO2(3)	Uses the basic principles of computer programming to choose the best representation of data in memory for problem-solving.
CO1-PO3(3)	The problem of memory management can be tackled effectively with the knowledge of Memory allocation techniques for various problems/programs.
CO1-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.
CO1-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.

CO1-PSO1(2)	Provides sufficient knowledge to understand, analyze and develop computer programs.
CO1-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.
CO2-PO1(3)	Provides a strong knowledge on analysing operations on various linear data structures, organisation of memory and operations for problem solving, deals with applying basic Engineering Mathematics, the basis for solving complex engineering problems.
CO2-PO2(3)	Uses the basic principles of computer programming to choose the suitable linear data structure for problem-solving/programs.
CO2-PO3(3)	The problem of selecting the suitable linear data structures can be handled efficiently with the knowledge of basic linear data structures / memory allocation techniques for various problems/programs.
CO2-PO7(1)	Students were encouraged to practice basic linear data structure programming concepts that focuses on the applications that relate to societal and environmental contexts.
CO2-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.
CO2-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.
CO2-PSO1(2)	Provides sufficient knowledge to understand, analyse and develop computer programs.
CO2-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.
CO3-PO1(3)	Provides a strong knowledge of all data structures and also its applications, requires engineering mathematics knowledge.
CO3-PO2(3)	Students will be able to demonstrate their practical knowledge of applying data structures for suitable problems.
CO3-PO3(3)	Students can use knowledge of applications of data structure to design an software component and hence get appropriate result for a given problem
CO3-PO4(2)	Sorting mechanisms provide sufficient knowledge to conduct investigations of complex problems.
CO3-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.

CO3-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.
CO3-PSO1(2)	Provides sufficient knowledge to understand, analyze and develop computer programs.
CO3-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.
CO4-PO1(3)	Provides a strong knowledge of linked list data structure concepts, uses Engineering Mathematics knowledge to understand the operations on these linear data structures.
CO4-PO2(3)	Students will be able to demonstrate their practical knowledge of data structures to deliver the best in analysing the problem in programming.
CO4-PO3(3)	Understanding of linked list data structures and their operations provides knowledge in developing the programs or software components.
CO4-PO4(2)	Analyse and interpret the various operations on linked list data structures.
CO4-PO5(1)	Appropriate data structures with different problem statements using visualization tools focused on Modern tool usage.
CO4-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.
CO4-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.
CO4-PSO1(2)	Provides sufficient knowledge to understand, analyze and develop computer programs.
CO4-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.
CO5-PO1(3)	Provides a strong knowledge of static, dynamic representations of data, which requires applying Engineering mathematics.
CO5-PO2(3)	Students will be able to demonstrate their knowledge in the representation of data through Graphs and Adjacency Matrix representation, suitable for problem-solving.
CO5-PO3(3)	Fundamentals of data storage learnt provides knowledge to develop basic solutions.
CO5-PO5(1)	Appropriate data structures with dynamic representations using visualization tools focused on Modern tool usage.

CO5-PO7(1)	Students were encouraged to choose appropriate non-linear data structure programming concepts and representations Graphs and Adjacency Matrices that focuses on the applications that relate to societal and environmental contexts.
CO5-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.
CO5-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.
CO5-PSO1(2)	Provides sufficient knowledge to understand, analyze and develop computer programs.
CO5-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.
CO6-PO1(3)	Application of Sorting algorithms are core to solve any computing problems, applies the basic mathematics knowledge.
CO6-PO2(3)	Analysing various sorting algorithms serves as basis for complex problem analysis.
CO6-PO3(3)	Designing complex programs requires thorough knowledge in various sorting algorithms.
CO6-PO4(2)	Sorting mechanisms provide sufficient knowledge to conduct investigations of complex problems.
CO6-PO5(1)	Searching and Sorting techniques using visualization tools focused on Modern tool usage.
CO6-PO7(1)	Students were encouraged to choose appropriate searching and sorting techniques for various problems that focuses on the applications that relate to societal and environmental contexts.
CO6-PO10(1)	Students were encouraged to do programming with an appropriate documentation for building effective communication.
CO6-PO12(2)	As this course outcome provides sufficient knowledge to apply in standard practices in software development students would acquire the ability to engage in independent and lifelong learning.
CO6-PSO1(2)	Provides sufficient knowledge to understand, analyze and develop computer programs.
CO6-PSO2(2)	Provides sufficient knowledge to apply standard practices and strategies in software project development.

Table 3.1.3: Selected Courses – Course Outcomes and CO-PO Mapping (One per Semester)

Semester	CourseCode	CourseName
III	19ISE34	Data Structures using C
IV	19ISE44	Object Oriented Programming with Java
V	20ISE51	Web Internet Programming
VI	20ISE62	Advanced Java
VII	20ISE71A	Software Testing and Automation
VIII	20ISE72A	Computer Networks

Table 3.1.3.1: Course Outcomes – Data Structures using C – 19ISE34 (Third Semester)

COURSE CODE: 19ISE34 COURSE NAME: DATA STRUCTURES USING C	
Course Outcome No	Course Outcome Statement
19ISE34.1	Understand the fundamentals of data structures and their applications that are essential for programming/problem-solving.
19ISE34.2	Analyze the operational aspects of linear data structures: stacks, queues in problem Solving.
19ISE34.3	Apply the appropriate data structures for a specific application.
19ISE34.4	Understand and implement linked list data structures in Problem solving.
19ISE34.5	Analyze the operational aspects of non-linear data structures: Trees, Graphs in problem solving.
19ISE34.6	Interpret the functioning of various searching and sorting algorithms.

Table 3.1.3.2: Course Articulation Matrix- Data Structures using C – 19ISE34 (Third Semester)

COURSE CODE: 19ISE34 COURSE NAME: DATA STRUCTURES USING C														
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
19ISE34.1	3	3	3	-	-	-	-	-	-	1	-	2	2	2
19ISE34.2	3	3	3	-	-	-	1	-	-	1	-	2	2	2
19ISE34.3	3	3	3	2	-	-	-	-	-	1	-	2	2	2
19ISE34.4	3	3	3	2	1	-	-	-	-	1	-	2	2	2
19ISE34.5	3	3	3	-	1	-	1	-	-	1	-	2	2	2
19ISE34.6	3	3	3	2	1	-	1	-	-	1	-	2	2	2
AVG	3	3	3	2	1	-	1	-	-	1	-	2	2	2

Table 3.1.3.3: Course Outcomes - Object Oriented Programming with Java – 19ISE44 (Fourth Semester)

COURSE CODE: 19ISE44 COURSE NAME: OBJECT ORIENTED PROGRAMMING WITH JAVA	
Course Outcome No	Course Outcome Statement
19ISE44.1	Use Object-Oriented programming principles to model the real-world programs.
19ISE44.2	Identify the significance of inheritance and interface concepts.
19ISE44.3	Examine the general principles of exception handling in object-oriented programming.
19ISE44.4	Compare the various String Handling functions in Java for code reusability.
19ISE44.5	Apply the concept of multithreading in concurrent programming.
19ISE44.6	Analyze the collections framework in Java for handling user-defined types.

Table 3.1.3.4: Course Articulation Matrix Object Oriented Programming with Java – 19ISE44 (Fourth Semester)

COURSE CODE: 19ISE44		COURSE NAME: OBJECT ORIENTED PROGRAMMING WITH JAVA												
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
19ISE44.1	3	3	3	2	2	-	2	-	-	2	-	3	2	2
19ISE44.2	3	3	3	-	2	-	--	-	-	2	-	3	2	2
19ISE44.3	3	3	3	-	2	-	2	-	-	2	-	3	2	2
19ISE44.4	3	3	3	2	2	-	-	-	-	2	-	3	2	2
19ISE44.5	3	3	3	-	2	-	-	-	-	2	-	3	2	2
19ISE44.6	3	3	3	2	2	-	-	-	-	2	-	3	2	2
AVG	3	3	3	2	2	-	2	-	-	2	-	3	2	2

**Table 3.1.3.5: Course Outcomes - Web Internet Programming – 20ISE51
(Fifth Semester)**

COURSE CODE: 20ISE51		COURSE NAME: WEB INTERNET PROGRAMMING	
Course Outcome No	Course Outcome Statement		
20ISE51.1	Understand the syntax and semantics of designing the web pages using XHTML and HTML5.		
20ISE51.2	Apply Cascading Style Sheets to format the layout of webpages.		
20ISE51.3	Develop JavaScript programs to validate and create dynamic Web Pages.		
20ISE51.4	Develop server side programs using PHP and accessing database through PHP.		
20ISE51.5	Describe the methods to handle data through the web and design XML document.		
20ISE51.6	Inspect the management of state in web applications and Java Script frameworks like jQuery and Backbone which facilitates developer to focus on core features.		

**Table 3.1.3.6: Course Articulation Matrix - Web Internet Programming – 20ISE51
(Fifth Semester)**

COURSE CODE: 20ISE51 COURSE NAME: WEB INTERNET PROGRAMMING														
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
20ISE51.1	2	3	3	2	2	-	1	1	-	-	-	2	3	2
20ISE51.2	2	-	-	2	2	-	1	1	-	-	-	2	3	2
20ISE51.3	2	3	3	2	2	-	1	1	2	2	-	2	3	2
20ISE51.4	2	3	3	2	2	-	1	1	2	2	-	2	3	2
20ISE51.5	2	-	3	2	2	-	1	1	2	2	-	2	3	2
20ISE51.6	2	3	3	2	2	-	1	1	2	2	-	2	3	2
AVG	2	3	3	2	2	-	1	1	2	2	-	2	3	2

Table 3.1.3.7: Course Outcomes - Advanced Java – 20ISE62 (Sixth Semester)

COURSE CODE: 20ISE62 COURSE NAME: ADVANCED JAVA	
Course Outcome No	Course Outcome Statement
20ISE62.1	Analyze the significance of event based programming in Java.
20ISE62.2	Use Java Data Base Connectivity API to access various databases through Java Programs.
20ISE62.3	Implement server side applications using Java servlet technology.

20ISE62.4	Develop JSP based server side solutions to support dynamic web pages.
20ISE62.5	Interpret the importance of frame works in software development
20ISE62.6	Develop enterprise applications on Spring frameworks providing reliable solution to real world challenges.

Table 3.1.3.8: Course Articulation Matrix Advanced Java – 20ISE62 (Sixth Semester)

COURSE CODE: 20ISE62		COURSE NAME: ADVANCED JAVA												
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
20ISE62.1	3	3	3	2	-	-	-	-	-	2	-	2	2	2
20ISE62.2	3	3	3	-	2	-	-	-	-	2	-	2	2	2
20ISE62.3	3	3	3	2	2	-	-	-	-	2	-	2	2	2
20ISE62.4	3	3	3	2	2	-	2	-	-	2	-	2	2	2
20ISE62.5	3	3	3	2	2	-	2	-	-	2	-	2	2	2
20ISE62.6	3	3	3	-	2	-	2	-	-	2	-	2	2	2
AVG	3	3	3	2	2	-	2	-	-	2	-	2	2	2

Table 3.1.3.9: Course Outcomes – Software Testing and Automation – 20ISE71A (Seventh Semester)

COURSE CODE: 20ISE71A		COURSE NAME: Software Testing and Automation
Course Outcome No	Course Outcome Statement	
20ISE71A.1	Understand the fundamental concepts in software testing	
20ISE71A.2	Discuss the importance of Structural and Regression testing	
20ISE71A.3	Examine the various types of Non Functional Testing and related software metrics.	
20ISE71A.4	Describe the Defect Management Process	
20ISE71A.5	Analyze the Test Automation process and related tools.	
20ISE71A.6	Apply the testing tools related to web automation and mobile automation	

Table 3.1.3.10: Course Articulation Matrix COMPUTER NETWORKS – 20ISE72A (Seventh Semester)

COURSE CODE: 20ISE72A		COURSE NAME: COMPUTER NETWORKS												
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
20ISE72A.1	3	2	2	2	-	-	-	-	-	1	-	-	3	2
20ISE72A.2	3	2	2	2	-	-	-	-	-	1	-	-	3	2
20ISE72A.3	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.4	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.5	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.6	3	2	2	2	-	-	-	-	-	1	-	-	3	2
AVG	3	2	2	2	2	-	-	-	-	1	-	1	3	2

Table 3.1.3.11: Course Outcomes - Computer Networks – 20ISE72A (Seventh Semester)

COURSE CODE: 20ISE72A		COURSE NAME: COMPUTER NETWORKS
Course Outcome No	Course Outcome Statement	
20ISE72A.1	Summarize the basic concepts of computer networks, types of networks and reference models such as OSI model and TCP/IP Model, Addressing.	
20ISE72A.2	Describe physical layer signaling and encoding, and techniques of error detection and correction to detect and solve error bit during data transmission.	
20ISE72A.3	Apply IP addressing and routing algorithms to find shortest paths for network-layer packet delivery and to contrast the IPv4 and IPv6 headers.	
20ISE72A.4	Illustrate the essential principles of a transport layer protocol used for reliable data transfer, flow control, congestion control.	
20ISE72A.5	Identify the essential principles of application layer protocol	
20ISE72A.6	Analyze the protocols such as DNS, HTTP, FTP,SMTP, TCP,UDP, IP.	

Table 3.1.3.12: Course Articulation Matrix - Computer Networks – 20ISE72A (Seventh Semester)

COURSE CODE: 20ISE72A		COURSE NAME: COMPUTER NETWORKS												
Course Outcome No	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
20ISE72A.1	3	2	2	2	-	-	-	-	-	1	-	-	3	2
20ISE72A.2	3	2	2	2	-	-	-	-	-	1	-	-	3	2
20ISE72A.3	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.4	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.5	3	2	2	2	2	-	-	-	-	1	-	1	3	2
20ISE72A.6	3	2	2	2	-	-	-	-	-	1	-	-	3	2
AVG	3	2	2	2	2	-	-	-	-	1	-	1	3	2

Program Articulation Matrix is formed by the strength of correlation of COs with Pos and PSOs. The strength of correlation of COs with POs and PSOs is indicated as “3” for substantial (high) correlation, “2” for moderate (medium) correlation and “1” for slight (low) correlation and “-”, if there is no correlation. If the course outcomes are attained the Pos correlated to these course outcomes are also attained.

Programme Articulation Matrix: Batch (2018-2022)

Table 3.1.4: Program Articulation Matrix

Course	Course Code	Course Title	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
C101	18MAT11	Applied Mathematics-I	3	3	3	2	2	-	-	-	-	2	-	3	-	-
C102	18PHY12	Engineering Physics	3	2	2	-	-	-	-	-	2	-	-	1	-	-
C103	18MEE13	Elements of Mechanical Engineering	3	1	3	-	3	2	1	-	-	3	-	1	-	-
C104	18CIV14	Elements of Civil Engineering	3	2	1	1	-	-	-	-	-	-	-	1	-	-
C105	18EEE15	Basic Electrical Engineering	3	3	2	1	1	-	-	-	-	-	2	-	-	-
C106	18PHL16	Engineering Physics Lab	3	2	3	-	-	-	-	-	2	-	-	1	-	-
C107	18EEL17	Basic Electrical Engg Lab	3	3	2	1	1	-	-	3	-	-	-	2	-	-

Criterion-3 Course Outcomes and Program Outcomes



C201	18MAT21	Applied Mathematics-II	3	3	3	3	3	-	-	-	1	3	-	3	-	-
C202	18CHE22	Engineering Chemistry	3	3	-	-	-	-	3	-	-	-	-	3	-	-
C203	18CSE23	Introduction to Programming with C	3	3	3	1	3	-	-	-	3	1	-	1	2	2
C204	18MEE24	Computer Aided Engineering Drawing	2	-	2	2	1	-	-	-	-	2	-	2	-	-
C205	18ECE25	Basic Electronics	3	2	2	-	-	-	-	-	-	-	-	-	-	-
C206	18HSS26	Professional Communication	-	-	-	-	-	-	3	2	3	-	3	-	-	
C207	18CHL27	Engineering Chemistry Lab	3	3	-	-	-	-	3	-	-	-	-	3	-	-
C208	18CSL28	Programming with C Lab	3	3	3	3	3	-	-	-	3	-	-	3	3	3
C301	19CSE31/ 19ISE31	Applied Mathematics-III	3	3	3	2	2	-	-	-	1	1	-	2	-	-
C302	19HSS321	Economics for Engineers	2	2	1	-	1	-	2	2	2	1	2	2	-	-
C303	19ISE33	Digital Logic Design	3	3	3	2	1	1	1	1	1	1	1	2	1	2
C304	19ISE34	Data Structure using C	3	3	3	2	1	-	1	-	-	1	-	2	2	2
C305	19ISE35	Computer Organization	3	2	3	2	2	1	1	1	-	-	2	2	1	1
C306	19ISE36	Python Programming	3	3	3	2	2	-	2	-	-	2	-	1	2	2
C307	19ISL37	Digital Logic Design Lab	3	3	3	2	3	1	1	1	1	1	1	2	1	2
C308	19ISL38	Data Structure using C Lab	3	3	3	2	3	1	-	1	-	-	-	2	2	2
C309	19ISL39	Python Programming Lab	3	3	3	2	3	-	2	1	-	1	-	1	2	2
C310	19ISE391	Mini Project	3	3	3	2	3	-	2	1	3	1	3	2	3	3
C401	19CSE41/ 19ISE41	Discrete Mathematics and Graph Theory	3	3	2	3	1	-	-	-	1	3	-	2	-	-
C402	HSS322/422	Lifeskills for Engineers	-	-	-	-	-	2	-	3	3	3	2	3	-	-
C403	19ISE43	Database Management Systems	3	2	3	2	2	1	1	1	1	1	-	1	2	2
C404	19ISE44	Oops with Java	3	3	3	2	2	-	2	-	-	2	-	3	2	2
C405	19ISE45	Operating Systems	3	2	2	2	1	1	1	-	-	1	-	1	2	2
C406	19ISL46	DBMS Lab	3	2	3	2	3		1	1	-	1	-	1	2	2
C407	19ISL47	Oops with Java Lab	3	3	3	2	3	2	2	2	-	1	-	3	2	2
C408	19ISL48	OS Lab	3	2	2	2	3	1	1	1	-	-	-	1	2	2
C409	19ISE49	Mini Project	3	3	3	2	3	-	2	1	3	1	3	2	3	3
C501	20ISE51	Web Internet Programming	2	3	3	2	2	-	1	1	2	2	-	2	3	2

Criterion-3 Course Outcomes and Program Outcomes



C502	20ISE52	Design and Analysis of Algorithms	3	3	3	3	2	2	-	-	-	-	-	3	3	2
C503	20ISE53	Data Science	3	3	3	2.8 33	2	1.8 33	-	3	2	2	1	2	3	2
C504	20ISE54	Mobile Application Development	3	3	3	2	2	-	2	-	-	2	-	1	3	3
C505	20ISE552	Internet of Things	3	3	2	2	3	2	1	1	2	2	2	2	2	2
C506	20ISL56	Design and Analysis of Algorithms Lab	3	3	3	2	2	-	-	-	-	-	-	2	3	2
C507	20ISL57	Data Science Lab	3	3	3	2	3	-	1.2 5	1	-	1	-	1	3	3
C508	20ISL58	Mobile Application Development Lab	3	3	3	2	3	-	1.2 5	1	-	1	-	1	3	3
C509	20ISE59	Mini Project	3	3	3	2	3	-	1.2 5	1	3	1	3	2	3	3
C601	20ISE61	Software Engineering and Project Management	1.8 3	2.1 66	1.6 6	2.1 6	2	1	1.6 6	0	0.6 6	0.3 3	1	3	2	2
C602	20ISE62	Advanced Java	3	3	3	2	2	-	2	-	-	2	-	2	2	2
C603	20ISE63	Machine Learning	3	3	3	2.8 3	2	1.8 3	-	1	2	2	1	2	3	2
C604	20ISE641	Data Visualization	3	3	3	2	2	-	2	-	-	2	-	1	2	2
C605	20ISE643	Object Oriented Modeling and Design	2	2	2	3	-	-	-	-	-	1	-	2	2	3
C606	20ISE651	User Interface Design	2	3	3	3	2.5	2	2	2	2	3	1.6 6	2	3	2
C607	20ISE652	Virtual Reality	2.1 6	2.3 3	1	1.8 3	1.1 6	1.6 6	1.1 6	1.6 6	1.6 6	1	1	1	2	2
C608	20ISL66	Advanced Java Lab	3	3	3	2	1	2	1	1	2	-	-	2	3	3
C609	20ISL67	Machine Learning Lab	3	3	3	2	3	-	1.2 5	1	-	1	-	1	3	3
C610	20ISE68	Mini Project	3	3	3	2	3	-	1.2 5	1	3	1	3	2	3	3
C611	20NHOP01	Big Data Analytics using HP Vertica-1	3	2	2	1	3	-	-	-	3	2	-	2	2	2
C612	20NHOP07	SAP	2.6	1.6 6	2	2	3	3	1	1	2	2	3	2	2	2
C613	20NHOP14	Blockchain	3	3	3	2	3	-	-	1	1	1	1	-	2	2
C614	20NHOP15	Product Life Cycle Management	3	2	3	1	3	-	-	-	1		1	-	2	2
C615	20NHOP02	VMware Virtualization Essentials-1	2	2	2	2	2	1	-	-	1	2	1	1	2	2
C616	NHOP10	Data Analytics	3	2	3	3	3	-	-	-	3	1	-	3	2	2
C701	20ISE71A	Software Testing and Automation	3	3	3	3	2	1	-	3	3	2	2	3	2	3

C702	20ISE72A	Computer Networks	3	2	2	2	2	-	-	-	-	1	-	1	3	2
C703	20ISE73A	Cryptography and Information Security	3	3	3	3	2.5	3	3	1	1	-	1	1	3	3
C704	20ISE742A	Cloud Computing	3	3	3	3	3	2	2	1	1	1	3	3	3	2
C705	20ISE752A	Digital Marketing	3	3	3	3	-	3	-	3	1	-	3	-	3	1
C706	20ISE753A	DevOps	3	3	3	3	3	2	-	2	2	-	3	2	3	2
C707	20ISL76A	Software Testing and Automation Lab	3	3	3	3	3	-	-	-	-	-	-	3	3	3
C708	20ISL77A	Computer Networks Lab	3	3	3	3	3	2.7 5	3	3	2.5	-	3	2.3 3	2	2
C709	20ISE78A	Project Phase-1	3	2.2 5	2.6 6	3	2.2 5	2.5	2.5	3	3	3	2.5	3	3	3
C710	20NHOP702	VMware Virtualization Essentials-1	2	2	2	2	2	1	-	-	1	2	1	1	2	2
C711	20NHOP704	Big Data Analytics using HP Vertica-II	3	3	1	1	3	-	-	-	3	2	-	2	2	2
C712	20NHOP705	VMware Virtualization Essentials-2	3	3	2	2	2	-	-	-	2	1	-	2	3	3
C713	20NHOP707	SAP	2.5	1.6 6	2	2	3	3	1	1	2	2	2.6 6	2	2	2
C801	20ISE812A	Software Architecture & Design Patterns	3	2.6 6	2.4	-	-	-	-	-	-	2.4	2.4	-	3	2
C802	20ISE814A	Management & Entrepreneurship	-	-	1	3	2	3	2	3	3	2	3	2	2	2
C803	20ISE82A	Internship Viva	3	2	2	3	2.2 5	2.5	2.5	3	3	3	2.5	3	3	3
C804	20ISE83A	Project Phase-2	3	2	2	3	2.2 5	2.5	2.5	3	3	3	2.5	3	3	3

3.2 Attainment of Course Outcomes (75)

3.2.1 Describe the assessment tools and processes used to gather the data upon which the evaluation of Course Outcome is based (10)

In Outcome Based Education, assessment is carried out by the department to identify, collect, analyze and evaluate the data towards the achievement of Course Outcomes(CO). The course outcomes are assessed based on direct assessment tools. The direct method of assessment includes the performance of the students in all the relevant assessment tools – Continuous Internal Examination (CIE) like Internal Assessments(IA), Assignments, Quizzes and Semester End Examination (SEE). CIE contributes 50% and SEE contributes 50% to the total attainment of a course outcome.

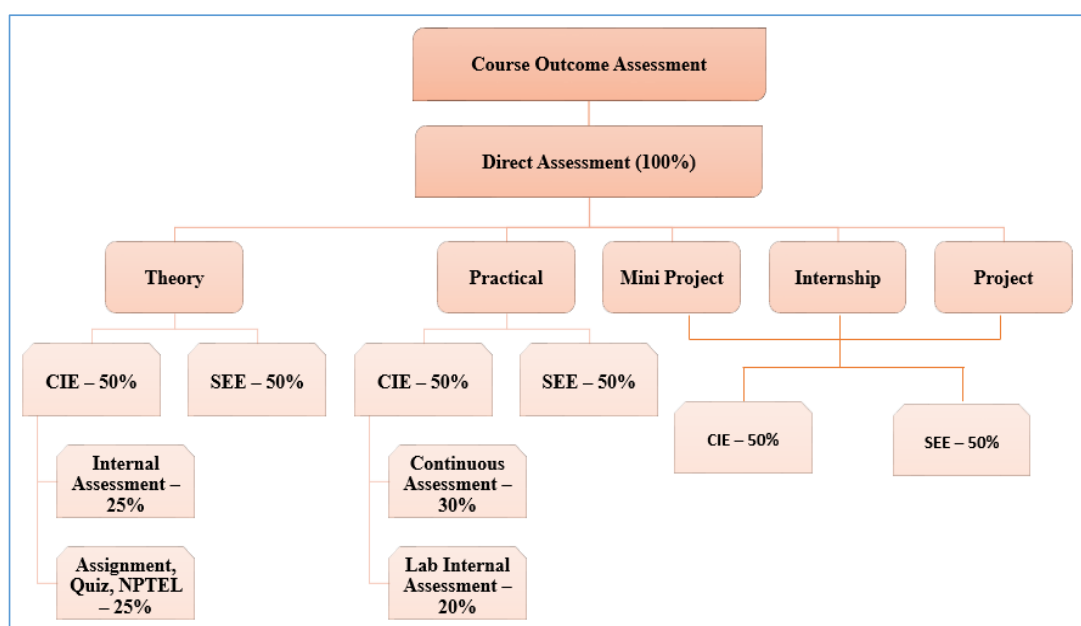


Figure 3.2.1.1 CO Assessment Tools

Figure 3.2.1.1 shows the assessment tools for CO assessment for the theory, practical, internship and project courses in the programme. For the Theory courses, CIE consists of 2 quizzes, 2 assignments and three internal tests per semester. For the laboratory courses, assessments are done based on the continuous internal evaluation of students in every laboratory, internal test, and Semester End Lab Exams. For internship and Project courses, performance assessment is carried out based on reviews given by the students on the corresponding work done. Each and every review is focused in attaining the program outcomes. The direct assessment based on marks obtained by the individual student is then mapped with POs & PSOs through COs. Semester End Examination will be conducted for 100 marks. The questions in SEE paper evenly covers the COs of a course. The Semester End Exam marks are scaled down to 50 and then summed up with the Continuous Internal Evaluation marks for a total of 100 marks for attainment level calculations of COs.

Tools used in measuring CO

The method of assessment method includes:

- Internal Assessment(IA)
- Assignments
- Quizzes

- Internal Laboratory Test
- Mini Projects
- Project
- Internship
- Semester End Examination (SEE)

Table 3.2.1.1: Direct Assessment Tools – CO Attainment

Course	Assessment Tools	Description
Theory Courses	Internal Assessment (IA) Test (1, 2 and 3)	<p>This tool is used to evaluate the attainment of COs through direct and critical questions related to the specific topics covered during the class.</p> <ul style="list-style-type: none"> • Three internal assessment tests are conducted for all the courses and the average is considered. • The frequency of CO assessment is once per semester. • The questions in the test are mapped against COs of respective courses. • All three IA test questions are framed in such a way to ensure the coverage of all CO's. • Upon the completion of every test, course instructor enters the marks secured by the students. • The status of mapping and marks entry are reviewed by Program Coordinator. • Entered marks are taken for measuring the CO Attainment
	Assignment	<p>Two assignments per semester are given by course instructor.</p> <ul style="list-style-type: none"> • Assignment questions include complex analytical problems and real time. • Course instructor prepares three sets of assignment paper, ensuring same RBT levels and COs in all the sets. • Questions in all the sets are verified by Program Academic coordinator. Any mismatch in sets is informed to course instructor for correction. • Attainment of COs is measured through questions prepared by the faculty to test the student's problem solving skills.

	Quiz	<ul style="list-style-type: none"> •Two Quizzes per semester are given by course instructor. •Quiz marks are assessed towards the attainment of COs.
	Semester End Examination	<ul style="list-style-type: none"> •Semester end examination is conducted for all the courses through descriptive mode as per the calendar of events. •The questions for this exam covers entire syllabus of the courses and questions are framed in such a way to cover all COs. •Each question is mapped with appropriate course outcomes. •Final marks are taken for assessing CO attainment.
Lab Courses	Continuous Internal Assessment (Conduction of Experiment, Lab observation and Record)	<p>This assessment is carried out in the day to day evaluation of student performance in the laboratories with respect to conduction of experiments.</p> <ul style="list-style-type: none"> •As per the syllabus, Experiments are planned for each laboratory course and each experiment is mapped with any one of the defined COs.
	Internal Test (1 and 2)	<ul style="list-style-type: none"> •Two lab internals are conducted for all the lab courses and their averages are considered. •The performance of students in the laboratory is evaluated through appropriate rubrics for the attainment of COs.
	Semester End Lab Examination	<p>Final exam of 3 hours' duration is conducted for lab courses.</p> <ul style="list-style-type: none"> •This tool assesses the ability of a student to perform a given task by integrating the knowledge gained from related theory course and regular lab sessions. •The exam is evaluated with appropriate rubrics that include conduction of experiments and viva voce of the experiment performed.
Internship	Continuous Internal Evaluation	<ul style="list-style-type: none"> •The student undergoes an internship for the duration of 4 to 6 weeks. •Students are encouraged to carry out internship in reputed industries/ public sector to get the practical exposure from industries. •Mentors are allotted for students to guide them in internship guidance.

		<ul style="list-style-type: none"> •Students shall report the progress of the internship to the mentor in regular intervals. •The exam is evaluated with appropriate rubrics that include conduction of experiments and viva voce of the experiment performed.
	Semester End Examination	<ul style="list-style-type: none"> • Final exam of 3 hours' duration is conducted. •The exam is evaluated with appropriate rubrics that include conduction of experiments and viva voce of the experiment performed.
Project/Mini Project	Continuous Internal Evaluation	<p>Project/Mini Project batches are formed as per the instruction given by project Coordinators.</p> <ul style="list-style-type: none"> •Each faculty gives few topics in their domain for the students. •Students can select the topics based on their interest and carry out the project under their guidance. •Synopsis will be submitted to the project coordinator for scrutinizing. •Each internal guide monitors the students on a weekly basis to observe the progress in their work. •Project/Mini Project guide along with project Coordinator conducts three project/Mini Project reviews as per the guidelines, then submit the internal assessment to the Head of the Department. •The Department also encourages the students to participate in project exhibition and also identifies the best 3 projects and the winners are awarded. •The performance of students in project work is evaluated through appropriate rubrics for the attainment of Cos.
	Semester End Examination	<p>Final exam of 3 hours' duration is conducted.</p> <ul style="list-style-type: none"> •The exam is evaluated with appropriate rubrics that include conduction of experiments and viva voce of the experiment performed.

Table 3.2.1.2: Distribution of Marks for Direct Assessment Tools – CO Attainment

Course	Assessment Tool		Maximum Marks	Marks Scaled to	Weightage
THEORY	Internal Assessment -1		25	25	50%
	Internal Assessment -2		25		
	Internal Assessment -3		25		
	Assignments/ Quizzes/NPTEL		25	25	
	Semester End Examination		100	50	50%
LABORATORY	Continuous Assessment	1.Lab Conduction 2.Execution 3.Documenting (Observation/ Record)	30	25	50%
		Lab Internal Test			
	SEE		50	25	50%
MINI PROJECT	CIE	Review-1 & Review-2	50	25	50%
	SEE	Review	50	25	50%
INTERNSHIP	CIE	Review-1 & Review-2	50	50	50%
	SEE	Review	50	50	50%
PROJECT PHASE-I	CIE	Review-1 & Review-2	50	50	50%
	SEE	Review	50	50	50%
PROJECT PHASE-II	CIE	Review-1 & Review-2	100	100	50%
	SEE	Review	100	100	50%

Table 3.2.1.3. Assessment Rubrics - Mini Project

Rubric Parameter	Marks	Exceeds expectation (80-100% Marks)	Meets expectation (60-70% Marks)	Does not meet expectation (40-60% Marks)
Objective , State Existing method with proposed method	5	All objectives of the proposed work are well defined; Steps to be followed to solve the defined problem are clearly specified.	Good justification to the objectives; Methodology to be followed is specified but detailing is not done	Incomplete justification to the objectives proposed; Steps are mentioned but unclear; without justification to objectives.
Analysis / Description of the project	5	Complete explanation of the key concepts and strong description of the technical requirements of the project.	Complete explanation of the key concepts but insufficient description of the technical requirements of the project.	Incomplete explanation of the key concepts and insufficient description of the technical requirements of the project.
Implementation & Adherence to coding standards	5	Project approach/methods/ parameters were clearly outlined and justified	Project approach/methods/ parameters were outlined and justified satisfactorily.	No project approach/ methods/ parameters were insufficient.
Presentation Skills & Viva	5	Excellent body language use of additional means e.g.whiteboard, Able to answer all questions, shows in depth knowledge	Confident body language and message delivery, Able to answer questions	Not confident, less eye contact or low body language, Unable to answer, shows lack of knowledge
Report	5	As per the Standard format ,Excellent representation of the Architecture Diagrams, Methods, Results Adhere Plagiarism Standards	As per the Standard Format, Representation of the Architecture Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards	Not according to guidelines and Standard Formats, Adhere Plagiarism Standards

Table 3.2.1.4: Assessment Rubrics of Internship

Rubric Parameter	Marks [50]	Level of Achievement			
		Outstanding 80-100%	Good 70-80%	Average (6) 60-70%	Poor (4) 40-50%
Objective of Internship	5	The objective of Internship is clear and well defined.	Objective of training is defined with good justification.	Objective of training is defined with nominal justification.	Objective of training meets minimum requirement.
Internship Undertaken	10	Internship is completed in very systematic manner. Illustrated complete Internship with detailed implementation.	Internship is completed in appropriate manner. Illustrated considerable Internship implementation details.	Internship is completed but not systematically. Illustrated Internship with moderate implementation details.	Internship is not completed.
Technical Knowledge	10	Extensive knowledge of technology implemented	Fair knowledge of technology implemented	Lacks sufficient knowledge of technology implemented	Lacks complete knowledge of technology implemented
Presentation Skills	10	Loud and clear with proper eye contact	Clear speech but no eye contact	Average presentation skills	Unclear
Viva Voce	10	Answers effectively in a satisfied manner to queries by the examiner	Answers appropriately to queries by the examiner	Non satisfactory answers to the queries by the examiner	Does not answer to queries by the examiner
Report	5	Report as per standard format and completed. Adhere Plagiarism Standards	Report completed with very few contents not as per format. Adhere Plagiarism Standards	Report completed but formatting not done properly. Adhere Plagiarism Standards	Report not prepared as per format. Adhere Plagiarism Standards

Table 3.2.1.5: Assessment Rubrics of Project Phase-1

Review #	Rubric Parameter	Marks	Exceeds expectation (80-100% Marks)	Meets expectation (60-70% Marks)	Does not meet expectation (40-60% Marks)
REVIEW-1	Identification of Problem Domain and Detailed Analysis	5	Detailed and extensive explanation of the purpose and need of the project	Adequate explanation of the project's purpose and need	Minimal explanation of the purpose and need of the project
	Literature Review	10	Able to detail the scope and purpose of the study. Explain previous studies related with insightful pros and limitations.	Adequate explanation of purpose of study and not insightful pros and limitations.	Incomplete explanation of purpose of study and not insightful pros and limitations.
	Presentation Skills & Viva	5	Excellent body language use of additional means eg. whiteboard, Able to answer all questions, shows in depth knowledge	Confident body language and message delivery, Able to answer questions	Not confident, less eye contact or low body language, Unable to answer, shows lack of knowledge
REVIEW-2	Objectives of the Study.	5	All objectives of the proposed work are well defined.	Good justification to the objectives specified.	Incomplete justification to the objectives proposed.
	Methodology of the Proposed Work	10	Steps to be followed to solve the defined problem are clearly specified.	Methodology to be followed is specified but detailing is not done	Steps are mentioned but unclear; without justification to objectives.
	Paper Publication	10	Paper Communicated to journals, done with conference, and waiting for publication.	Paper Communicated, waiting for conference/Publication	Paper not communicated to Journals.
	Project Phase-1 Report	5	As per the Standard format, Excellent representation of the	As per the Standard Format, Representation of the Architecture	Not according to guidelines and Standard Formats,

			Architecture Diagrams, Methods, Results Adhere Plagiarism Standards	Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards	Adhere Plagiarism Standards
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Table 3.2.1.6: Assessment Rubrics of Project Phase-2

Review #	Rubric Parameter	Marks	Exceeds expectation (80-100% Marks)	Meets expectation (60-70% Marks)	Does not meet expectation (40-60% Marks)
REVIEW-1	Design Methodology	20	Division of problem into modules and good selection of computing framework Appropriate design methodology and proper justification	Division of problem into modules but inappropriate selection of computing framework Design methodology not defined properly	Modular approach not adopted. Design methodology not defined
	50% Demonstration of the Project Work	20	Able to apply the specified computing framework and meet 50% of objectives defined.	Able to apply the specified computing framework but didn't meet 50% of objectives.	Not able to apply the specified Computing framework.
	Presentation Skills & Viva	10	Excellent body language use of additional means eg. whiteboard, Able to answer all questions, shows in depth knowledge	Confident body language and message delivery, Able to answer questions	Not confident, less eye contact or low body language, Unable to answer, shows lack of knowledge
REVIEW-2	100% Demonstration and presentation of the Project Work	30	Complete Demonstration of the all the objectives of the Project with suitable testing methods applicable for all the modules.	Met the objectives Implementation of the Project, All modules are not tested.	Not all objectives are met.

	Project Phase-2 Report	20	As per the Standard format, Excellent representation of the Architecture Diagrams, Methods, Results Adhere Plagiarism Standards	As per the Standard Format, Representation of the Architecture Diagrams, Methods, and Results can be improved. Adhere Plagiarism Standards	Not according to guidelines and Standard Formats, Adhere Plagiarism Standards
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Process of Course Outcome Data Collection:

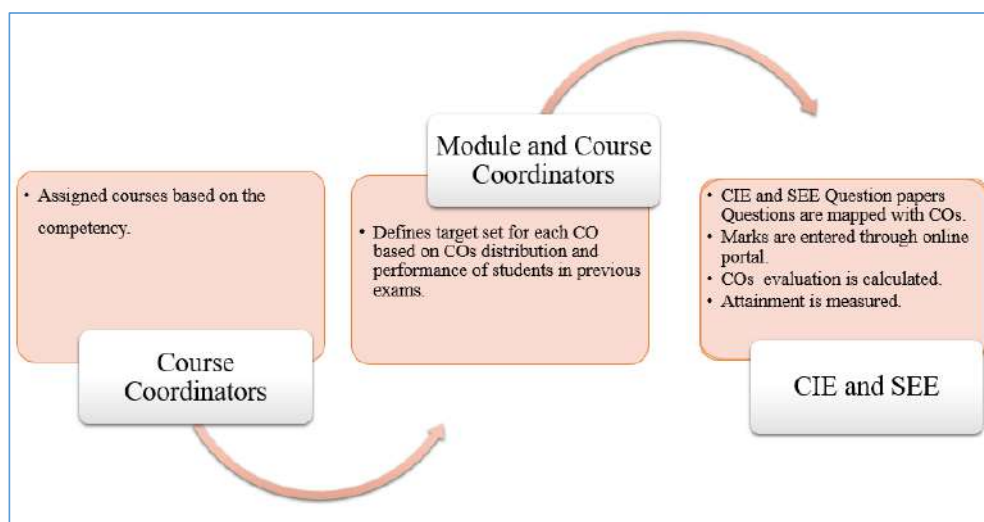


Figure 3.2.1.2: Process – CO Data Collection

Internal Test Question Papers are aligned with Revised Blooms Taxonomy Levels and COs'. There is a provision to map the questions with respective Revised Blooms Taxonomy and COs' in the online portal. Marks are entered into the online portal after the answer booklets have been evaluated. A Report is generated from the online portal with each students' marks mapped to COs'. Semester End Exam also follows a similar pattern of mapping Question Paper Questions with Revised Blooms Taxonomy Levels and COs' with online entry of Students' marks in the portal and Report generation.

A Sample CIE Question Paper, SEE Question Paper are provided in the following section.

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
(Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
Department of Information Science and Engineering

Academic Year: 2019-20
Course: Python Programming
Date: 05/09/2019

TEST -I(ODD Semester 2019-20)

SET-A

Sem: III A & B
Code: 19ISE36
Max.Marks:25

Answer all the questions (Each question carries 5 marks)

Sl. No	Question	Marks	RBT Level	CO's
1.	List the features of Python language. (OR)			
2.	Write the output of the following: a) 7.7//7 b) 5*1**2 c) not "False" d) s="Python" print(s[-1]+s[1:-1]+s[0]) e) x = 123 for i in x: print(i, sep="**")	05	L1	CO1 CO2
3.	Explain the code translation process in python with the help of a diagram. (OR)	05	L2	CO2
4.	Explain pass by object reference in Python with suitable code snippets.			
5.	Apply import, from, * and other module related concepts to create a module called "calc" consists of 3 functions. factorial(n): returns the factorial of a number sum_of_digits(n): returns sum of the digits of a number sum(n): returns sum of numbers from 1 to n Write another module caller "user", import the calc module and illustrate the use of all the functions of calc module. (OR)	05	L3	CO2
6.	Write and Use a user defined function to check whether a given number is "Armstrong" number or not.			
7.	Summarize the usage of file handling APIs in python with a suitable python program to count number of characters in a file and print the first 20 characters. (OR)	05	L2	CO2
8.	Summarize the usage of map and filter function with lambda function in python functional programming.			
9.	Classify the different argument types supported in python functions. (OR)			
10.	Draw and compute the following pattern using python nested loops. * * * * * * * * * * * * * * * * * * * *	05	L3	CO1

NEW HORIZON COLLEGE OF ENGINEERING, BANGALORE
(Autonomous Institution affiliated to VTU, Accredited by NBA & NAAC with Grade 'A')
Department of Information Science and Engineering

TEST – II (ODD Semester 2019-20)

Academic Year: 2019-20
Course: Python Programming
Date: 11/10/2019

Sem: III A&B
Code: 19ISE36
Max.Marks:25

SET-A

Answer all the questions (Each question carries 5 marks)

Sl. No	Question	Marks	RBT Level	CO's
1.	Write a python program to find the Cumulative Sum of a List where the ith Element is the Sum of the First i+1 Elements From The Original List (OR)	05	L1	CO3
2.	Write a python code to read a List of Words and Return the Length of the Longest One.			
3.	Explain concept of cloning in List data type with suitable example. (OR)	05	L2	CO3
4.	Differentiate between Tuples and Dictionary			
5.	Apply Object oriented programming concepts in python to compute a class which has methods to Append, Delete and Display Elements of a List. (OR)	05	L3	CO3, CO4
6.	A list contains numbers from 1 to 1000 in order, apply list comprehensions to generate a new list with labels "odd" for odd numbers and "even" for even numbers. Eg: old_lst = [1,2,3,4,5] new_lst = ['odd','even','odd','even','odd']			
7.	Illustrate the usage of Set operation to find out common characters between two strings. Also change the case of the strings which are present in first string but not in second string. (OR)	05	L3	CO3 CO4
8.	Illustrate the difference between class variable and instance variables in Python using suitable program snippets.			
9.	Discuss the concept of access specifier in python. (OR)	05	L2	CO4
10.	Explain the concept of constructors in python Object Oriented Programming.			

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19ISE36

New Horizon College of Engineering, Bangalore

Autonomous College affiliated to VTU, Accredited by NAAC with 'A' Grade & NBA

Semester End Examinations Nov/Dec 2019

PYTHON PROGRAMMING

Duration: 3 hrs

Max. Marks: 100

Answer five full questions choosing one complete question from each module.

Module 1

- 1 a) List the rules to declare a variable in python .Demonstrate by using any three different types of variable with an example 6 L1 CO1
- b) Explain code translation process in python with help a diagram 7 L2 CO1
- c) Illustrate a simple calculator python program that can add, subtract, multiply or divide depending upon the input from the user. 7 L3 CO1

OR

- 2 a) Write a program for to find the factorial of a number and display it.. 6 L1 CO1
- b) Summarize different data types supported in python 7 L2 CO1
- c) Illustrate Loop control structures in python with an example 7 L3 CO1

Module 2

- 3 a) Write a program to find the sum of square of natural numbers up to n using recursive function 5 L1 CO2
- b) Explain different ways to read from a File in python 7 L2 CO2
- c) Illustrate how Returning multiple values from a function in a python. 8 L3 CO2

OR

- 4 a) Write the different ways of importing a module in python? 5 L1 CO2
- b) Discuss how functions act as objects in python 7 L2 CO2
- c) Illustrate Pass by Object reference supported in Python. 8 L3 CO2

Module 3

- 5 a) List any four built in string functions in python. 5 L1 CO3
- b) Explain List comprehensions. write a program to count number of characters in string and store them in dictionary data structure 8 L2 CO3

		19ISE36		
c)	Illustrate sort function in list with an example to sort the words in a sentence based on length of the words.	7	L3	CO3
OR				
6 a)	Explain difference between tuple and list	5	L1	CO3
b)	Using dictionary, write a python code to count the frequency of each word appearing in a user specified sentence. Print the dictionary.	8	L2	CO3
c)	Illustrate the different ways to achieve cloning in list using suitable program	7	L3	CO3
Module 4				
7a)	Define the following: (i) Class (ii) Data member (iii) Inheritance (iv) object	4	L1	CO4
b)	Compare two kinds of attributes of a class in python with an example.	8	L2	CO4
c)	Illustrate the concepts of constructors in python with example.	8	L3	CO4
OR				
8 a)	Describe the use of <code>__del__</code> in python with example.	4	L1	CO4
b)	Explain Overriding in python with an example.	8	L2	CO4
c)	Compute a python program to demonstrate the concept of Inheritance in python?	8	L3	CO4
Module 5				
9 a)	Define Exception. Summarize the keywords used for Exception handling with the syntax and example program.	10	L2	CO5
b)	Illustrate Why Python is needed for Web Scraping and How does Web Scraping work?	10	L3	CO6
OR				
10a)	Explain how to define User defined Exception with example.	10	L2	CO5
b)	Compute a python program to extract data from pdf files.	10	L3	CO6

CO Attainment:

Attainment of CO is directly measured from the performance of students in Continuous Internal Evaluation (CIE) and Semester End Examination (SEE).

$$\text{Final CO Attainment} = 50\% \text{ of CIE} + 50\% \text{ of SEE}$$

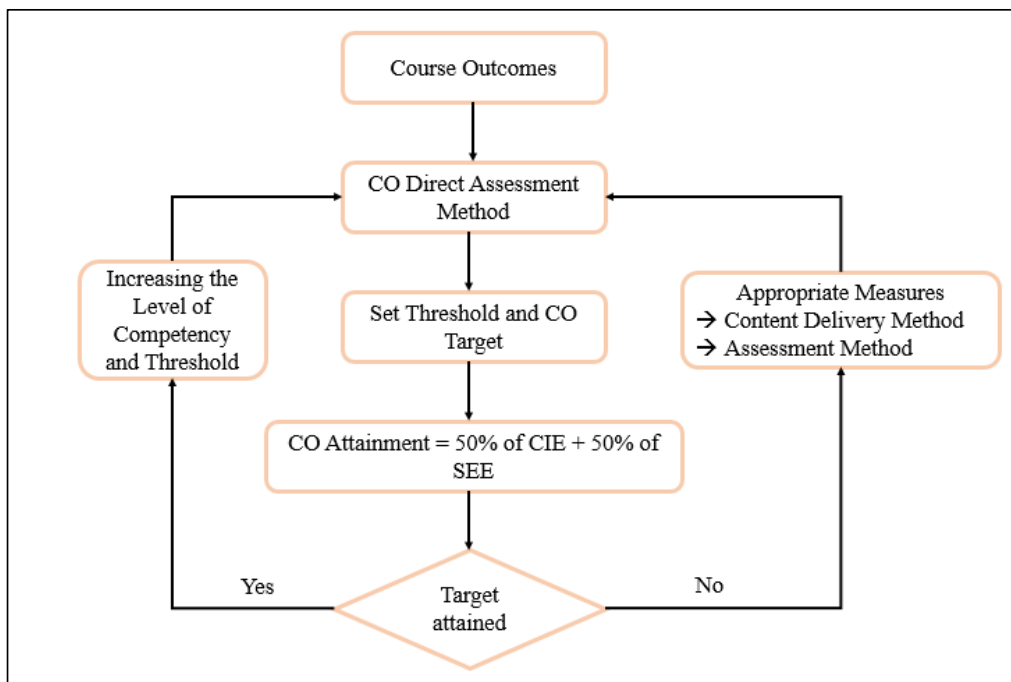


Figure 3.2.1.3: Process - CO Assessment

For assessing the attainment of COs in CIE and SEE, each CO of the course is mapped to individual questions and threshold is fixed for each CO. The process of CO assessment is shown in Figure 3.2.1.3. The individual COs of the courses is mapped with Correlation level and is being evaluated by prescribed assessment tools. Initially, Threshold and CO target is set for the courses. After the internal and external assessment, CO attainment is calculated. The attainment of COs is compared with the threshold. If it is met, threshold is revised for the subsequent years. If it is not met, course and module coordinator will plan for appropriate actions to attain the COs.

Action may include co-curricular activities and also tutorial classes/extra classes for all students and remedial classes for slow learners of that particular course.

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set Attainment levels (65)

Attainment of COs is directly measured from the performance of students in Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). For assessing the attainment of COs in CIE and SEE, the course outcomes are mapped to respective questions and target is set for each CO of the courses. The courses are grouped into several streams of Information Science and Engineering and are listed in Table 3.2.2.1.

Table 3.2.2.1: Grouping of the Courses

Category	Course Code
Basic Science and Humanity	18MAT11, 18PHY12, 18MEE13, 18CIV14, 18EEE15, 18PHL16, 18EEL17, 18MAT21, 18CHE22, 18CSE23, 18MEE24, 18ECE25, 18HSS26, 18CHL27, 18CSL28, 19ISE31, 19HSS321, 19ISE41, 19HSS422
Electronics Based Courses	19ISE33
Theory Courses	19ISE34, 19ISE35, 19ISE36, 19ISE43, 19ISE44, 19ISE45, 20ISE51, 20ISE52, 20ISE53, 20ISE54, 20ISE61, 20ISE62, 20ISE63, 20ISE71A, 20ISE72A, 20ISE73A
Professional Electives	20ISE552, 20ISE641, 20ISE643, 20ISE651, 20ISE652, 20ISE742A, 20ISE752A, 20ISE753A, 20ISE812A, 20ISE814A
Open Electives	20NHOP01, 20NHOP07, 20NHOP14, 20NHOP15, 20NHOP02, 20NHOP10, 20NHOP702, 20NHOP704, 20NHOP705, 20NHOP707
Mini Project	19ISE391, 19ISE49, 20ISE59, 20ISE68
Internship	20ISE82A
Project Work	20ISE78A, 20ISE83A
Lab Courses	19ISL37, 19ISL38, 19ISL39, 19ISL46, 19ISL47, 19ISL48, 20ISL56, 20ISL57, 20ISL58, 20ISL66, 20ISL67, 20ISL76A, 20ISL77A

The process for calculating CO attainment through Continuous Internal Evaluation and Semester End Examination are described as below.

Step 1: COs are mapped in the CIE (Internal Assessment -1, 2, 3, Assignments -1, 2, Quiz -1, 2) and SEE Components.

Step 2: CO target is defined based on the assessment tools shown and also the overall performance of that course in the previous years.

Step 3: Set the threshold for the course. Threshold is the minimum percentage of marks that needs to be obtained by the students. This threshold is considered as benchmark for calculating the attainment levels.

Step 4: After setting the benchmarks, percentage attainment is calculated by counting the number of students scoring above the benchmark divided by total number of students attempted for the COs. The marks obtained by students CO wise is shown in **Table 3.2.2.2**

Step 5: The percentage of students in the class who scored more than threshold percentage of marks in the respective CO is the attainment. Based on the attainment percentage obtained, the attainment level for each of the CO is identified.

Table 3.2.2.2 -Sample Report of Marks Obtained by Students Course Outcome wise

Criterion-3 Course Outcomes and Program Outcomes

New Horizon College of Engineering		OBE REPORT																							
		Question Paper OBE Analysis																							
		Course Name: PYTHON PROGRAMMING (19ISE36)																							
		CIE												SEE											
		CO1		CO2		CO3		CO4		CO5		CO6		CO1		CO2		CO3		CO4		CO5		CO6	
		Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks	Obtained Marks	Max Marks
1	1NH18IS001	8	10	18	25	10	20	3	15	8	10	9	15	9	20	7	25	8	20	4	12	11	18	4	10
2	1NH18IS002	10	15	27	35	19	20	14	15	15	15	15	15	20	20	14	20	37	40	17	20	8	10	4	10
3	1NH18IS003	9.5	15	24	30	25	25	20	20	13	15	13	15	15	20	17	20	14	20	18	20	8	10	8	10
4	1NH18IS004	2	5	10	15	2	5			3	5	4	5	3	7									2	10
5	1NH18IS005	9	10	19	20	25	25	20	20	15	15	15	15	18	20	18	20	12	20	14	20	9	10	8	10
6	1NH18IS006	8	10	18	20	15	20	12	15	15	15	11	15	13	20	14	20	10	13	8	8	16	18	3	10
7	1NH18IS007	13	15	32	35	20	20	15	15	15	15	15	15	19	20	36	40	12	13	13	20	9	10	9	10
8	1NH18IS008	13	15	23	25	15	25	16	25	15	20	15	15	17	33	14	20	16	20	20	20	9	10	9	10
9	1NH18IS009	8	10	12	15	2	10	2	10	2	10	1	5	18	20	10	12	10	13			18	18	1	10
10	1NH18IS010	10	10	16	20	12	20	9	15	14	15	12.5	15	18	20	5	15	13	33	11	20	6	10	5	10
11	1NH18IS011	10	15	20	30	10	20	12	15	16	20	14	20	19	20	3	12	10	20	3	8	12	18	6	10
12	1NH18IS012	9	15	13	20	18	20	13	15	15	15	15	15	20	20	20	20	19	20	6	8	16	18	7	10
13	1NH18IS013	10	10	18	20	11	15	10	15	15	15	7	10	14	14	6	12	13	20	2	4	5	10	3	10

Criterion-3 Course Outcomes and Program Outcomes

35	INH18IS037	2	5	18	25	3	10	4	10	13	15	8	15	19	20	8	20	11	20	7	12	14	18	6	10
36	INH18IS038	8	10	16	20	15	30	17	20	15	15	15	15	17	20	6	20	11	20	8	12	13	18	8	10
37	INH18IS039	10	10	18	20	13	20	14	15	15	15	11	15	32	40	4	15	13	20	17	28	17	18	10	10
38	INH18IS040	15	15	25	25	19	25	12	15	15	15	9	15	16	20	9	20	9	20	13	20	7	10		
39	INH18IS041	9	10	19	20	20	20	15	15	15	15	15	15	20	20	18	20	18	20	7	8	15	18	8	10
40	INH18IS042	12	15	23.5	30	22	30	14	20	15	15	15	15	31	40	11	20	15	20	10	20	9	10	8	10
41	INH18IS043					5	5	9	10	8	10	2	5	17	20	4	8	11	20	9	12	5	8	9	10
42	INH18IS044	7	10	18	20	20	20	20	20					17	20	17	20	11	20	8	12	12	18	5	10
43	INH18IS045	12	15	24	30	12	20	10	15	15	15	12	15	18	20	14	20	17	20	16	20	9	10	9	10
44	INH18IS046	13	15	11	15	7	15	4	15	18	20	16	20	26	40	12	20	9	20	5	12	13	18	4	10
45	INH18IS047	5	5	6	10	9	15	8	10	15	15	12	15	11	20	10	13	11	12	11	12	4	8		
46	INH18IS048	10	10	20	20	20	20	15	15	19	20	16	20	31	40	20	20	25	25	16	20	8	10	8	10
47	INH18IS049	8	10	12	20	7	10	10	10	15	15	12	15	9	14	8	12	12	20	2	12	17	18	8	10
48	INH18IS050	7	10	8	10	15	15	8	10	13	15	14	15	3	14	6	20	5	20	3	12	3	8		
49	INH18IS051	8	10	8	10	10	10	4	5	15	15	13	15	13	20	2	8	15	20	6	12		5	10	
50	INH18IS052	7	10	10	15	12	20	6	15	15	15	6	10	14	20	12	20	14	20	15	20	10	10	5	10
51	INH18IS053	9	10	23	25	20	20	15	15	12	15	15	15	19	20	15	20	16	20	11	12	16	18	9	10
52	INH18IS054	10	10	10	10	10	15	3	5	13	15	11	15	18	20	12	20	11	20	5	20	7	10	7	10
53	INH18IS055	9	15	12	15	9	15	2	5	11	15	7	15	18	20	5	15	12	20	11	20	7	10	5	10
54	INH18IS056	12.5	15	21.5	25	20	20	15	15	20	20	20	20	16	20	15	20	16	20	17	20	8	10	8	10
55	INH18IS057	7	10	17	20	20	25	20	20	15	15	11	15	13	20	18	20	13	20	16	20	9	10	5	10

Criterion-3 Course Outcomes and Program Outcomes

56	INH18IS058	8	10	18	20	20	21	25	19	20	13	15	9	15	14	20	11	20	10	20	9	20	20	10	8	10	5	10
57	INH18IS059	8	10	18	20	20	17	20	15	15	10	10			19	20	13	20	14	20	18	20	20	20	5	10		
58	INH18IS061	5	5	15	20	20	2	10	5	10	7	15	10		15	10	14	2	12	13	5	8	16	18	4	10		
59	INH18IS062	12.5	20	18.5	25	19	20	20	15	15	15	15	15		17	20	15	20	18	20	18	20	10	10	10	10		
60	INH18IS063	11	15	27	30	15	15	15	15	15	15	15	15		16	20	19	20	20	20	16	32	15	18	7	10		
61	INH18IS064	9	10	14	20	11	20	14	14	15	15	14	14		16	20	9	13	7	20	4	8	10	18	3	10		
62	INH18IS065	10	10	20	20	20	20	20	15	15	5	15	12		20	20	9	20	15	20	19	32	16	18	8	10		
63	INH18IS066	8	10	13	20	16	20	14	14	15	15	15	15		17	20	14	20	14	20	7	12	16	18	3	10		
64	INH18IS067	8	10	14	25	21	25	16	16	20	15	15	10		14	20	15	20	20	20	7	12	12	18	9	10		
65	INH18IS068	6.5	15	6.5	15	5	5	8	8	10	10	10	1		5	15	20		8	20	8	12	8	10	2	10		
66	INH18IS069	8	10	18	20	20	20	20	15	15	15	15	14		17	20	14	20	15	20	15	20	7	10	3	10		
67	INH18IS070	10.5	15	18.5	25	3	10	1	5	5	8	15	11		11	20	2	12	6	12	12	20	4	10	5	10		
68	INH18IS071	7	10	17	25	18	25	7	7	15	15	15	10		18	20	17	20	14	20	10	20	12	20	1	10		
69	INH18IS072	8	10	15	20	5	15	6	6	10	10	15	6		10	8	13	7	20	3	12	3	12	15	18	8	10	
70	INH18IS073	8	10	18	20	25	25	20	20	20	15	15	15		15	20	11	12	17	20	8	12	16	18	9	10		
71	INH18IS074	8	10	8	10	15	15	20	7	15	5.5	15	5.5		10	20	9	20	13	20	5	12	11	18	3	10		
72	INH18IS075	3	10	8	15	14	14	20	21	30	7	10	3		5	17	20	13	18	20	10	12	17	18	5	10		
73	INH18IS076	14	15	22	25	21	30	33	35	35	10	10	5		19	20	19	20	18	20	10	12	18	18	10	10		
74	INH18IS077	5	5	14	20	11	15	28	35	35	5	5	3		5	15	6	20	13	20	2	4	15	18	5	10		
75	INH18IS078	13	15	24	25	20	20	30	30	30	10	10	5		19	20	15	20	19	20	15	20	10	10	10	10		
76	INH18IS079	9	10	20	20	25	25	30	30	30	10	10	5		16	20	17	20	12	12	10	20	9	10	7	10		

Criterion-3 Course Outcomes and Program Outcomes

77	INH18IS080	8	10	18	20	20	25	29	30	9	10	3	5	19	20	15	20	15	20	18	20	5	12	18	18	5	10
78	INH18IS081	14	20	19	25	14	20	16	30	4	10	4	5	18	34	13	17	7	13	7	12	7	12			8	10
79	INH18IS082	3	5	10	15	5	20	8	35	1	5	3	10	14	33	4	12	4	5	10	16	6	10	6	6	10	
80	INH18IS084	12	15	18	20	15	20	27	30	10	10	5	5	19	20	11	20	15	20	15	20	16	20	8	10	3	10
81	INH18IS085	3	5	14	25	9	20	19	25	10	10	2	5	30	34	12	13	10	12	15	20	15	20	14	18	4	10
82	INH18IS086	9	10	19	20	20	20	30	30	10	10	5	5	18	20	10	13	16	20	18	20	18	20	10	10	8	10
83	INH18IS088	6	10	11	15	6	15	5	10			4	5	14	14	5	8	8	12	5	12	5	12	7	8	4	10
84	INH18IS090	10	10	18	20	25	25	30	30	5	5	5	5	18	20	7	20	18	20	12	20	12	20	8	10	6	10
85	INH18IS092	5	5	13	20	12	15	19	20	7	10			16	20	5	13	7	12	12	12	12	12	6	10	5	10
86	INH18IS093	6	10	17	20	20	25	32	40	10	10	3	5	19	20	12	20	20	20	14	20	14	20	9	10	7	10
87	INH18IS094	12	15	14	20	3	10	12	20	5	5	2	5	18	20	3	12	12	12					15	18		
88	INH18IS095	5	10	11	20	15	25	18	30	4	5	5	5	17	20	8	15	16	20	15	20	15	20	9	10	10	10
89	INH18IS096	9	15	15	20	20	25	24	30	7	10	5	5	17	20	10	12	15	20	18	20	18	20	16	20	16	20
90	INH18IS097	8	10	16	25	22	25	15	20			2	5	16	20	13	20	12	20	2	8	2	8	6	8	3	10
91	INH18IS098	5	15	5	15																						
92	INH18IS099	3	5	9	15	10	25	19	35	9	15			14	20	1	5	9	13	5	12	5	12	9	10	2	10
93	INH18IS100	6	10	12	15	7	10	3	10	1	5	3	5	11	14	5	12	13	20	13	20	13	24	14	18	6	10
94	INH18IS101	5	5	10	10	6	15	18	30	10	10	3	5	12	14	8	20	8	13	5	20	5	20	4	10	3	10
95	INH18IS102	8	15	15	25	16	20	25	25	10	10	3	5	11	13	6	20	15	20	12	12	12	32	9	18	9	10
96	INH18IS104	9	10	18	25	20	25	34	40	12	15	5	5	18	20	16	20	19	20	23	20	23	32	15	18	6	10
97	INH18IS106	13	15	25	25	30	30	40	40	10	10	5	5	17	20	12	20	12	20	16	20	16	20	15	20	13	20

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119	INH18IS130	8	10	12	20	6	20	22	30	10	10	5	5	15	20	10	20	10	20	16	20	9	12	14	18	8	10
120	INH18IS131	8	10	13	20	16	30	26	35	10	10	5	5	18	20	12	40	17	20	5	12	15	18	8	10		
121	INH18IS132	3	10	2	10	10	20	15	25	6	10	3	5	14	20	6	20	12	12	2	8	8	10	6	10		
122	INH18IS133	10	15	15	25	9	15	21	30	6	10	3	5	33	40	8	15	7	12	7	12	9	10	7	10		
123	INH18IS134	7	10	12	25	17	30	23	40	8	15	3	5	24	40	4	20	15	32	19	32	18	18	5	10		
124	INH18IS135	8	10	11	15	20	20	22	25	10	10	5	5	17	20	4	12	13	20	10	12	9	10	7	10		
125	INH18IS136	6	10	16	20	17	20	28	35	11	15	3	5	12	20	7	20	11	20	9	12	15	20	6	20		
126	INH18IS137	10	10	12	15	18	25	21	30	7	10	1	5	16	20	6	13	15	20	13	32	9	18	7	10		
127	INH18IS138	4	10	12	20	12	20	19	30	9	10	1	5	19	20	16	20	15	25	5	12	14	18	4	10		
128	INH18IS139	7	10	9	15	9	20	14	20	6	10	3	5	10	20	11	20	20	40	3	12	14	18	6	10		
129	INH18IS140	7	10	16	20	11	15	15	25	10	10	3	5	20	20	12	20	16	20	5	12	12	18	7	10		
130	INH18IS141	5	10	8	15	7	10	9	20	3	5	3	5	16	20	2	5	5	5	8	20	10	18	2	10		
131	INH18IS142	4	10	7	15	9	20	14	30	8	10	2	5	15	20	8	15	13	25	20	20	8	10	5	10		
132	INH18IS143					2	5	3	10																		
133	INH18IS144	2	10	1	5			6	15	6	10	3	5	7	14	7	20	2	5	13	20	5	10	6	10		
134	INH18IS145	13	15	10	10									12	21	6	20	10	20	6	20	3	10	5	10		
135	INH18IS146	4	10	6	10	6	10	7	20	1	5	2	5	7	13			4	12					2	10		
136	INH19IS400	5	5	14	20	6	10	12	20	8	10	3	5	13	20	4	12	6	20			14	18	3	10		
137	INH19IS401	10	10	11	15	10	15	23	30	7	10	3	5	18	20	4	15	11	20	12	24	16	18	5	10		
138	INH19IS402	5	5	11	15			6	10	8	10	3	5	24	26	18	33	8	12	1	4	13	18	6	10		
139	INH19IS403	10	10	8	10			14	15	10	10	2	5	18	20	5	5	7	12	6	8	17	18	4	10		

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140	INH19IS404	5	5	10	10	10	10	10	10	15	12	20	7	10	5	5	24	27					14	17	4	4	11	18		
141	INH19IS405	7	10	14	20	7	15	15	15	15	15	15	6	10	3	5	11	20					3	13	4	12	4	18		
142	INH19IS406						4	10	2	5																				
143	INH19IS407	8	10	13	20	8	10	21	25	10	10	10	10	10	3	5	11	20	3	5	13	13	11	12	9	10	5	10		
144	INH19IS408	5	5	15	20	7	20	12	25	5	10	3	5	8	3	5	8	20	3	20	6	20	6	20	3	10	3	10		
145	INH19IS409	10	10	15	20	9	15	13	25	4	5	3	4	5	3	5	9	14	5	13	5	13	10	24	10	18	7	10		
146	INH19IS410	5	10	10	15	7	10	20	25	8	10	3	8	10	3	5	17	34	2	5	9	20	9	20	5	10	5	10		
147	INH19IS411	8	10	15	20			10	10	10	10	10	10	10	5	5	17	20	10	20	13	20	10	12	25	28	5	10		

Attainment Levels vs. Targets for Continuous Internal Evaluation & Semester End Examination:

- If 65%(65% AND ABOVE) of students scoring more than 60% of marks, then it is considered as **LEVEL 3**.
- If 55% (55%-64%) of students scoring more than 60% of marks, then it is considered as **LEVEL 2**.
- If 45% (45%- 54%) of students scoring more than 60% of marks, then it is considered as **LEVEL 1**.
- If below 44%, then the Level is considered as 0.

Table 3.2.2.3: Sample CO Attainment Calculation

ATTAINMENT CALCULATION -19ISE36 PYTHON PROGRAMMING						
CO	Threshold	Target Levels	Number of Students Scored Above Threshold %	Total Students Attempted	Attainment Percentage	Attainment Level
CIE						
CO1	60%	65%	121	144	84.03	3
CO2		65%	121	144	84.03	3
CO3		65%	100	138	72.46	3
CO4		65%	106	145	73.1	3
CO5		65%	119	138	86.23	3
CO6		65%	113	137	82.48	3
SEE						
CO1	60%	65%	121	145	83.45	3
CO2		65%	65	137	47.45	1
CO3		65%	92	143	64.34	2
CO4		65%	75	139	53.96	1
CO5		65%	111	139	79.86	3
CO6		65%	68	136	50	1

$$\text{Attainment Percentage} = \frac{\text{Number of Students Scored Above Threshold}}{\text{Total Students Attempted particular CO}}$$

Table 3.2.2.4: Sample CO Final Attainment calculation

Final Attainment			
COs	CIE	SEE	Final Attainment CIE:50.00% SEE:50.00%
CO1	3	3	3
CO2	3	1	2
CO3	3	2	2.5
CO4	3	1	2
CO5	3	3	3
CO6	3	1	2
Weighted Attainment	3	1.93	2.47

CO ATTAINMENT – (2018-2022)

Table 3.2.2.5 Target and Attainment percentage of COs using CIE

Course Code	CONTINUOUS INTERNAL EVALUATION (CIE)											
	Target Percentage of COs						Attainment Percentage of Cos					
	CO1	CO2	CO3	CO4	CO5	CO6	CO1	CO2	CO3	CO4	CO5	CO6
FIRST SEMESTER												
18MAT11	65	65	65	65	65	65	99.1	99.9	99.9	99.9	99.6	98.8
18PHY12	65	65	65	65	65	-	99.7	99.6	99.8	99.7	99.9	-
18MEE13	60	60	60	60	60	60	98.1	99.0	99.1	99.8	99.5	98.7
18CIV14	64	64	64	64	-	-	95.5	98.4	96.5	96.5	-	-
18EEE15	70	70	70	70	70	-	97.5	96.8	96.6	98.0	99.6	-
18PHL16	70	70	70	70	70	-	99.0	99.0	99.0	99.0	99.0	-
18EEL17	60	60	60	60	60	-	92.6	92.6	92.6	92.6	92.6	-
SECOND SEMESTER												
18MAT21	65	65	65	65	65	65	99.31	100	99.83	99.91	99.31	97.73
18CHE22	65	65	65	65	65	-	97.7	98.8	99.3	99.6	99.7	-
18CSE23	65	65	65	65	65	65	99.2	98.2	95.4	96.7	92.3	94.1
18MEE24	60	60	60	60	60	50	95.1	94.5	93.3	94.5	96.5	91.8
18ECE25	50	50	50	50	50	50	80.6	88.3	99.4	98.1	96.6	96.1
18HSS26	54	54	54	54	-	-	99.3	99.3	99.3	99.3	-	-
18CHL27	70	70	70	70	70	-	95.7	95.7	95.7	95.7	95.7	-
18CSL28	65	65	65	65	65	65	98.3	98.5	98.4	98.4	98.5	98.4
THIRD SEMESTER												
19ISE31	65	65	65	65	65	65	75.1	82.8	71.6	71.7	80.1	80.1
19HSS321	60	60	60	60	-	-	89.8	89.8	87.8	87.8	-	-
19ISE33	60	60	60	60	60	60	82.27	82.39	93.2	62.76	84.17	82.35
19ISE34	65	65	65	65	65	65	70.34	71.74	100	74.31	85.03	87.41

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19ISE35	65	65	65	65	65	65	59.86	68.06	83.1	80.85	74.62	39.56
19ISE36	65	65	65	65	65	65	84.03	84.03	72.46	73.1	86.23	82.48
19ISL37	70	70	70	70	-	-	98.62	99.31	98.63	94.2	-	-
19ISL38	70	70	70	70	-	-	97.96	95.89	100	92.91	-	-
19ISL39	70	70	70	70	-	-	100	100	99.31	100	-	-
19ISE391	70	70	70	70	-	-	100	100	99.31	100	-	-
FOURTH SEMESTER												
19ISE41	65	65	65	65	65	65	97.3	100	100	100	100	100
19HSS422	60	60	60	60	60	60	100	91.78	97.97	95.95	-	-
19ISE43	65	65	65	65	65	65	93.24	94.59	99.32	100	99.32	100
19ISE44	65	65	65	65	65	65	86.9	98.65	97.97	91.22	97.3	94.74
19ISE45	65	65	65	65	65	65	88.51	96.62	99.32	97.97	98.65	97.3
19ISL46	70	70	70	70	-	-	100	100	100	100	100	100
19ISL47	70	70	70	70	-	-	97.37	97.37	97.37	98.65	-	-
19ISL48	70	70	70	70	-	-	94.59	94.59	94.59	94.59	-	-
19ISE49	70	70	70	70	-	-	94.74	94.74	94.74	94.74	-	-
FIFTH SEMESTER												
20ISE51	60	60	60	60	60	60	100	100	100	88.65	86.67	97.12
20ISE52	60	60	60	60	60	60	97.97	97.3	96.62	99.31	96.58	99.31
20ISE53	60	60	60	60	60	60	100	87.16	97.97	98.65	93.24	93.92
20ISE54	60	60	60	60	60	60	100	100	100	100	100	87.2
20ISE552	60	60	60	60	60	60	100	95.2	96.5	99.3	75.4	72
20ISL56	70	70	70	70	-	-	97.9	97.9	97.9	97.9	-	-
20ISL57	70	70	70	70	-	-	95.5	95.5	95.5	95.5	-	-
20ISL58	70	70	70	70	-	-	97.9	97.9	97.9	97.9	-	-
20ISE59	70	70	70	70	-	-	97.9	97.9	97.9	97.9	-	-
SIXTH SEMESTER												
20ISE61	65	65	65	65	65	65	100	98.65	96.58	97.9	94.5	99.3
20ISE62	65	65	65	65	65	65	95.9	95.27	95.27	95.27	93.9	87.7
20ISE63	65	65	65	65	65	65	100	100	100	100	100	100
20ISE641	65	65	65	65	65	65	100	100	95.5	100	92.9	98.5
20ISE643	65	65	65	65	65	65	100	98.7	100	98.7	100	98.7
20ISE651	65	65	65	65	65	65	95.77	98.5	98.5	100	100	87.1
20ISE652	65	65	65	65	65	65	100	100	100	100	100	100
20ISL66	70	70	70	70	-	-	100	100	100	100	-	-
20ISL67	70	70	70	70	-	-	99.3	99.3	99.3	99.3	-	-
20ISE68	70	70	70	70	-	-	100	100	100	100	-	-
20NHOP01	70	70	70	70	70	70	100	100	100	100	100	100
NHOP02	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP07	70	70	70	70	70	70	100	100	100	100	100	100
NHOP10	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP14	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP15	70	70	70	70	70	70	50	50	50	50	50	50
SEVENTH SEMESTER												
20ISE71A	65	65	65	65	65	65	100	99.3	100	100	100	100
20ISE72A	65	65	65	65	65	65	94.5	93.1	93.8	100	100	100
20ISE73A	65	65	65	65	65	65	100	95.8	100	94.5	100	99.3

20ISE742A	65	65	65	65	65	65	100	99.3	98.6	95.8	100	97.9
20ISE752A	65	65	65	65	65	65	82.6	79.1	100	96	100	95.5
20ISE753A	65	65	65	65	65	65	97.5	97.5	87.5	90	99.17	98.3
20ISL76A	70	70	70	70	-	-	100	100	100	100	-	-
20ISL77A	70	70	70	70	-	-	100	100	100	100	-	-
20ISE78A	70	70	70	70	-	-	98	98	98	98	-	-
20NHOP702	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP704	70	70	70	70	70	70	91.6	91.6	91.6	91.6	91.6	91.6
20NHOP705	70	70	70	70	70	70	87.09	87.09	87.09	87.09	87.09	87.09
20NHOP707	70	70	70	70	70	70	62.5	62.5	62.5	62.5	62.5	62.5
EIGHTH SEMESTER												
20ISE811A	65	65	65	65	65	65	87.5	95.8	79.1	95.8	95.8	91.6
20ISE814A	65	65	65	65	65	65	97.5	100	95.7	100	100	95.9
20ISE82A	70	70	70	70	-	-	100	100	100	100	-	-
20ISE83A	70	70	70	70	-	-	100	100	100	100	-	-

Table 3.2.2.6. Target and Attainment percentage of COs using SEE

Course Code	SEMESTER END EVALUATION (SEE)											
	Target Percentage of COs						Attainment Percentage of Cos					
	CO1	CO2	CO3	CO4	CO5	CO6	CO1	CO2	CO3	CO4	CO5	CO6
FIRST SEMESTER												
18MAT11	65	65	65	65	65	65	83.8	86.6	79.2	79.2	86.4	75.9
18PHY12	65	65	65	65	65	-	87.2	87.5	82.2	85.8	84.0	-
18MEE13	60	60	60	60	60	60	86.5	84.0	64.2	76.4	78.5	74.4
18CIV14	64	64	64	64	-	-	86.1	79.9	75.2	71.7	-	-
18EEE15	70	70	70	70	70	-	84.4	65.3	74.2	73.0	59.6	-
18PHL16	70	70	70	70	70	-	89.9	89.9	89.9	89.9	89.9	-
18EEL17	70	70	70	70	70	-	91.0	91.0	91.0	91.0	91.0	-
SECOND SEMESTER												
18MAT21	65	65	65	65	65	65	72.09	82.57	79.68	86.77	90.55	65.79
18CHE22	65	65	65	65	65	-	77.6	72.3	73.6	71.1	70.9	-
18CSE23	65	65	65	65	65	65	82.3	83.3	72.7	68.0	63.5	65.1
18ECE25	50	50	50	50	50	50	85.7	69.0	55.6	57.4	61.5	62.0
18CHL27	70	70	70	70	70	-	91.0	91.0	91.0	91.0	91.0	-
18CSL28	65	65	65	65	65	65	93.8	93.8	93.8	93.8	87.3	72.4
18MEE24	60	60	60	60	60	50	77.2	74.0	77.2	74.0	74.0	47.4
18HSS26	54	54	54	54	-	-	77.6	83.9	82.0	83.3	-	-
THIRD SEMESTER												
19ISE31	65	65	65	65	65	65	71.7	65.2	67.1	77.5	50	0
19HSS321	60	60	60	60	-	-	88.36	88.89	90.41	84.35	-	-
19ISE33	60	60	60	60	60	60	88.28	78.01	92.36	68.09	87.41	94.33
19ISE34	65	65	65	65	65	65	61.54	62.68	57.04	54.29	74.65	57.55

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19ISE35	65	65	65	65	65	65	81.25	81.94	67.86	76.76	47.45	51.82
19ISE36	65	65	65	65	65	65	83.45	47.45	64.34	53.96	79.86	50
19ISL37	70	70	70	70	-	-	98.62	99.31	98.63	94.2	-	-
19ISL38	70	70	70	70	-	-	97.96	95.89	100	92.91	-	-
19ISL39	70	70	70	70	-	-	100	100	99.31	100	-	-
19ISE391	70	70	70	70	-	-	100	100	99.31	100	-	-
FOURTH SEMESTER												
19ISE41	65	65	65	65	65	65	97.3	100	100	100	100	100
19HSS422	60	60	60	60	60	60	100	91.78	97.97	95.95	-	-
19ISE43	65	65	65	65	65	65	93.24	94.59	99.32	100	99.32	100
19ISE44	65	65	65	65	65	65	86.9	98.65	97.97	91.22	97.3	94.74
19ISE45	65	65	65	65	65	65	88.51	96.62	99.32	97.97	98.65	97.3
19ISL46	70	70	70	70	-	-	100	100	100	100	100	100
19ISL47	70	70	70	70	-	-	97.37	97.37	97.37	98.65	-	-
19ISL48	70	70	70	70	-	-	94.59	94.59	94.59	94.59	-	-
19ISE49	70	70	70	70	-	-	94.74	94.74	94.74	94.74	-	-
FIFTH SEMESTER												
20ISE51	60	60	60	60	60	60	51.7	67.8	50.68	54.42	50.37	43.51
20ISE52	60	60	60	60	60	60	59.72	57.24	66.21	72.44	60.31	63.19
20ISE53	60	60	60	60	60	60	65	60.8	47.24	59.15	72.41	80.9
20ISE54	60	60	60	60	60	60	65.9	68.9	56	49.6	53.1	56.8
20ISE552	60	60	60	60	60	60	79.4	72.7	56.7	68.3	73.7	58.2
20ISL56	65	65	65	65	-	-	97.9	97.9	97.9	97.9	-	-
20ISL57	65	65	65	65	-	-	95.5	95.5	95.5	95.5	-	-
20ISL58	65	65	65	65	-	-	97.9	97.9	97.9	97.9	-	-
20ISE59	65	65	65	65	-	-	97.9	97.9	97.9	97.9	-	-
SIXTH SEMESTER												
20ISE61	65	65	65	65	65	65	100	98.65	96.58	97.9	94.5	99.3
20ISE62	65	65	65	65	65	65	95.9	95.27	95.27	95.27	93.9	87.7
20ISE63	65	65	65	65	65	65	100	100	100	100	100	100
20ISE641	65	65	65	65	65	65	100	100	95.5	100	92.9	98.5
20ISE643	65	65	65	65	65	65	100	98.7	100	98.7	100	98.7
20ISE651	65	65	65	65	65	65	95.77	98.5	98.5	100	100	87.1
20ISE652	65	65	65	65	65	65	100	100	100	100	100	100
20ISL66	70	70	70	70	-	-	100	100	100	100	-	-
20ISL67	70	70	70	70	-	-	99.3	99.3	99.3	99.3	-	-
20ISE68	70	70	70	70	-	-	100	100	100	100	-	-
20NHOP01	70	70	70	70	70	70	100	100	100	100	100	100
NHOP02	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP07	70	70	70	70	70	70	100	100	100	100	100	100
NHOP10	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP14	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP15	70	70	70	70	70	70	50	50	50	50	50	50
SEVENTH SEMESTER												
20ISE71A	65	65	65	65	65	65	100	99.3	100	100	100	100
20ISE72A	65	65	65	65	65	65	94.5	93.1	93.8	100	100	100
20ISE73A	65	65	65	65	65	65	100	95.8	100	94.5	100	99.3

20ISE742A	65	65	65	65	65	65	100	99.3	98.6	95.8	100	97.9
20ISE752A	65	65	65	65	65	65	82.6	79.1	100	96	100	95.5
20ISE753A	65	65	65	65	65	65	97.5	97.5	87.5	90	99.17	98.3
20ISL76A	70	70	70	70	-	-	100	100	100	100	-	-
20ISL77A	70	70	70	70	-	-	100	100	100	100	-	-
20ISE78A	70	70	70	70	-	-	98	98	98	98	-	-
20NHOP702	70	70	70	70	70	70	100	100	100	100	100	100
20NHOP704	70	70	70	70	70	70	91.6	91.6	91.6	91.6	91.6	91.6
20NHOP705	70	70	70	70	70	70	87.09	87.09	87.09	87.09	87.09	87.09
20NHOP707	70	70	70	70	70	70	62.5	62.5	62.5	62.5	62.5	62.5
EIGHTH SEMESTER												
20ISE811A	65	65	65	65	65	65	87.5	95.8	79.1	95.8	95.8	91.6
20ISE814A	65	65	65	65	65	65	97.5	100	95.7	100	100	95.9
20ISE82A	70	70	70	70	-	-	100	100	100	100	-	-
20ISE83A	70	70	70	70	-	-	100	100	100	100	-	-

Table 3.2.2.7: Target and Attainment Levels of COs using CIE

Course Code	CONTINUOUS INTERNAL EVALUATION (CIE)											
	Target Percentage of COs						Attainment Percentage of Cos					
	CO1	CO2	CO3	CO4	CO5	CO6	CO1	CO2	CO3	CO4	CO5	CO6
FIRST SEMESTER												
18MAT11	65	65	65	65	65	65	3	3	3	3	3	3
18PHY12	65	65	65	65	65	-	3	3	3	3	3	-
18MEE13	60	60	60	60	60	60	3	3	3	3	3	3
18CIV14	64	64	64	64	-	-	3	3	3	3	-	-
18EEE15	70	70	70	70	70	-	3	3	3	3	3	-
18PHL16	70	70	70	70	70	-	3	3	3	3	3	-
18EEL17	60	60	60	60	60	-	3	3	3	3	3	-
SECOND SEMESTER												
18MAT21	65	65	65	65	65	65	3	3	3	3	3	3
18CHE22	65	65	65	65	65	-	3	3	3	3	3	-
18CSE23	65	65	65	65	65	65	3	3	3	3	3	3
18MEE24	60	60	60	60	60	50	3	3	3	3	3	3
18ECE25	50	50	50	50	50	50	3	3	3	3	3	3
18HSS26	54	54	54	54	-	-	3	3	3	3	-	-
18CHL27	70	70	70	70	70	-	3	3	3	3	3	-
18CSL28	65	65	65	65	65	65	3	3	3	3	3	3
THIRD SEMESTER												
19ISE31	65	65	65	65	65	65	3	3	3	3	3	3
19HSS321	60	60	60	60	-	-	3	3	3	3	-	-
19ISE33	60	60	60	60	60	60	3	3	3	3	3	3
19ISE34	65	65	65	65	65	65	3	3	3	3	3	3
19ISE35	65	65	65	65	65	65	2	3	3	3	3	0
19ISE36	65	65	65	65	65	65	3	3	3	3	3	3

19ISL37	70	70	70	70	-	-	3	3	3	3	-	-
19ISL38	70	70	70	70	-	-	3	3	3	3	-	-
19ISL39	70	70	70	70	-	-	3	3	3	3	-	-
19ISE391	70	70	70	70	-	-	3	3	3	3	-	-
FOURTH SEMESTER												
19ISE41	65	65	65	65	65	65	3	3	3	3	3	3
19HSS422	60	60	60	60	60	60	3	3	3	3	3	3
19ISE43	65	65	65	65	65	65	3	3	3	3	3	3
19ISE44	65	65	65	65	65	65	3	3	3	3	3	3
19ISE45	65	65	65	65	65	65	3	3	3	3	3	3
19ISL46	70	70	70	70	-	-	3	3	3	3	-	-
19ISL47	70	70	70	70	-	-	3	3	3	3	-	-
19ISL48	70	70	70	70	-	-	3	3	3	3	-	-
19ISE49	70	70	70	70	-	-	3	3	3	3	-	-
FIFTH SEMESTER												
20ISE51	60	60	60	60	60	60	3	3	3	3	3	3
20ISE52	60	60	60	60	60	60	3	3	3	3	3	3
20ISE53	60	60	60	60	60	60	3	3	3	3	3	3
20ISE54	60	60	60	60	60	60	3	3	3	3	3	3
20ISE552	60	60	60	60	60	60	3	3	3	3	3	3
20ISL56	70	70	70	70	-	-	3	3	3	3	-	-
20ISL57	70	70	70	70	-	-	3	3	3	3	-	-
20ISL58	70	70	70	70	-	-	3	3	3	3	-	-
20ISE59	70	70	70	70	-	-	3	3	3	3	-	-
SIXTH SEMESTER												
20ISE61	65	65	65	65	65	65	3	3	3	3	3	3
20ISE62	65	65	65	65	65	65	3	3	3	3	3	3
20ISE63	65	65	65	65	65	65	3	3	3	3	3	3
20ISE641	65	65	65	65	65	65	3	3	3	3	3	3
20ISE643	65	65	65	65	65	65	3	3	3	3	3	3
20ISE651	65	65	65	65	65	65	3	3	3	3	3	3
20ISE652	65	65	65	65	65	65	3	3	3	3	3	3
20ISL66	70	70	70	70	-	-	3	3	3	3	-	-
20ISL67	70	70	70	70	-	-	3	3	3	3	-	-
20ISE68	70	70	70	70	-	-	3	3	3	3	-	-
20NHOP01	70	70	70	70	70	70	3	3	3	3	3	3
NHOP02	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP07	70	70	70	70	70	70	3	3	3	3	3	3
NHOP10	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP14	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP15	70	70	70	70	70	70	3	3	3	3	3	3
SEVENTH SEMESTER												
20ISE71A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE72A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE73A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE742A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE752A	65	65	65	65	65	65	3	3	3	3	3	3

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20ISE753A	65	65	65	65	65	65	3	3	3	3	3	3
20ISL76A	70	70	70	70	-	-	3	3	3	3	-	-
20ISL77A	70	70	70	70	-	-	3	3	3	3	-	-
20ISE78A	70	70	70	70	-	-	3	3	3	3	-	-
20NHOP702	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP704	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP705	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP707	70	70	70	70	70	70	3	3	3	3	3	3
EIGHTH SEMESTER												
20ISE811A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE814A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE82A	70	70	70	70	-	-	3	3	3	3	-	-
20ISE83A	70	70	70	70	-	-	3	3	3	3	-	-

Table 3.2.2.8 Target and Attainment Levels of COs using SEE

SEMESTER END EVALUATION (SEE)												
Course Code	Target Percentage of COs						Attainment Percentage of Cos					
	CO1	CO2	CO3	CO4	CO5	CO6	CO1	CO2	CO3	CO4	CO5	CO6
FIRST SEMESTER												
18MAT11	65	65	65	65	65	65	3	3	3	3	3	3
18PHY12	65	65	65	65	65	-	3	3	3	3	3	-
18MEE13	60	60	60	60	60	60	3	3	3	3	3	-
18CIV14	64	64	64	64	-	-	3	3	3	3	-	-
18EEE15	70	70	70	70	70	-	3	2	3	3	2	-
18PHL16	70	70	70	70	70	-	3	3	3	3	3	-
18EEL17	70	70	70	70	70	-	3	3	3	3	3	-
SECOND SEMESTER												
18MAT21	65	65	65	65	65	65	3	3	3	3	3	3
18CHE22	65	65	65	65	65	-	3	3	3	3	3	-
18CSE23	65	65	65	65	65	65	3	3	3	3	2	3
18ECE25	50	50	50	50	50	50	3	3	3	3	3	3
18CHL27	70	70	70	70	70	-	3	3	3	3	3	-
18CSL28	65	65	65	65	65	65	3	3	3	3	3	3
18MEE24	60	60	60	60	60	50	3	3	3	3	3	2
18HSS26	54	54	54	54	-	-	3	3	3	3	-	-
THIRD SEMESTER												
19ISE31	65	65	65	65	65	65	3	3	3	3	1	0
19HSS321	60	60	60	60	-	-	3	3	3	3	-	-
19ISE33	60	60	60	60	60	60	3	3	3	3	3	3
19ISE34	65	65	65	65	65	65	2	2	2	1	3	2
19ISE35	65	65	65	65	65	65	3	3	3	3	1	1
19ISE36	65	65	65	65	65	65	3	1	2	1	3	1
19ISL37	70	70	70	70	-	-	3	3	3	3	-	-

19ISL38	70	70	70	70	-	-	3	3	3	3	-	-
19ISL39	70	70	70	70	-	-	3	3	3	3	-	-
19ISE391	70	70	70	70	-	-	3	3	3	3	-	-
FOURTH SEMESTER												
19ISE41	65	65	65	65	65	65	3	3	3	3	3	3
19HSS422	60	60	60	60	60	60	3	3	3	3	-	-
19ISE43	65	65	65	65	65	65	3	3	3	3	3	3
19ISE44	65	65	65	65	65	65	3	3	3	3	3	3
19ISE45	65	65	65	65	65	65	3	3	3	3	3	3
19ISL46	70	70	70	70	-	-	3	3	3	3	3	3
19ISL47	70	70	70	70	-	-	3	3	3	3	-	-
19ISL48	70	70	70	70	-	-	3	3	3	3	-	-
19ISE49	70	70	70	70	-	-	3	3	3	3	-	-
FIFTH SEMESTER												
20ISE51	60	60	60	60	60	60	2	3	2	2	2	1
20ISE52	60	60	60	60	60	60	3	2	3	3	3	3
20ISE53	60	60	60	60	60	60	3	2	1	2	3	3
20ISE54	60	60	60	60	60	60	3	3	2	2	2	2
20ISE552	60	60	60	60	60	60	3	3	2	3	3	2
20ISL56	65	65	65	65	-	-	3	3	3	3	-	-
20ISL57	65	65	65	65	-	-	3	3	3	3	-	-
20ISL58	65	65	65	65	-	-	3	3	3	3	-	-
20ISE59	65	65	65	65	-	-	3	3	3	3	-	-
SIXTH SEMESTER												
20ISE61	65	65	65	65	65	65	3	3	3	3	3	3
20ISE62	65	65	65	65	65	65	3	3	3	3	3	3
20ISE63	65	65	65	65	65	65	3	3	3	3	3	3
20ISE641	65	65	65	65	65	65	3	3	3	3	3	3
20ISE643	65	65	65	65	65	65	3	3	3	3	3	3
20ISE651	65	65	65	65	65	65	3	3	3	3	3	3
20ISE652	65	65	65	65	65	65	3	3	3	3	3	3
20ISL66	70	70	70	70	-	-	3	3	3	3	-	-
20ISL67	70	70	70	70	-	-	3	3	3	3	-	-
20ISE68	70	70	70	70	-	-	3	3	3	3	-	-
20NHOP01	70	70	70	70	70	70	3	3	3	3	3	3
NHOP02	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP07	70	70	70	70	70	70	3	3	3	3	3	3
NHOP10	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP14	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP15	70	70	70	70	70	70	3	3	3	3	3	3
SEVENTH SEMESTER												
20ISE71A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE72A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE73A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE742A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE752A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE753A	65	65	65	65	65	65	3	3	3	3	3	3

20ISL76A	70	70	70	70	-	-	3	3	3	3	-	-
20ISL77A	70	70	70	70	-	-	3	3	3	3	-	-
20ISE78A	70	70	70	70	-	-	3	3	3	3	-	-
20NHOP702	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP704	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP705	70	70	70	70	70	70	3	3	3	3	3	3
20NHOP707	70	70	70	70	70	70	3	3	3	3	3	3
EIGHTH SEMESTER												
20ISE811A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE814A	65	65	65	65	65	65	3	3	3	3	3	3
20ISE82A	70	70	70	70	-	-	3	3	3	3	-	-
20ISE83A	70	70	70	70	-	-	3	3	3	3	-	-

Table 3.2.2.9: Course Outcomes Attainment Levels

Course	Course Code	Course Title	DIRECT ATTAINMENT	
			CIE	SEE
C101	18MAT11	Applied Mathematics-I	3	3
C102	18PHY12	Engineering Physics	3	3
C103	18MEE13	Elements of Mechanical Engineering	3	3
C104	18CIV14	Elements of Civil Engineering	3	3
C105	18EEE15	Basic Electrical Engineering	3	2.6
C106	18PHL16	Engineering Physics Lab	3	3
C107	18EEL17	Basic Electrical Engg Lab	3	3
C201	18MAT21	Applied Mathematics-II	3	3
C202	18CHE22	Engineering Chemistry	3	3
C203	18CSE23	Introduction to Programming with C	3	2.8
C204	18MEE24	Computer Aided Engineering Drawing	3	2.8
C205	18ECE25	Basic Electronics	3	3
C206	18HSS26	Professional Communication	3	3
C207	18CHL27	Engineering Chemistry Lab	3	3
C208	18CSL28	Programming with C Lab	3	3
C301	19CSE31/ 19ISE31	Applied Mathematics-III	3	2.63

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C302	19HSS321	Economics for Engineers	3	3
C303	19ISE33	Digital Logic Design	3	3
C304	19ISE34	Data Structure using C	3	2.12
C305	19ISE35	Computer Organization	2.64	2.29
C306	19ISE36	Python Programming	3	1.93
C307	19ISL37	Digital Logic Design Lab	3	3
C308	19ISL38	Data Structure using C Lab	3	3
C309	19ISL39	Python Programming Lab	3	3
C310	19ISE391	Mini Project	3	3
C401	19CSE41/ 19ISE41	Discrete Mathematics and Graph Theory	3	3
C402	HSS322/422	Lifeskills for Engineers	3	3
C403	19ISE43	Database Management Systems	3	3
C404	19ISE44	Oops with Java	3	3
C405	19ISE45	Operating Systems	3	3
C406	19ISL46	DBMS Lab	3	3
C407	19ISL47	Oops with Java Lab	3	3
C408	19ISL48	OS Lab	3	3
C409	19ISE49	Mini Project	3	3
C501	20ISE51	Web Internet Programming	3	2.12
C502	20ISE52	Design and Analysis of Algorithms	3	2.62
C503	20ISE53	Data Science	3	2.42
C504	20ISE54	Mobile Application Development	3	2.23
C505	20ISE552	Internet of Things	3	2.63
C506	20ISL56	Design and Analysis of Algorithms Lab	3	3
C507	20ISL57	Data Science Lab	3	3
C508	20ISL58	Mobile Application Development Lab	3	3
C509	20ISE59	Mini Project	3	3
C601	20ISE61	Software Engineering and Project Management	3	3
C602	20ISE62	Advanced Java	3	3
C603	20ISE63	Machine Learning	3	3
C604	20ISE641	Data Visualization	3	3

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C605	20ISE643	Object Oriented Modeling and Design	3	3
C606	20ISE651	User Interface Design	3	3
C607	20ISE652	Virtual Reality	3	3
C608	20ISL66	Advanced Java Lab	3	3
C609	20ISL67	Machine Learning Lab	3	3
C610	20ISE68	Mini Project	3	3
C611	20NHOP01	Big Data Analytics using HP Vertica-1	3	3
C612	20NHOP07	SAP	3	3
C613	20NHOP14	Blockchain	3	3
C614	20NHOP15	Product Life Cycle Management	3	3
C615	20NHOP02	VMware Virtualization Essentials-1	3	3
C616	NHOP10	Data Analytics	3	3
C701	20ISE71A	Software Testing and Automation	3	3
C702	20ISE72A	Computer Networks	3	2.32
C703	20ISE73A	Cryptography and Information Security	3	2.64
C704	20ISE742A	Cloud Computing	3	2.33
C705	20ISE752A	Digital Marketing	3	3
C706	20ISE753A	DevOps	3	2.83
C707	20ISL76A	Software Testing and Automation Lab	3	3
C708	20ISL77A	Computer Networks Lab	3	3
C709	20ISE78A	Project Phase-1	3	3
C710	20NHOP702	VMware Virtualization Essentials-1	3	3
C711	20NHOP704	Big Data Analytics using HP Vertica-II	3	3
C712	20NHOP705	VMware Virtualization Essentials-2	3	3
C713	20NHOP707	SAP	3	3
C801	20ISE812A	Software Architecture & Design Patterns	3	2.51
C802	20ISE814A	Management & Entrepreneurship	3	3
C803	20ISE82A	Internship Viva	3	3
C804	20ISE83A	Project Phase-2	3	3

3.3. Attainment of Program Outcomes and Program Specific Outcomes (75)

3.3.1. Describe assessment tools and processes used for assessing the attainment of each of the Program Outcomes and Program Specific Outcomes.(10)

Program Outcomes and Program Specific Outcome are assessed by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is to evaluate all POs in Continuous Internal Evaluation (CIE) and Semester End Examination, where 50% weightage is given for SEE exam and 50% weightage is given for CIE assessment. Indirect assessment is done through Graduate survey, Alumni survey and Employer Survey. Figure 3.3.1.1 represents the

Evaluation process of PO attainment through course outcome attainment.

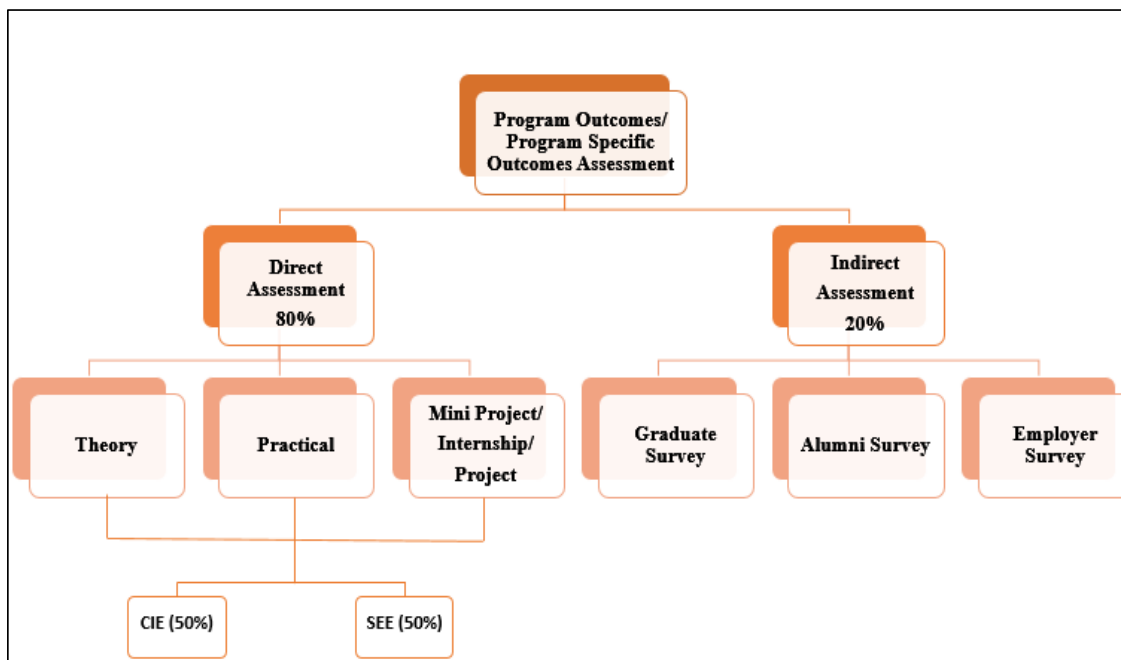


Figure 3.3.1.1: PO Attainment process

3.3.1.1 PO and PSO Assessment Tools

At the end of programme, the PO and PSO assessment is done from the CO attainment of all curriculum components. The various direct and indirect assessment tools used to evaluate POs & PSOs and frequency with which the assessment processes are carried out are listed in Table 3.3.1.1.1 and 3.3.1.1.2.

Table 3.3.1.1.1:Details about Direct Assessment Tools

Direct Assessment Tools	Description	Evaluation of COs	Related POs/PSOs
Internal Assessment (IA) Test	Three internal assessment tests are conducted for all the courses and their averages are considered.	The questions in the test are mapped against Cos of respective courses. All three IA test questions are framed in such a way to cover all CO's. Entered marks are taken for measuring the CO Attainment.	PO1-PO12, PSO1-PSO2
Assignment	Two assignments per semester are given by Faculty in charge.	Assignment questions are mapped against COs and marks are taken for measuring the CO attainment.	PO1-PO12, PSO1-PSO2
Quiz	Two Quizzes per semester are given by faculty in charge.	The questions are prepared for each of the courses and marks are considering for calculating CO attainment.	PO1-PO12, PSO1-PSO2
Internal Lab Examination	During the semester, two laboratory test conduction and evaluation is done.	In every lab, record, observation and viva are assessed by the faculty in charge through continuous internal Assessment. Experiment wise CO is evaluated and Attainment	PO1-PO12, PSO1-PSO2

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		measured.	
SEE	Conduction of both theory and practical/project examination as per the calendar of events announced.	Final marks are taken for assessing the CO Attainment.	PO1-PO12, PSO1-PSO2
Mini Project	Mini project Evaluation is done to test students' Coding, Presentation, documentation and debugging skills.	The Mini Project guide and Mini project coordinator follows the rubrics which is set by the department for evaluation and then submit to the Head of the Department.	PO1-PO12, PSO1-PSO2
Project Phase-1 and Phase-2	Project evaluation is done during 7 th and 8 th semesters to test the student's independent analysis and design skills. Two project reviews for each phase are conducted.	The project guide and project coordinator follows the rubrics which is set by the department for evaluation and then submit to the Head of the Department.	PO1-PO12, PSO1-PSO2
Internship	Internship evaluation is done during 8 th semester. To get the practical exposure from industries, students are encouraged to carry out Internship in reputed industries/public sectors.	The evaluation of the marks based on Presentation and Report of the Internship and the score for every student is calculated.	PO1-PO12, PSO1-PSO2

Table 3.3.1.1.2. Details about Indirect Assessment Tools

Indirect Assessment Tools	Description	Evaluation Process
Graduate Survey	This survey provides the information about program satisfaction and asks graduates to indicate the level of preparation provided by their graduate program. This type of survey highlights the areas in which the institution should invest more or less resources to enhance a student's learning and development experience.	This survey is conducted for the students who have passed out of the department for that year. The questionnaire consists of question which is relevant for assessing POs and PSOs. Each question is having 3 options namely, Good, Satisfactory, poor which is given the marks of 3,2,1 respectively.
Alumni Survey	This survey provides the information to identify which areas of our academic program that needs to be changed, improved or expanded.	Collect the information from alumni after two years of graduation. The questionnaire consists of question which is relevant for assessing POs and PSOs. Each question is having 3 options namely, Good, Satisfactory, poor which is given the marks of 3,2,1 respectively
Employer Survey	This survey helps to determine graduate skills, capabilities and Opportunities.	Collect the information from employers who had given jobs to our graduates. The questionnaire consists of question which is relevant for assessing POs and PSOs. Each question is having 3 options namely, Good, Satisfactory, poor which is given the marks of 3,2,1 respectively.

The process for POs/PSOs attainment is described in the flowchart shown in **Figure 3.3.1.1.1**

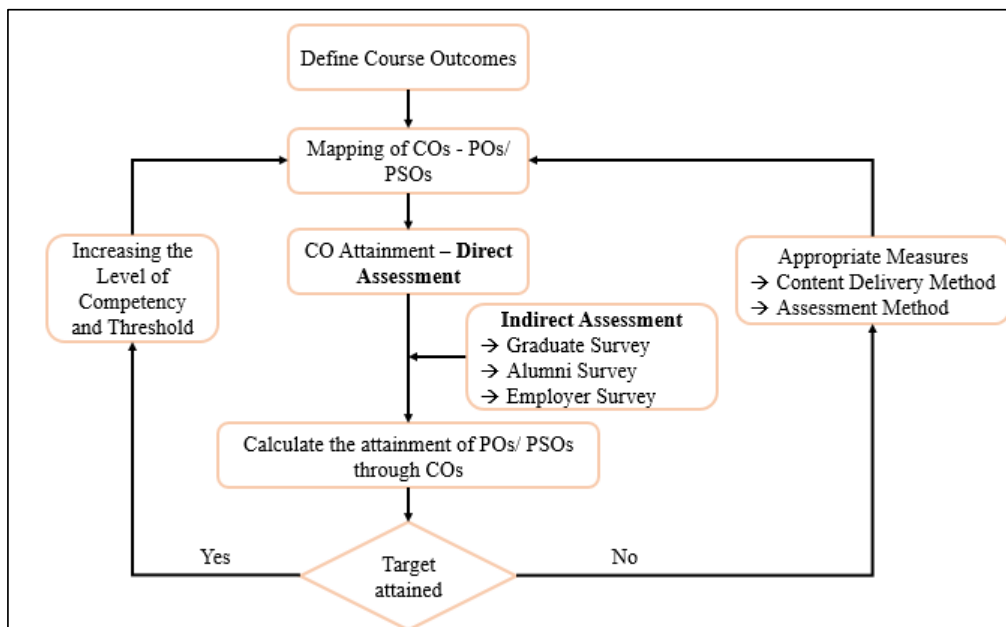


Figure 3.3.1.1.1 PO/PSO Assessment and Attainment Process

The steps involved in PO Assessment process are as follows:

Step-1. Course outcomes are assessed through Continuous Internal Evaluation and Semester End Examination. The analysis is done to find the level of attainments of COs.

Step-2. The attainment of POs is being calculated based on the COs attainment.

Attainment of POs/PSOs through a course is calculated as *Sum of product of CO attainment and CO-PO mapping by sum of weight contributed in CO- PO mapping.*

Attainment of POs through all the courses is calculated by taking the *Average across all Courses Addressing that POs/PSOs.*

POs' and PSOs' are calculated as per the below formula:

$$PO_i = \sum_{j=1}^n CO_j * (CO_j \rightarrow PO_i)$$

$$PSO_i = \sum_{j=1}^n CO_j * (CO_j \rightarrow PSO_i)$$

Where PO_i varies from $i=1$ to 12 , PSO_i varies from $i=1$ to 2 ,

n is the number of Cos, $CO_j \rightarrow PO_i$ is the mapping of $CO \rightarrow PO$.

Step-3. The PSOs attainment is calculated by the process similar to that used for POs attainment.

Step-4. For indirect assessments, survey questionnaire is circulated to students, alumni and employer. The surveys are assessed and evaluated to determine the strength of attainment level of POs.

Attainment of POs based on survey= $[(3*\text{number of students gave option 3}) + (2*\text{number of students gave option 2}) + (1*\text{ number of students gave option 1})]/\text{Total number of responses}$

Step-5. Overall attainments of POs are calculated by taking 80% of direct attainment and 20% of indirect attainment.

PO attainment= Direct Attainment *0.8+ Indirect Attainment *0.2

Step-6. If the POs and PSOs attainment value is below the target, an essential remedial action has been taken.

Demonstration:

A course is taken as an example for the calculation of POs and PSOs attainment. And it is explained in Table 3.3.1.1.3

Table 3.3.1.1.3:PO ATTAINMENT CALCULATION

PYTHON PROGRAMMING- 19ISE36															
CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO 1	PSO 2	CO- ATTAIN MENT
CO1	3	3	3	2	2	-	2	-	-	2	-	1	2	2	3
CO2	3	3	3	2	2	-	2	-	-	2	-	1	2	2	2
CO3	3	3	3	2	2	-	2	-	-	2	-	1	2	2	2.5
CO4	3	3	3	2	2	-	2	-	-	2	-	1	2	2	2
CO5	3	3	3	2	2	-	2	-	-	2	-	1	2	2	3
CO6	3	3	3	2	2	-	2	-	-	2	-	1	2	2	2

$$PO1 = (3*3) + (2*3) + (2.5*3) + (2*3) + (3*3) + (2*3) / (3+3+3+3+3+3) = 2.41$$

$$PO4 = (3*2) + (2*2) + (2.5*2) + (2*2) + (3*2) + (2*2) / (2+2+2+2+2+2) = 2.41$$

$$PSO1 = (3*2) + (2*2) + (2.5*2) + (2*2) + (2*2) + (2*2) / (2+2+2+2+2+2) = 2.41$$

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
19ISE36	2.41	2.41	2.41	2.41	2.41	-	2.41	-	-	2.41	-	2.41	2.41	2.41

Table 3.3.1.1.4: PO Attainment of a Course

Similar way all POs are calculated using above formula. For indirect attainment, Survey results from graduates, alumni, and employer are consolidated and the final PO values are calculated through 3 point scale (Good, Satisfactory, poor). After collection of survey forms, the marks for POs are calculated based on the following formula:

For each Survey = $[(3 * \text{number of students gave option 3}) + (2 * \text{number of students gave option 2}) + (1 * \text{number of students gave option 1})] / \text{Total number of responses}$ Questionnaire form in the graduate survey, Employer and Alumni Survey are given in below figures. The above formula is used to calculate the marks for indirect attainment of POs and PSOs of the programme at the end of the year.

3.3.2. Provide results of evaluation of each Program Outcome & Program Specific Outcome (65)

For each course defined in the curriculum POs and PSOs are calculated as defined in the previous section. Below tables **Table 3.3.2.1** provides the evaluation of each PO/PSO for all the courses through Direct Assessment.

Table 3.3.2.1: POs/PSOs Attainment of 2018-2022 Batch

Course	Course Code	Course Title	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2
C101	18MAT11	Applied Mathematics-I	3	3	3	2	2	-	-	-	-	2	-	3	-	-
C102	18PHY12	Engineering Physics	3	2	2	-	-	-	-	-	2	-	-	1	-	-
C103	18MEE13	Elements of Mechanical Engineering	3	1	3	-	3	2	1	-	-	3	-	1	-	-
C104	18CIV14	Elements of Civil Engineering	3	2	1	1	-	-	-	-	-	-	-	1	-	-
C105	18EEE15	Basic Electrical Engineering	2.8	2.8	2.8	2.8	2.8	-	-	-	-	-	2.8	-	-	-

Criterion-3 Course Outcomes and Program Outcomes



C106	18PHL16	Engineering Physics Lab	3	2	3	-	-	-	-	-	2	-	-	1	-	-
C107	18EEL17	Basic Electrical Engg Lab	3	3	2	1	1	-	-	3	-	-	-	2	-	-
C201	18MAT21	Applied Mathematics-II	3	3	3	3	3	-	-	-	1	3	-	3	-	-
C202	18CHE22	Engineering Chemistry	3	3	-	-	-	-	3	-	-	-	-	3	-	-
C203	18CSE23	Introduction to Programming with C	2.91	2.91	2.91	2.91	2.91	-	-	-	2.91	2.91	-	2.91	2.91	2.91
C204	18MEE24	Computer Aided Engineering Drawing	2.75	-	2.75	2.75	2.75	-	-	-	-	2.75	-	2.75	-	-
C205	18ECE25	Basic Electronics	3	2	2	-	-	-	-	-	-	-	-	-	-	-
C206	18HSS26	Professional Communication	-	-	-	-	-	-	-	3	2	3	-	3	-	-
C207	18CHL27	Engineering Chemistry Lab	3	3	-	-	-	-	3	-	-	-	-	3	-	-
C208	18CSL28	Programming with C Lab	3	3	3	3	3	-	-	-	3	-	-	3	3	3
C301	19CSE31/ 19ISE31	Applied Mathematics-III	1.91	1.91	1.91	1.91	1.91	-	-	-	1.91	1.91	-	1.91	-	-
C302	19HSS321	Economics for Engineers	3	3	3	-	3	-	3	3	3	3	3	3	-	-
C303	19ISE33	Digital Logic Design	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C304	19ISE34	Data Structure using C	2.5	2.5	2.5	2.5	2.5	-	2.5	-	-	2.5	-	2.5	2.5	2.5
C305	19ISE35	Computer Organization	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	-	-	2.33	2.33	2.33	2.33
C306	19ISE36	Python Programming	2.41	2.41	2.41	2.41	2.41	-	2.41	-	-	2.41	-	2.41	2.41	2.41
C307	19ISL37	Digital Logic Design Lab	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C308	19ISL38	Data Structure using C Lab	3	3	3	3	3	3	-	3	-	-	-	3	3	3
C309	19ISL39	Python Programming Lab	3	3	3	3	3	-	3	3	-	3	-	3	3	3
C310	19ISE391	Mini Project	3	3	3	3	3	-	3	3	3	3	3	3	3	3
C401	19CSE41/ 19ISE41	Discrete Mathematics and Graph Theory	3	3	3	3	3	-	-	-	3	3	-	3	-	-
C402	HSS322/4 22	Lifeskills for Engineers	-	-	-	-	-	3	-	3	3	3	3	3	-	-
C403	19ISE43	Database Management Systems	3	3	3	3	3	3	3	3	3	3	-	3	3	3
C404	19ISE44	Oops with	3	3	3	3	3	-	3	-	-	3	-	3	3	3

Criterion-3 Course Outcomes and Program Outcomes



		Java														
C405	19ISE45	Operating Systems	3	3	3	3	3	3	3	-	-	3	-	3	3	3
C406	19ISL46	DBMS Lab	3	3	3	3	3	-	3	3	-	3	-	3	3	3
C407	19ISL47	Oops with Java Lab	3	3	3	3	3	3	3	3	-	3	-	3	3	3
C408	19ISL48	OS Lab	3	3	3	3	3	3	3	3	-	-	-	3	3	3
C409	19ISE49	Mini Project	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C501	20ISE51	Web Internet Programming	2.5	2.5	2.5	2.5	2.5	-	2.5	2.5	2.5	2.5	-	2.5	2.5	2.5
C502	20ISE52	Design and Analysis of Algorithms	2.91	2.91	2.91	2.91	2.91	2.91	-	-	-	-	-	2.91	2.91	2.91
C503	20ISE53	Data Science	2.83	2.83	2.83	2.83	2.83	2.83	-	2.83	2.83	2.83	2.83	2.83	2.83	2.83
C504	20ISE54	Mobile Application Development	2.66	2.66	2.66	2.66	2.66	-	2.66	-	-	2.66	-	2.66	2.66	2.66
C505	20ISE552	Internet of Things	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83	2.83
C506	20ISL56	Design and Analysis of Algorithms Lab	3	3	3	3	3	-	-	-	-	-	-	3	3	3
C507	20ISL57	Data Science Lab	3	3	3	3	3	-	3	3	-	3	-	3	3	3
C508	20ISL58	Mobile Application Development Lab	3	3	3	3	3	-	3	3	-	3	-	3	3	3
C509	20ISE59	Mini Project	3	3	3	3	3	-	3	3	3	3	3	3	3	3
C601	20ISE61	Software Engineering and Project Management	3	3	3	3	3	3	3	-	3	3	3	3	3	3
C602	20ISE62	Advanced Java	3	3	3	3	3	-	3	-	-	3	-	3	3	3
C603	20ISE63	Machine Learning	3	3	3	2.83	2	1.83	-	2	2	2	2	2	2	2
C604	20ISE641	Data Visualization	2	2	2	2	2	-	2	-	-	2	-	2	2	2
C605	20ISE643	Object Oriented Modeling and Design	3	3	3	3	-	-	-	-	-	3	-	3	3	3
C606	20ISE651	User Interface Design	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C607	20ISE652	Virtual Reality	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C608	20ISL66	Advanced Java Lab	3	3	3	3	3	3	3	3	3	-	-	3	3	3
C609	20ISL67	Machine Learning Lab	3	3	3	3	3	-	3	3	-	3	-	3	3	3
C610	20ISE68	Mini Project	3	3	3	3	3	-	3	3	3	3	3	3	3	3

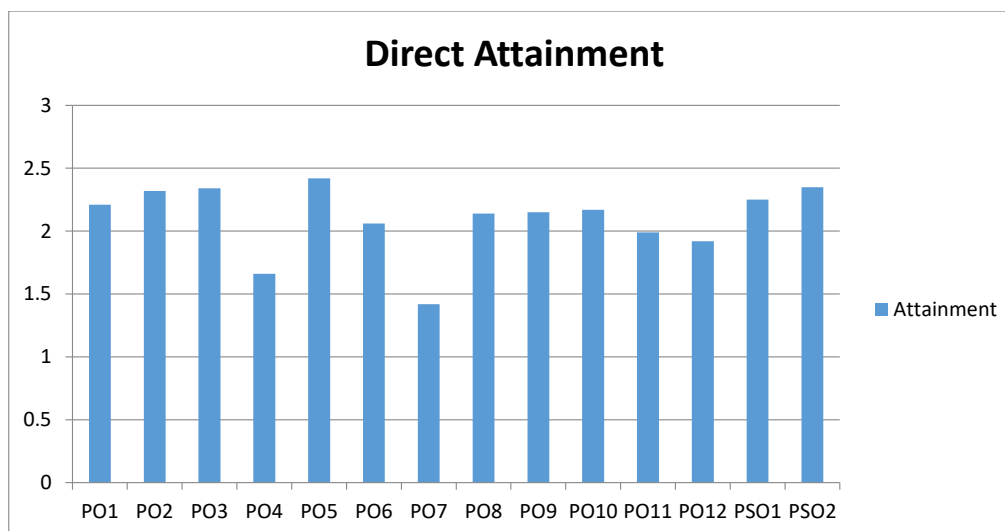
Criterion-3 Course Outcomes and Program Outcomes



C611	20NHOP01	Big Data Analytics using HP Vertica-I	3	3	3	3	3	-	-	-	3	3	-	3	3	3
C612	20NHOP07	SAP	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C613	20NHOP14	Blockchain	3	3	3	3	3	-	-	3	3	3	3	-	3	3
C614	20NHOP15	Product Life Cycle Management	3	3	3	3	3	-	-	-	3	-	3	-	3	3
C615	20NHOP02	VMware Virtualization Essentials-1	3	3	3	3	3	3	-	-	3	3	3	3	3	3
C616	NHOP10	Data Analytics	3	3	3	3	3	-	-	-	3	3	-	3	3	3
C701	20ISE71A	Software Testing and Automation	3	3	3	3	3	3	-	3	3	3	3	3	3	3
C702	20ISE72A	Computer Networks	2.33	2.33	2.33	2.33	2.33	-	-	-	-	2.33	-	2.33	2.33	2.33
C703	20ISE73A	Cryptography and Information Security	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	-	2.66	2.66	2.66	2.66
C704	20ISE742A	Cloud Computing	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
C705	20ISE752A	Digital Marketing	2.66	2.66	2.66	2.66	-	2.66	-	2.66	2.66	-	2.66	-	2.66	2.66
C706	20ISE753A	DevOps	3	3	3	3	3	3	-	3	3	-	3	3	3	3
C707	20ISL76A	Software Testing and Automation Lab	3	3	3	3	3	-	-	-	-	-	-	3	3	3
C708	20ISL77A	Computer Networks Lab	3	3	3	3	3	3	3	3	3	-	3	3	2	2
C709	20ISE78A	Project Phase-1	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C710	20NHOP702	VMware Virtualization Essentials-1	3	3	3	3	3	3	-	-	3	3	3	3	3	3
C711	20NHOP704	Big Data Analytics using HP Vertica-II	3	3	3	3	3	-	-	-	3	3	-	3	3	3
C712	20NHOP705	VMware Virtualization Essentials-2	3	3	3	3	3	-	-	-	3	3	-	3	3	3
C713	20NHOP707	SAP	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C801	20ISE812A	Software Architecture & Design Patterns	2.5	2.5	2.5	-	-	-	-	-	-	2.5	2.5	-	2.5	2.5
C802	20ISE814A	Management & Entrepreneurship	-	-	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.91

C803	20ISE82A	Internship Viva	3	3	3	3	3	3	3	3	3	3	3	3	3	3
C804	20ISE83A	Project Phase-2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Average			2.89	2.81	2.82	2.80	2.82	2.86	2.83	2.90	2.79	2.84	2.87	2.75	2.87	2.87

Figure 3.2.2.1 POs' & PSO's vs. Direct Attainment Level

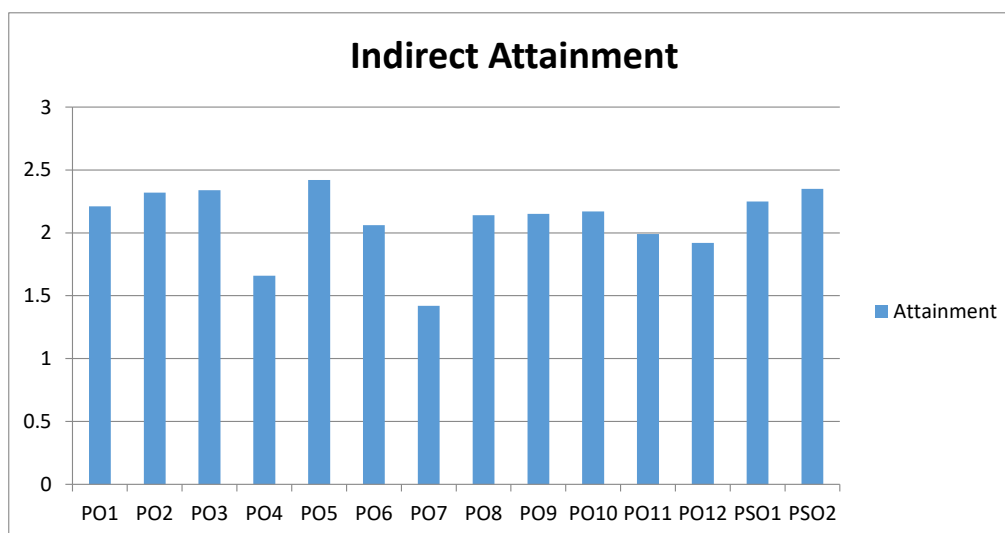


The following **Table 3.3.2.2**. Summarizes provides the evaluation of each PO/PSO for all the courses through Indirect Assessment.

Table 3.3.2.2: Indirect POs/PSOs Attainment of 2018-22 Batch

Survey	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Graduate Survey	2.22	2.34	2.33	1.79	2.45	2.08	1.42	2.21	2.32	2.23	2.03	2.07	2.24	2.43
Alumni Survey	2.24	2.49	2.49	1.69	2.47	2.09	1.61	2.13	2.09	2.14	1.94	1.78	2.2	2.49
Employer Survey	2.17	2.13	2.21	1.5	2.34	2	1.23	2.07	2.03	2.13	1.99	1.9	2.31	2.13
Indirect Attainment	2.21	2.32	2.34	1.66	2.42	2.06	1.42	2.14	2.15	2.17	1.99	1.92	2.25	2.35

Figure 3.2.2.2 POs' & PSO's vs. Indirect Attainment Level



FINAL ATTAINMENT= 80% of DA + 20% of IDA.

Table 3.3.2.3: Final POs/PSOs Attainment of 2018-22 Batch

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Direct	2.89	2.81	2.82	2.80	2.82	2.86	2.83	2.90	2.79	2.84	2.87	2.75	2.87	2.87
80% of DA	2.312	2.248	2.256	2.24	2.256	2.288	2.264	2.32	2.232	2.272	2.296	2.2	2.296	2.296
Indirect	2.21	2.32	2.34	1.66	2.42	2.06	1.42	2.14	2.15	2.17	1.99	1.92	2.25	2.35
20% of IDA	0.442	0.464	0.468	0.332	0.484	0.412	0.284	0.428	0.43	0.434	0.398	0.384	0.45	0.47
Final Attainment	2.754	2.712	2.724	2.572	2.74	2.7	2.548	2.748	2.662	2.706	2.694	2.584	2.746	2.766

**Department of Information
Science & Engineering**

Criterion-4

Student Performance

Criterion-4 Student Performance



CRITERION 4	STUDENTS' PERFORMANCE	100
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Table 4.1 Sanctioned Intake and Admission Details

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY (2022-23)	CAY m1 (2021-22)	CAY m2 (2020 - 21)	CAY m3 (2019-20)	CAY m4 (2018-19)	CAY m5 (2017-18)	CAY m6 (2016-17)
Sanctioned intake of the program (N)	180	180	180	180	120	120	120
Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	191	216	204	220	146	152	143
Number of students admitted in 2 nd year in the same batch via lateral entry (N2)	-	17	18	15	12	1	4
Separate division students, if applicable (N3)	-	-	-	-	-	-	-
Total number of students admitted in the program (N1+N2+N3)	191	233	222	235	158	153	147

- CAY - Current Academic Year
- CAYm1- Current Academic Year minus 1= Current Assessment Year
- CAYm2 - Current Academic Year minus 2 = Current Assessment Year minus 1
- LYG – Last Year Graduate
- LYGm1 – Last Year Graduate minus 1
- LYGm2 – Last Year Graduate minus 2
- 9* - Super Numeric Quota (SNQ)
- NA – Not Applicable

Table 4.2 Number of students successfully graduated without backlogs

Year of Entry	N1+N2+N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester / year of study (Without Backlog means no compartment or failures in any semester / year of study)			
		I Year	II Year	III Year	IV Year
CAY (2022-23)	191				
CAYm1 (2021-22)	233	172			
CAYm2 (2020-21)	222	157	137		
CAYm3 (2019-20)	235	196	127	118	
CAYm4 (LYG) (2018-19)	158	117	119	98	98
CAYm5 (LYGm1) (2017-18)	153	111	102	100	98
CAYm6 (LYGm2) (2016-17)	147	98	87	84	81

Table 4.3 Number of students graduated successfully with backlog in stipulated period of study

Year of Entry	N1+N2+N3 (As defined above)	Number of students who have successfully graduated (Students with backlog in stipulated period of study)			
		I Year	II Year	III Year	IV Year
CAY (2022-23)	191				
CAYm1 (2021-22)	233	214			
CAYm2 (2020-21)	222	204	220		
CAYm3 (2019-20)	235	220	230	230	
CAYm4 (LYG) (2018-19)	158	135	147	145	138
CAYm5 (LYGm1) (2017-18)	153	146	142	134	131
CAYm6 (LYGm2) (2016-17)	147	132	136	124	122

4.1 Enrollment Ratio (20)

Enrollment Ratio= $N1/N$

Table 4.1.1: Enrollment Ratio for past 3 Years

ITEM	CAY (2022-23)	CAYm1 (2021-22)	CAYm2 (2020-21)
Sanctioned Intake of the program (N)	180	180	180
Total number of students admitted in first year minus number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)	191	216	204
Enrollment Ratio (N1 / N)	=1.06	= 1.2	=1.13
Average Enrollment Ratio	= 1.13		

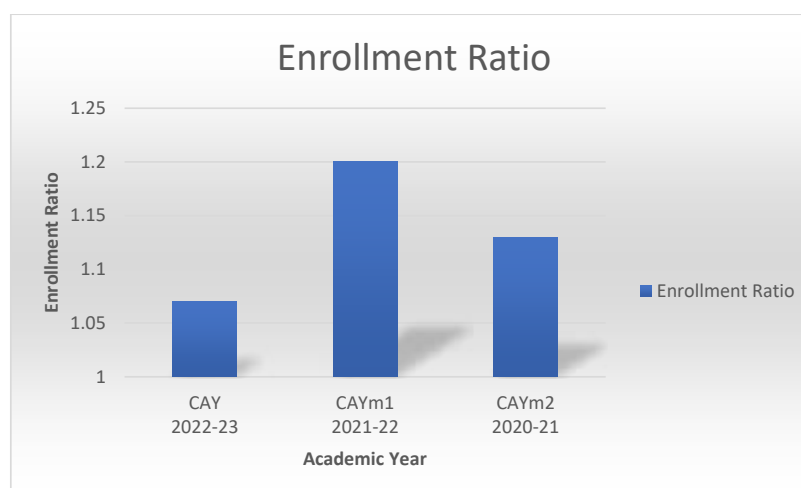


Figure B4.1: Enrollment Ratio for past 3 Years

4.2. Success Rate in the Stipulated Period Of The Program (20)

4.2.1: Success Rate without backlogs in any Semester / Year of Study (15)

SI = (Number of students who have graduated from the program without backlog) /
(Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division if applicable)

Average SI = Mean of success Index (SI) for past three batches

Success rate without backlogs in any year of study = $15 \times$ Average SI

Table 4.2.1: Success Rate without backlogs

Item	LYG (2018-22 Batch)	LYGm1 (2017-21 Batch)	LYGm2 (2016-20 Batch)
Number of students admitted in the First Year + admitted in 2 nd year via lateral entry division, if applicable	158	153	147
Number of students who have graduated without backlogs in the stipulated period	98	98	81
Success Index (SI)	= 0.62	= 0.64	= 0.55
Average SI	=0.60		

📊 **Average SI [(SI1 + SI2 + SI3) / 3]: 0.60**

📊 **Assessment [15 * Average SI]: 9**

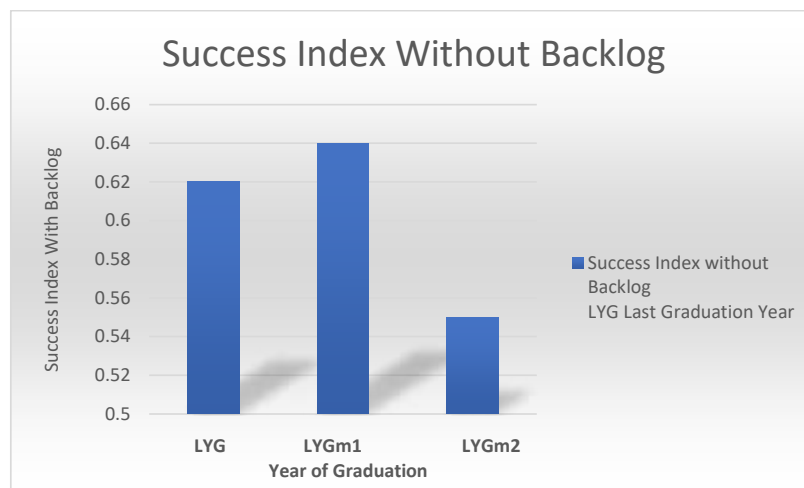


Figure 4.2.1: Success Rate without backlogs

4.2.2: Success rate stipulated period of study [Total of with backlog + without backlog] (5)


SI = (Number of students who have graduated from the program with backlog in the stipulated period) / (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division if applicable)

📊 Average SI = Mean of success Index (SI) for past three batches

📊 Success rate = 5 × Average SI

Table 4.2.2: Success rate with backlogs in stipulated period

Item	LYG (2018-22 Batch)	LYGm1 (2017-21 Batch)	LYGm2 (2016-20 Batch)
Number of students admitted in the First Year + admitted in 2 nd year via lateral entry division, if applicable	158	153	147
Number of students who have graduated with backlogs in the stipulated period	138	131	122
Success Index (SI)	= 0.87	=0.86	= 0.83
Average SI	=0.85		

 **Success rate = 5 × Average SI = 4.27**

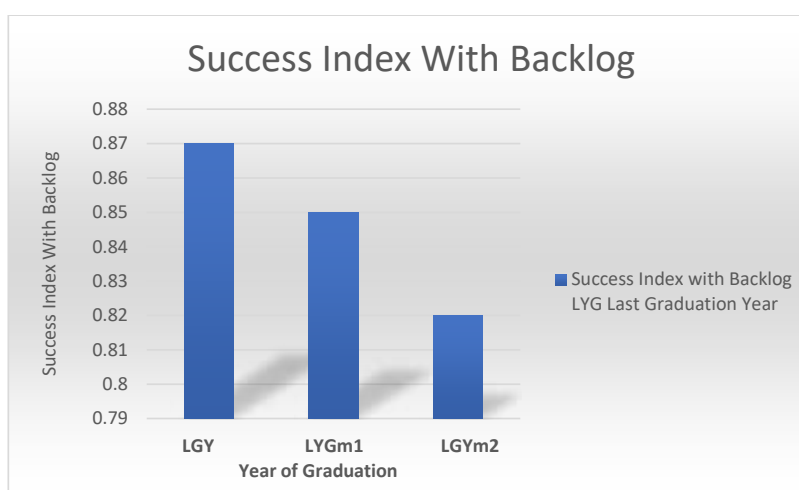


Figure 4.2.2: Success rate with backlogs in stipulated period

4.3 : Academic Performance in Second Year (10)

Academic Performance = Average API (Academic Performance Index), where

API = ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination)

Successful students are those who are permitted to proceed to the Third year.

Table 4.3: Academic Performance in Second Year

Academic Performance	Year of Entry (2020 - 21)	Year of Entry (2019 -20)	Year of Entry (2018 -19)
Mean of CGPA or Mean percentage of all successful students /10 (X)	8.13	8.07	7.98
Total No. of successful students (Y)	220	230	147
Total No of students appeared for examination (Z)	222	235	147
API= X * (Y / Z)	8.05	7.89	7.98
Average API = (AP1+AP2+AP3) / 3	7.97		

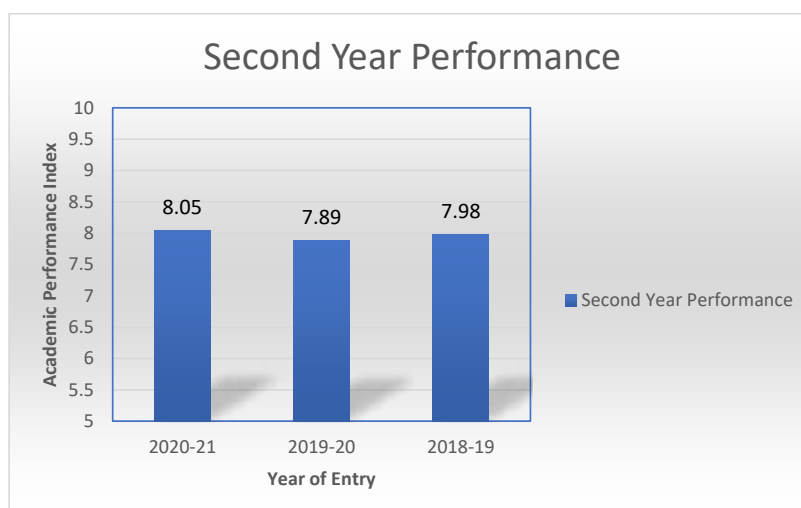


Figure 4.3: Academic Performance in Second Year

Criterion-4 Student Performance

4.4 : Placement, Higher Studies and Entrepreneurship (30)

Assessment Points = $30 \times$ average placement

Table 4.4.1 : Placement, Higher Studies and Entrepreneurship for Past Three Years

Item	LYG (2018-22 Batch)	LYGm1 (2017-21 Batch)	LYGm2 (2016-20 Batch)
Total No. of Final Year Students (N)	145	134	124
No. of students placed in companies or Government Sector (X)	135	119	112
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (Y)	3	7	3
No of students turned entrepreneur in	0	0	0
X + Y + Z	138	126	115
Placement Index : (X + Y + Z) / N	0.95	0.94	0.93
Average placement = (P1 + P2 + P3) / 3	0.94		
Assessment Points = 30 × average	28.20		

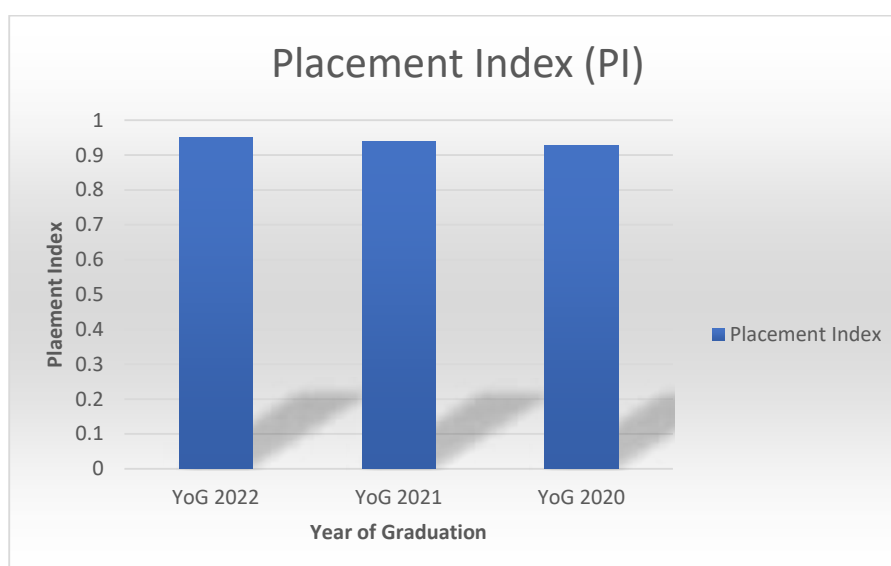


Figure 4.4 : Placement Index for Past Three Years

4.4.a Provide the placement data in the below mentioned format with the name of the program and the assessment year:

Table 4.4.2 : Department of Information Science and Engineering 2018-2022 Batch

Sl.No.	USN	Name of the Student	Name of the Employer	Appointment
1	1NH18IS001	A. Harshel Srivatsava	INCADEA, Innover Digital	NH-IS-22-INC-001
2	1NH18IS002	Abhiram R	EXL Service, Cognizant	NH-IS-22-CTS-009
3	1NH18IS003	Abhishek V Rai	Cognizant	NH-IS-22-CTS-006
4	1NH18IS005	Aishwarya Krishna Bhat	Cappgemini, DXC Technology, KALEYRA	NH-IS-22-KL-001
5	1NH18IS006	Akshatha M	ESKO	NH-IS-22-EK-001
6	1NH18IS007	Amogh Pai	Cappgemini, Cognizant, Oracle	NH-IS-22-OR-001 / NH-IS-22-CTS-008
7	1NH18IS008	Anamika Bhattacharya	Cappgemini, DXC Technology, Cognizant	NH-IS-22-CG-006 / NH-IS-22-CTS-007
8	1NH18IS009	Anisha Hiremath	Cappgemini	NH-IS-22-CG-009
9	1NH18IS011	Ankitha K D	CGI	NH-IS-22-CGI-001
10	1NH18IS012	Anshuman Samal	Comviva	NH-IS-22-CV-002
11	1NH18IS013	Anupam Kumar	Cappgemini	NH-IS-22-CG-013
12	1NH18IS015	Anusha K M	DXC Technology, Cognizant	NH-IS-22-CTS-002 / NH-IS-22-DXC-007
13	1NH18IS016	Arpita Chowdary Vantipalli	Cappgemini, VMware Software India Pvt Ltd	NH-IS-22-VM-001
14	1NH18IS017	Atharva Malandkar	Cappgemini, Intel	NH-IS-22-INTEL-003
15	1NH18IS018	Ayush Miharia	Brillio	NH-IS-22-BR-001
16	1NH18IS019	Ayush Sinha	ESKO	NH-IS-22-EK-002
17	1NH18IS020	Bathula Sree Harsha	Cappgemini	NH-IS-22-CG-023
18	1NH18IS022	Aravind Boddu	Cognizant	NH-IS-22-CTS-003
19	1NH18IS023	Charan Krishnamurthy	Cognizant, TCS, L&T Technology Services	NH-IS-22-CTS-017
20	1NH18IS025	Chinthapalli Ramya Bhargavi	Comviva, Musigma	NH-IS-22-CV-004 / NH-IS-22-MU-003
21	1NH18IS026	Chrisel Fernandes	Cappgemini	NH-IS-22-CG-014
22	1NH18IS027	Aswanth D V V	CGI	NH-IS-22-CGI-002

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23	1NH18IS028	Darshana Sailu Tanti	Capgemini, DXC Technology, Intel	NH-IS-22-CG-025 / NH-IS-22-INTEL-004
24	1NH18IS030	Dhanush Biligiri N H	HUGHES SYSTIQUE CORPORATION (HSC)	NH-IS-22-HS-003
25	1NH18IS031	Dhruv Gulati	DXC Technology	NH-IS-22-DXC-006
26	1NH18IS032	Sravan Duggi	DXC Technology	NH-IS-22-DXC-013
27	1NH18IS042	Jonnalagadda Venkat	Ernst & Young	NH-IS-22-EY-001
28	1NH18IS034	Sai Mani Kumar Gelli	Capgemini	NH-IS-22-CG-022
29	1NH18IS035	Gondrala Sai Sharanya	Capgemini, DXC Technology, Cognizant	NH-IS-22-CG-016 / NH-IS-22-CTS-004
30	1NH18IS036	Pranay Deepak Reddy	Capgemini	NH-IS-22-CG-028
31	1NH18IS037	Gowtham V	Wipro Ltd	NH-IS-22-WP-001
32	1NH18IS038	G Bhargavi	Musigma, Visionet System Inc	NH-IS-22-MU-002 / NH-IS-22-VN-001
33	1NH18IS039	Harshitha Rajesh	Capgemini, DXC Technology	NH-IS-22-CG-011
34	1NH18IS040	Ibrahim Ansar	Ernst & Young, AMADEUS	NH-IS-22-AM-002
35	1NH18IS041	Jnana P J	LOWE"S India	NH-IS-22-LO-002
36	1NH18IS043	Julaganti Anantha Trivedh	Cognizant	NH-IS-22-CTS-012
37	1NH18IS044	K Krtin	Byjus	NH-IS-22-BY-002
38	1NH18IS045	Kalyan Kumar N	Capgemini, DXC Technology, Cognizant, Plan Source	NH-IS-22-PS-001 / NH-IS-22-CTS-011
39	1NH18IS046	Kamini Yeseswini	DXC Technology, Cognizant	NH-IS-22-CTS-010
40	1NH18IS047	Karthik R	Capgemini	NH-IS-22-CG-030
41	1NH18IS048	Keerthan H	Capgemini, DXC Technology, IDFC first Bank, Intel	NH-IS-22-IDFC-001
42	1NH18IS049	Ketan Thakur	Publicis Sapient	NH-IS-22-SP-001
43	1NH18IS050	Pradeepthi Kolli	MyCaptain	NH-IS-22-MY001
44	1NH18IS052	Kumar Aman	Capgemini, Ola Electric	NH-IS-22-CG-024 / NH-IS-22-OLA-001
45	1NH18IS053	Likhith R	Capgemini, TCS, Cyware Labs	NH-IS-22-CY-001
46	1NH18IS054	Machireddy Vinay Kumar Reddy	Accenture	NH-IS-22-AC-006
47	1NH18IS055	Madduri Sanketh	EXL Service, Cognizant	NH-IS-22-CTS-016 / NH-IS-22-EXL-003
48	1NH18IS056	Mahima S Hebbar	Ernst & Young	NH-IS-22-EY-002

Criterion-4 Student Performance



49	1NH18IS057	Mala H R	Capgemini, DXC Technology, Thoughtworks	NH-IS-22-TW-001
50	1NH18IS058	Malvika Ravi K	DXC Technology, Cognizant, Oracle	NH-IS-22-OR-002 / NH-IS-22-CTS-015
51	1NH18IS059	Manan Agrawal	TCS	NH-IS-22-TCS-001
52	1NH18IS061	Md Asif Kamal Quadri	Wissen Infotech	NH-IS-22-WS-001
53	1NH18IS062	Mohammed Faizan	LTI (Larsen & Toubro Infotech)	NH-IS-22-LTI-001
54	1NH18IS063	Mohammed Ismail	Ernst & Young	NH-IS-22-EY-003
55	1NH18IS064	Monisha C	DXC Technology, Cognizant	NH-IS-22-CTS-001/ NH-IS-22-DXC-001
56	1NH18IS065	Mounika B	Capgemini, DXC Technology	NH-IS-22-CG-002 / NH-IS-22-DXC-002
57	1NH18IS066	Narender Yadav	DXC Technology, Cognizant, Accenture, IG Infotech India Private Limited	NH-IS-22-AC-002 / NH-IS-22-IG-002 / NH-IS-22-CTS-014 / NH-IS-22-DXC-009
58	1NH18IS067	Narreddy Nikhileswar Reddy	Galaxe Solutions, Cognizant	NH-IS-22-GE-001
59	1NH18IS069	Nesar B Ganguli	Capgemini, KALEYRA	NH-IS-22-KL-002
60	1NH18IS070	Nidhish V Prabhakar	Dell Technologies	NH-IS-22-DL-001
61	1NH18IS071	Nikhil Ch	Capgemini	NH-IS-22-CG-012
62	1NH18IS072	Nitesh Kumar	Comviva	NH-IS-22-CV-003
63	1NH18IS073	Pallavi Kulkarni	Capgemini, DXC Technology, More Retail	NH-IS-22-DXC-003 / NH-IS-22-MR-001
64	1NH18IS074	Paluvara Sreeveer	Happiest Minds Technologies Pvt. Ltd	NH-IS-22-HM-001
65	1NH18IS075	Pinaki Mukherjee	LTI (Larsen & Toubro Infotech)	NH-IS-22-LTI-002
66	1NH18IS076	Pooja T	Starland Company Ltd (Japan)	NH-IS-22-ZK-001
67	1NH18IS077	Prajwal P	Digit General Insurance, Cognizant, More Retail	NH-IS-22-MR-002 / NH-IS-22-CTS-013
68	1NH18IS078	Prakriti Sharma	LOWE'S India	NH-IS-22-LO-003
69	1NH18IS079	Punith Kumar S	EXL Service, VEBUIN	NH-IS-22-ZK-002
70	1NH18IS080	Pushkar Sinha	Capgemini	NH-IS-22-CG-021
71	1NH18IS081	R H Shravya	Accenture, Wipro Ltd	NH-IS-22-AC-003
72	1NH18IS082	Rahul V	IQVIA	NH-IS-22-iQ-001
73	1NH18IS084	Reem Azeez	Capgemini, DXC Technology	NH-IS-22-DXC-010
74	1NH18IS085	Ria Carol Mohan	Hiver	NH-IS-22-HV-002
75	1NH18IS086	Ritom Tamuli	LOWE'S India	NH-IS-22-LO-004

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76	1NH18IS088	Vasanth S	Visionet System Inc, Wipro Ltd	NH-IS-22-WP-006
77	1NH18IS090	Sagar Shankar	IBM	NH-IS-22-IBM-001
78	1NH18IS092	Sakshi Aryal	Capgemini	NH-IS-22-CG-018
79	1NH18IS093	Saloni K	DXC Technology	NH-IS-22-DXC-004
80	1NH18IS094	Samrudh G R	Capgemini	NH-IS-22-CG-007
81	1NH18IS095	Sanchitha Bs	CERNER CORPORATION	NH-IS-22-CR-003
82	1NH18IS096	Sangeetha D	Capgemini, DXC Technology, NOTESPACE	NH-IS-22-ZK-003
83	1NH18IS097	Sanjana A	Capgemini	NH-IS-22-CG-026
84	1NH18IS100	Venkata Charan Reddy S	Cognizant, Accenture	NH-IS-22-CTS-005 / NH-IS-22-AC-004
85	1NH18IS101	Shaik Nyamathulla	EXL Service	NH-IS-22-EXL-002
86	1NH18IS102	Sharanya G	EXL Service	NH-IS-22-EXL-001
87	1NH18IS104	Shubhodeep Sarkar	Capgemini	NH-IS-22-CG-020
88	1NH18IS106	Silpa S	CERNER CORPORATION, TCS	NH-IS-22-CR-001 / NH-IS-22-TCS-002
89	1NH18IS107	Singupuram Atulya	DXC Technology, Cognizant	NH-IS-22-TCS-002 / NH-IS-22-CTS-018 / NH-IS-22-DXC-012
90	1NH18IS024	Charitha Reddy N H	Hiver	NH-IS-22-HV-001
91	1NH18IS110	Soundhaaryha B S	Capgemini	NH-IS-22-CG-019
92	1NH18IS111	Sourav Adhikari	Cognizant, Intel	NH-IS-22-INTEL-001
93	1NH18IS112	Srutibanta Samantara	Capgemini	NH-IS-22-CG-010
94	1NH18IS113	Sujay M	EPSILON	NH-IS-22-EP-002
95	1NH18IS114	Suraj Suryavamshi	Capgemini, IDFC first Bank, Intel, TCS	NH-IS-22-CG-004
96	1NH18IS115	Syed Mateen	Wipro Ltd	NH-IS-22-WP-007
97	1NH18IS116	Balaji Sai Swapnil T	Capgemini	NH-IS-22-CG-003
98	1NH18IS117	Tanmay Tewari	IBM	NH-IS-22-IBM-003
99	1NH18IS118	Tejal Lalji Rangani	Ernst & Young, VMware Software India Pvt Ltd	NH-IS-22-EY-004
100	1NH18IS120	Tejasvi Patil	Happiest Minds Technologies Pvt. Ltd, Skyhigh Security	NH-IS-22-SH-002
101	1NH18IS121	V.Srujana Reddy	Musigma	NH-IS-22-MU-001
102	1NH18IS123	Vignesh K S	Capgemini,	NH-IS-22-AM-

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			AMADEUS	001
103	1NH18IS124	Vinay Hegde	Capgemini	NH-IS-22-CG-015
104	1NH18IS125	Virochan A C	Capgemini, Informatica	NH-IS-22-CG-005 / NH-IS-22-IF-001
105	1NH18IS126	Vismaye M	DXC Technology	NH-IS-22-DXC-005
106	1NH18IS127	Nandusai Y	Legato Health Technologies	NH-IS-22-LG-002
107	1NH18IS128	Yashmitha R	HUGHES SYSTIQUE CORPORATION (HSC)	NH-IS-22-HS-001
108	1NH18IS129	Anushka Sen	LOWE"S India	NH-IS-22-LO-001
109	1NH18IS130	Gaddam Jaithra Reddy	IBM, DXC Technology, IG Infotech India Private Limited	NH-IS-22-IG-001 / NH-IS-22-IBM-002
110	1NH18IS131	Karthik Gr	HUGHES SYSTIQUE CORPORATION (HSC)	NH-IS-22-HS-002
111	1NH18IS132	Medha Vinod	EPSILON	NH-IS-22-EP-001
112	1NH18IS133	Shripriya J Rao	LOWE"S India	NH-IS-22-LO-005
113	1NH18IS010	Ankit Singh	Capgemini	NH-IS-22-CG-008
114	1NH18IS135	Keerthishree V	CERNER CORPORATION	NH-IS-22-CR-002
115	1NH18IS136	Shankar Y	Capgemini	NH-IS-22-CG-027
116	1NH18IS137	Reshma K	Capgemini	NH-IS-22-CG-017
117	1NH18IS138	Keerthan M	Legato Health Technologies, Accenture	NH-IS-22-AC-001 / NH-IS-22-LG-003
118	1NH18IS139	Shreya L Reddy	DXC Technology, Skyhigh Security	NH-IS-22-SH-001 / NH-IS-22-DXC-011
119	1NH18IS140	Stebin Sebastian	Capgemini, DXC Technology, Intel	NH-IS-22-INTEL-002 / NH-IS-22-DXC-008
120	1NH18IS141	Aayush Vidhani	Legato Health Technologies	NH-IS-22-LG-001
121	1NH18IS142	Saifulla Sharief	Wipro Ltd	NH-IS-22-WP-003
122	1NH18IS143	Harsh Ankit	I Exceed technology solutions	NH-IS-22-IE-001
123	1NH18IS144	Hrutwik Saraf	Tudip Technologies Pvt Ltd	NH-IS-22-TD-001
124	1NH18IS146	Kuraku Vinod	Byjus	NH-IS-22-BY-001
125	1NH18IS099	Saveen C V	Capgemini	NH-IS-22-CG-031
126	1NH19IS400	B M Pramod	TCS, Wipro Ltd	NH-IS-22-WP-002 / NH-IS-22-TCS-003
127	1NH19IS401	Irendra K	Wipro Ltd	NH-IS-22-WP-004
128	1NH19IS402	Kartik Bhinge	Automation Anywhere,	NH-IS-22-WP-

			Wipro Ltd	005 / NH-IS-22-AA-002
129	1NH19IS403	Mohammed Kaifulla D K	Capgemini	NH-IS-22-CG-001
130	1NH19IS404	Pavan Kumar S	Comviva, Automation Anywhere	NH-IS-22-CV-001 / NH-IS-22-AA-001
131	1NH19IS405	Praveen Hegde	Capgemini	NH-IS-22-CG-029
132	1NH19IS407	Shubham Kharade	Zensar	NH-IS-22-ZS-001
133	1NH19IS409	Suchala KL	Accenture	NH-IS-22-AC-005
134	1NH19IS410	Sunil Kumar H	Cognisure	NH-IS-22-CS-001
135	1NH19IS411	Syed Saqlain Ahmed	Aris Global Ltd	NH-IS-22-AG-001

Table 4.4.3: Department of Information Science and Engineering –2017-21 Batch

Sl.No.	USN	Name	Name of the Employer	Appointment
1	1NH17IS001	Jamuna A	Tudip Technologies Pvt Ltd	NH-IS-21-TU-001
2	1NH17IS002	Abhinav Anand	Capgemini	NH-IS-21-CG-001
3	1NH17IS004	Aditya Kokanay	Capgemini	NH-IS-21-CG-002
4	1NH17IS005	Aiswarya V Kumar	Capgemini	NH-IS-21-CG-003/ NH-IS-21-AR-001
5	1NH17IS006	Akash K R	Capgemini	NH-IS-21-CG-004
6	1NH17IS007	Akepati Sassank Gopal Reddy	Mindtree	NH-IS-21-MT-009
7	1NH17IS008	Akhila S	LOWE'S India	NH-IS-21-LO-001
8	1NH17IS009	Akshay S Prathap	LTI (Larsen & Toubro Infotech)	NH-IS-21-LT-001/ NH-IS-21-IN-001
9	1NH17IS011	Pavel Anup	Cognizant	NH-IS-21-CTS-002
10	1NH17IS012	Aneesh Mohan Kumar	Capgemini	NH-IS-21-CG-005
11	1NH17IS013	Anitha B	L&T Technology Services	NH-IS-21-LT-002
12	1NH17IS015	Anusha K	Mindtree	NH-IS-21-MT-001
13	1NH17IS016	Apurba Bhattacharjee	Mobisy Technologies Ltd	NH-IS-21-MTL-001
14	1NH17IS017	Ayush Anand Sahu	Tudip Technologies Pvt Ltd	NH-IS-21-TU-002
15	1NH17IS018	Ayush Sharma	INFOSYS	NH-IS-21-IN-002
16	1NH17IS019	Bhoomika K C	LTI (Larsen & Toubro Infotech)	NH-IS-21-LT-003/ NH-IS-21-IN-002
17	1NH17IS020	Bhumika V	CERNER CORPORATION	NH-IS-21-CE-004
18	1NH17IS021	Bishal Kumar Sah	Capgemini	NH-IS-21-CG-006
19	1NH17IS022	Brunda S G	Cognizant	NH-IS-21-CTS-003
20	1NH17IS023	Harsha Vardhan C R	Tudip Technologies Pvt Ltd	NH-IS-21-TU-003
21	1NH17IS026	Chetan Y G	Capgemini	NH-IS-21-CG-016

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22	1NH17IS027	Chinmaya Kumar Nayak	Capgemini	NH-IS-21-CG-006
23	1NH17IS029	Deepak Kumar Sah	INFOSYS	NH-IS-21-IN-007
24	1NH17IS030	Deepthi P	LOWE"S India	NH-IS-21-LO-002
25	1NH17IS031	Dhanush R	Capgemini	NH-IS-21-CG-007
26	1NH17IS032	Dharani A	LOWE"S India	NH-IS-21-LO-003/ NH-IS-21-CG-008
27	1NH17IS034	Disha Singh	LOWE"S India	NH-IS-21-LO-004
28	1NH17IS035	Divya Shree M	Infogain	NH-IS-21-IG-001
29	1NH17IS036	Edwin Joshua John	Infogain	NH-IS-21-IG-002
30	1NH17IS039	Hamsa P O	Cognizant	NH-IS-21-CTS- 004
31	1NH17IS040	Harini V N	Cognizant	NH-IS-21-CTS- 001
32	1NH17IS042	Helen Hephzibah D	Capgemini	NH-IS-21-CG-017
33	1NH17IS043	Himanshu Bhatt	Capgemini	NH-IS-21-CG-018
34	1NH17IS044	Hitesh Suhas	Cognizant	NH-IS-21-CTS- 005
35	1NH17IS045	Joicy Castilino	L&T Technology Services	NH-IS-21-LT-012
36	1NH17IS046	K N Bhanu Priya	Service Line Solutions Pvt Ltd	NH-IS-21-SLS- 001
37	1NH17IS047	Raviteja Kaki	CERNER CORPORATION	NH-IS-21-CE-005
38	1NH17IS048	Kirti Devi	Capgemini	NH-IS-21-CG-009
39	1NH17IS049	Kshitij Raj	Capgemini	NH-IS-21-CG-019
40	1NH17IS050	Kushala R	LTI (Larsen & Toubro Infotech)	NH-IS-21-LT-004/ NH-IS-21-IN-003
41	1NH17IS051	Malavika N	CERNER CORPORATION	NH-IS-21-CE-001
42	1NH17IS052	Manoj R	L&T Technology Services	NH-IS-21-LT-005/ NH-IS-21-IN-004
43	1NH17IS053	Mervin Shibu George	ESKO	NH-IS-21-ES-001
44	1NH17IS055	Mohammed Owez	L&T Technology Services	NH-IS-21-LT-006
45	1NH17IS056	Monisha K	Capgemini	NH-IS-21-CG-010
46	1NH17IS059	Nethan Shaik	Mindtree	NH-IS-21-MT-002
47	1NH17IS060	N G Divya	Infogain	NH-IS-21-IG-003
48	1NH17IS062	Nivedha S	Tudip Technologies Pvt Ltd	NH-IS-21-TU-004
49	1NH17IS063	P Kumar Sateesh	Capgemini	NH-IS-21-CG-020
50	1NH17IS064	Vishnu Vardhan P	EXL Service	NH-IS-21-EXL- 001
51	1NH17IS067	Pooja M Sajjan	EXL Service	NH-IS-21-EXL- 004
52	1NH17IS068	Pooja S Singh	L&T Technology Services	NH-IS-21-LT-008/ NH-IS-21-CTS- 002
53	1NH17IS070	Pranoy Roy	Tudip Technologies Pvt Ltd	NH-IS-21-TU-005
54	1NH17IS071	Prasanna Bhat	Infogain	NH-IS-21-IG-004

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55	1NH17IS072	Preethi S	Cognizant	NH-IS-21-CTS-006
56	1NH17IS073	Purab Shreeniwas	LOWE"S India	NH-IS-21-LO-005
57	1NH17IS075	Ranjitha R	Tudip Technologies Pvt Ltd	NH-IS-21-TU-006/ NH-IS-21-VED-001
58	1NH17IS077	Raahul Narayana Reddy K	INFOSYS	NH-IS-21-IN-001
59	1NH17IS078	Rachana M S	Infogain	NH-IS-21-IG-005
60	1NH17IS079	Rahul S Beelur	Surya Software	NH-IS-21-SS-004
61	1NH17IS080	Rakshitha N	Cognizant	NH-IS-21-CTS-007
62	1NH17IS081	Rishank Sharma	CERNER CORPORATION	NH-IS-21-CE-002
63	1NH17IS082	Roshini P	Tudip Technologies Pvt Ltd	NH-IS-21-TU-007
64	1NH17IS084	Karthik S	LOWE"S India	NH-IS-21-LO-006
65	1NH17IS085	Uma Maheshwari	ESKO	NH-IS-21-ES-002
66	1NH17IS087	Sagar Khadka	L&T Technology Services	NH-IS-21-LT-009
67	1NH17IS088	Sahana K M	Capgemini	NH-IS-21-CG-010
68	1NH17IS089	Sahana N Reddy	Mindtree	NH-IS-21-MT-003
69	1NH17IS090	Sandeep PK	EXL Service	NH-IS-21-EXL-005
70	1NH17IS092	Sathwik S Shetty	Capgemini	NH-IS-21-CG-021
71	1NH17IS093	Saurav Nambiar	EXL Service	NH-IS-21-EXL-002
72	1NH17IS094	Shailesh PM	Tudip Technologies Pvt Ltd	NH-IS-21-TU-008
73	1NH17IS095	Shalini RS	LOWE"S India	NH-IS-21-LO-007
74	1NH17IS096	Shami Kataraki	Mindtree	NH-IS-21-MT-004
75	1NH17IS097	Sharmistha Chitransh	LTI (Larsen & Toubro Infotech)	NH-IS-21-LT-007
76	1NH17IS098	Shijo Yohannan	TCS	NH-IS-21-TCS-001
77	1NH17IS099	Shophy Tyagi	Capgemini	NH-IS-21-CG-011/ NH-IS-21-INT-001
78	1NH17IS100	Shrivatsa Hegde	Service Line Solutions Pvt Ltd	NH-IS-21-SLS-002
79	1NH17IS101	Simran Fathima	Cognizant	NH-IS-21-CTS-008
80	1NH17IS102	Sirisha M	Capgemini	NH-IS-21-CG-022
81	1NH17IS103	Sneha B K	Mindtree	NH-IS-21-MT-005
82	1NH17IS104	Sneha M	Capgemini	NH-IS-21-CG-012
83	1NH17IS105	Soujanya S	LOWE"S India	NH-IS-21-LO-008
84	1NH17IS106	Sowjanya C V	Capgemini	NH-IS-21-CG-013
85	1NH17IS107	Srinivas M	ESKO	NH-IS-21-ES-003
86	1NH17IS108	Srivatsa RV	PhonePe	NH-IS-21-PP-001/ NH-IS-21-CTS-003
87	1NH17IS109	Sudeep Poojary	Infogain	NH-IS-21-IG-006

Criterion-4 Student Performance



88	1NH17IS111	Sujith Ramprasad	Capgemini	NH-IS-21-CG-014
89	1NH17IS112	Sumanth Reddy R	CERNER CORPORATION	NH-IS-21-CE-003
90	1NH17IS113	Sushant Chaudhary	EXL Service	NH-IS-21-EXL-003
91	1NH17IS114	Sushmitha E	Mindtree	NH-IS-21-MT-006
92	1NH17IS115	Swasti	Mindtree	NH-IS-21-MT-007
93	1NH17IS117	Tarun Sharma	Tudip Technologies Pvt Ltd	NH-IS-21-TU-009
94	1NH17IS118	Tejaswini Sd	Capgemini	NH-IS-21-CG-023
95	1NH17IS121	Uday M R	EXL Service	NH-IS-21-EXL-006
96	1NH17IS122	Ujwal P B	National Payment Corporation of India	NH-IS-21-NPCI-005
97	1NH17IS123	Uttamkumar H G	Capgemini	NH-IS-21-CG-015
98	1NH17IS124	Vaishnavi R	LOWE'S India	NH-IS-21-LO-009
99	1NH17IS125	Vardhini V	L&T Technology Services	NH-IS-21-LT-013
100	1NH17IS126	Varna Murali	LOWES India	NH-IS-21-LO-010
101	1NH17IS127	Varsha Gowda S J	Capgemini	NH-IS-21-CG-024
102	1NH17IS130	Vinay V Raj	INFOSYS	NH-IS-21-IN-005
103	1NH17IS133	Yashwanth M	EXL Service	NH-IS-21-EXL-007
104	1NH17IS134	G.S.Nithyashree	Mindtree	NH-IS-21-MT-010
105	1NH17IS135	Meghana. S	L&T Technology Services	NH-IS-21-LT-014
106	1NH17IS136	Ashwal Srinivas	INFOSYS	NH-IS-21-IN-006
107	1NH17IS137	Nithya. B. S	Mindtree	NH-IS-21-MT-011
108	1NH17IS138	Rohitashav Soni	Infogain	NH-IS-21-IG-009
109	1NH17IS140	Ashwin Venkatakrishnan	INFOSYS	NH-IS-21-IN-004
110	1NH17IS142	Judy Kennedy	Infogain	NH-IS-21-IG-010
111	1NH17IS143	Rohit M	L&T Technology Services	NH-IS-21-LT-011
112	1NH17IS144	Tejashwini S M Patil	Mindtree	NH-IS-21-MT-008
113	1NH17IS146	Vishal S Balan	Infogain	NH-IS-21-IG-007
114	1NH17IS147	Gowtham S	Tudip Technologies Pvt Ltd	NH-IS-21-TU-010
115	1NH17IS148	Charitha V	Mindtree	NH-IS-21-MT-012
116	1NH17IS149	Syed Sahil Abbas	Infogain	NH-IS-21-IG-008
117	1NH17IS151	Vimal Gowda R	L&T Technology Services	NH-IS-21-LT-010
118	1NH17IS152	Stevenson Jacob	INFOSYS	NH-IS-21-IN-003
119	1NH18IS400	Aneja S Popale	INTEL	NH-IS-21-INTEL-001

Table 4.4.4: Department of Information Science and Engineering –2016-2020 Batch

Sl.No.	USN	Name of the Student	Name of the Employer	Appointment
1	1NH16IS001	Aashika M Suresh	Altran	NH-IS-20-AL-001
2	1NH16IS002	Abhishek Kumar	L&T	NH-IS-20-LT-001
3	1NH16IS003	Abhishek Ranjan	Capegemini	NH-IS-20-CG-001
4	1NH16IS004	Aditya Sharda	IBM	NH-IS-20-IBM-001
5	1NH16IS005	Afia Kulsum	L&T	NH-IS-20-LT-002
6	1NH16IS006	Ajay H	Altran	NH-IS-20-AL-002
7	1NH16IS007	Akashansh Jain	Cerner	NH-IS-20-CE-001
8	1NH16IS008	Akhilendu	NTTData	NH-IS-20-NTT-001
9	1NH16IS009	Amal Singh Bhadauria	Perfios	NH-IS-20-PER-001
10	1NH16IS010	Amir Sohail Baig A	Capegemini	NH-IS-20-CG-002
11	1NH16IS011	Amithesh K N	ITC infotech	NH-IS-20-ITC-001
12	1NH16IS012	Anakha Amal Siddique	Altran/ITCinfotech	NH-IS-20-AL-003/NH-IS-20-ITC-008
13	1NH16IS014	Anuj Prakash	IBM	NH-IS-20-IBM-002
14	1NH16IS015	Anusha D Singh	IBM/JMRinfotech	NH-IS-20-IBM-007/NH-IS-20-JMR-001
15	1NH16IS016	Arnab Bhowal	Capegemini	NH-IS-20-CG-003
16	1NH16IS017	Ashika P	Nineleaps	NH-IS-20-NIN-001
17	1NH16IS018	Ashwini Holla	Nineleaps	NH-IS-20-NIN-002
18	1NH16IS019	Ashwini Singh A	Capegemini	NH-IS-20-CG-004
19	1NH16IS020	B Lakshmi Deepika Chowdary	Capegemini	NH-IS-20-CG-005
20	1NH16IS021	B S Deepthi	Capegemini	NH-IS-20-CG-006
21	1NH16IS022	Bharani Prabhakaran	Altran/ITCinfotech	NH-IS-20-AL-004/NH-IS-20-ITC-009
22	1NH16IS023	Bhavya R	Eurofins/ CPP SECRETS	NH-IS-20-EU-001/NH-IS-20-CPPS-001
23	1NH16IS024	Bhawik Tanna	Capegemini	NH-IS-20-CG-007
24	1NH16IS025	Biswajit Mohanty	ITC infotech	NH-IS-20-ITC-002
25	1NH16IS026	Chandrakiran S	Visionet	NH-IS-20-VIS-001
26	1NH16IS030	Deepa.S	Nineleaps	NH-IS-20-NIN-003
27	1NH16IS033	Gagan Prasad	Temairazu Inc	NH-IS-20-TE-001
28	1NH16IS034	Geetha B C	Capegemini	NH-IS-20-CG-008
29	1NH16IS035	Gowtham Mn	ITC infotech	NH-IS-20-ITC-003

Criterion-4 Student Performance



30	1NH16IS039	Hemanth Kumar R	Temairazu Inc/Altran	NH-IS-20-TE-002 / NH-IS-20-AL-005
31	1NH16IS040	Ishu Kumar	Capgemini	NH-IS-20-CG-009
32	1NH16IS041	Janav S	Accenture	NH-IS-20-ACC-001
33	1NH16IS042	Joseph B Antony	Cerner	NH-IS-20-CE-002
34	1NH16IS043	Joshua Linton J	Nineleaps	NH-IS-20-NIN-004
35	1NH16IS045	K Chandra Swaroop Reddy	Wipro Limited	NH-IS-20-WL-012
36	1NH16IS046	K N Bhavana	Cerner	NH-IS-20-CE-003
37	1NH16IS048	Karthik K	Capgemini	NH-IS-20-CG-010
38	1NH16IS050	Koushalya.R	Cerner	NH-IS-20-CE-004
39	1NH16IS051	Lakshmi.K.S.	Cerner	NH-IS-20-CE-005
40	1NH16IS052	Likitha R	NTTData/AUDACIOUS MINDS SOFT TECH	NH-IS-20-NTT-002/NH-IS-20-AMST-001
41	1NH16IS054	M S Veeresh Prasad	ITC infotech	NH-IS-20-ITC-004
42	1NH16IS055	Malika G	IBS	NH-IS-20-IBS-002
43	1NH16IS056	Manisha Samal	Capgemini	NH-IS-20-CG-011
44	1NH16IS057	Manoj R	NTTData	NH-IS-20-NTT-003
45	1NH16IS058	Meghana C A	IBM	NH-IS-20-IBM-003
46	1NH16IS059	Meghashree K	Wipro Limited	NH-IS-20-WL-013
47	1NH16IS060	Mohd Arbaz Khan	Nineleaps	NH-IS-20-NIN-005
48	1NH16IS062	Monisha Taj D	Eurofins	NH-IS-20-EU-002
49	1NH16IS063	Muhammad Shahbaz Khan	Tech Mahindra/LOWES	NH-IS-20-TM-001/NH-IS-20-LO-002
50	1NH16IS064	N .Swetha	Tech Mahindra/GLOBAL LOGIC	NH-IS-20-TM-002/NH-IS-20-GL-001
51	1NH16IS065	Nawaz Khan	Tata/Altran	NH-IS-20-TATA-001/NH-IS-20-AL-006
52	1NH16IS067	Nikhil Jain D	CGI	NH-IS-20-CGI-001
53	1NH16IS068	Nikita Nanju K	NTTData/Tata	NH-IS-20-NTT-004/NH-IS-20-TATA-002
54	1NH16IS069	Nirdesh Reddy	Covance	NH-IS-20-CO-001
55	1NH16IS070	P Nymisha	Capgemini	NH-IS-20-CG-012
56	1NH16IS071	Pavan Kumar M G	ITC infotech	NH-IS-20-ITC-005
57	1NH16IS072	Pavan Kumar S	Cerner/ITC	NH-IS-20-CE-006/NH-IS-20-ITC-010
58	1NH16IS073	Pavithra Ps	NTTData	NH-IS-20-NTT-005
59	1NH16IS074	Pavithra S	Epsilon	NH-IS-20-EP-001

Criterion-4 Student Performance



60	1NH16IS075	Pawan Jenu	Surya-soft	NH-IS-20-SS-001
61	1NH16IS076	Poojana V	IBM	NH-IS-20-IBM-004
62	1NH16IS080	Pramod Sencha N	ITC infotech/MU SIGMA	NH-IS-20-ITC-006/NH-IS-20-MU-002
63	1NH16IS081	Pranav Pandhi	Wipro Limited/L&T	NH-IS-20-WL-001/NH-IS-20-LT-003
64	1NH16IS082	Prapul Kumar A	Cerner	NH-IS-20-CE-007
65	1NH16IS083	Prashanth Paul D	Microgenesis	NH-IS-20-MI-001
66	1NH16IS084	Prashanth V	Covance	NH-IS-20-CO-002
67	1NH16IS085	Pratyksha Sharma	Amex/HP	NH-IS-20-AM-001/NH-IS-20-HP-001
68	1NH16IS086	Prem Kumar S	IBS	NH-IS-20-IBS-001
69	1NH16IS087	R.P.Prashanth	Simeio Solution	NH-IS-20-SIM-001
70	1NH16IS088	Rajeshwari	Capgemini	NH-IS-20-CG-013
71	1NH16IS089	Ramakanth A	Hughes Systems	NH-IS-20-HS-001
72	1NH16IS091	S. Dhanya Shree	Musigma	NH-IS-20-MU-001
73	1NH16IS093	Sadhana S	Cerner	NH-IS-20-CE-008
74	1NH16IS096	Samya Mannuru Subba Reddy	IBM	NH-IS-20-IBM-005
75	1NH16IS097	Sanjana V Nagvekar	Tata/NTTData	NH-IS-20-NTT-008/NH-IS-20-TATA-003
76	1NH16IS098	Sanjeeth Rao	Cerner	NH-IS-20-CE-009
77	1NH16IS099	Sathya N	Infosys Ltd	NH-IS-20-IL-001
78	1NH16IS100	Shanmathi Kailasam	Vmware	NH-IS-20-VMW-001
79	1NH16IS101	Sharangouda	Infosys Ltd	NH-IS-20-IL-002
80	1NH16IS102	Shrilakshmi U	Infosys Ltd	NH-IS-20-IL-003
81	1NH16IS103	Shrinidhi U Kulkarni	Cerner/LOWES	NH-IS-20-CE-010/NH-IS-20-LO-003
82	1NH16IS104	Siddharth Chauhan	CGI	NH-IS-20-CGI-002
83	1NH16IS105	Siddharth Indoria	Wipro Limited	NH-IS-20-WL-002
84	1NH16IS106	Simran Killedar	Wipro Limited	NH-IS-20-WL-003
85	1NH16IS107	Sinchana Bhaskar	Udan	NH-IS-20-UD-001
86	1NH16IS108	Sindhu.K.S	Cerner	NH-IS-20-CE-011
87	1NH16IS109	Somya Singh	Wipro Limited	NH-IS-20-WL-004
88	1NH16IS110	Spandana.S	ITC infotech/JSOL CORPORATION	NH-IS-20-ITC-007/NH-IS-20-JSOL-001
89	1NH16IS111	Sudarshan C	Wipro Limited	NH-IS-20-WL-005
90	1NH16IS112	Sunil K A	Nineleaps	NH-IS-20-NIN-006
91	1NH16IS113	Swaraj K S	L&T	NH-IS-20-LT-003

92	1NH16IS114	Syed Nadeem Pasha	Wipro Limited/CGI	NH-IS-20-WL-006/NH-IS-20-CGI-004
93	1NH16IS115	Tejavati Vinayaka Hegde	Wipro Limited	NH-IS-20-WL-007
94	1NH16IS116	Thejas T R	Capgemini	NH-IS-20-CG-014
95	1NH16IS118	Ummadi Pavan Kumnar	Catnip	NH-IS-20-CT-001
96	1NH16IS119	Vachan B D	Capgemini	NH-IS-20-CG-015
97	1NH16IS121	Vijay Shubhakar Hegde	Speridian	NH-IS-20-SP-001
98	1NH16IS123	Vishak J U	IBM	NH-IS-20-IBM-006
99	1NH16IS124	Vishal Roshan J	CGI	NH-IS-20-CGI-003
100	1NH16IS125	Vrinda Raveendran	Simeio Solution	NH-IS-20-SIM-002
101	1NH16IS126	Yashvanth Cv	L&T	NH-IS-20-LT-004
102	1NH16IS127	Ayush Thapa	Catnip	NH-IS-20-CT-002
103	1NH16IS128	Bishwadeep Chaudhary	Wipro Limited	NH-IS-20-WL-009
104	1NH16IS129	Chandra Shekhar Yadav	Wipro Limited	NH-IS-20-WL-010
105	1NH16IS134	Narendra Nath Jha	Infosys Ltd	NH-IS-20-IL-004
106	1NH16IS138	Shailesh Pokharel	Infosys Ltd	NH-IS-20-IL-006
107	1NH16IS141	Amogh P Shankar	Infosys Ltd	NH-IS-20-IL-005
108	1NH16IS142	Kommi Sai Sindhu	Wipro Limited	NH-IS-20-WL-011
109	1NH17IS400	Asha.K	Neoway	NH-IS-20-NE-001
110	1NH17IS401	Sakthi Sridevi	Wipro Limited	NH-IS-20-WL-008
111	1NH17IS402	Sarah Tabassum Razvi	Extramarks	NH-IS-20-EX-001
112	1NH17IS403	Sri Vidya B M	Lowes	NH-IS-20-LO-001

4.5. Professional Activities (20)

The Department of Information Science and Engineering, encourages organizing various workshops and events for the students in association with the Professional bodies. The Professional bodies like IEEE, ISTE and CSI are involved in grooming professionalism and technical competency by forming various student clubs. These professional societies have the following broad objectives:

- 1) Forming clubs and selection of the members representing the club, which involves the students to work as a team to organize an event. This activity helps them to build team relation and coordination.
- 2) Sharing of technical skills among the students through events such as workshop and seminars.
- 3) Plan and organize technical programs and activities, such as special lectures, workshops, Training, seminars, webinars, symposia etc., for benefit of students on regular basis.
- 4) Provide a platform to students to exhibit the leadership skills by coordinating the various events.
- 5) Understanding the importance of team building and encourage the students to turn up as an entrepreneur.

Activities like Hands-on training, workshops, distinguished lectures, competition helped the student community in learn and innovative new technology thereby by providing solution to the problems faced by the society. As a result, the students could taste the success, which are evident from eco-friendly projects and Journal publications.

4.5.1. Professional societies/chapters and organizing engineering events (5)

Table 4.5.1.1: List of Professional Societies

Sl. No.	Professional Societies	Acronym
1	Computer Society of India	CSI
2	Indian Society for Technical Education	ISTE
3	Free Software Movement Karnataka	FSMK
4	International Association of Engineers	IAENG
5	Institute of Electrical and Electronics Engineers	IEEE

Table 4.5.1.2: List of Professional Societies/Chapters and Organizing Engineering Events In ACADEMIC YEAR 2022-2023

S.No	Event Type	Name of the Professional /Chapters	Organized Events and Title	Name of the Coordinators	Organized Date	No of Participation / Attendees
1	NOTE CLUB Club Event	ISTE,CSI	REWIND 2.0	Mrs.Rama Dan	18/11/2022	150
2	NOTE CLUB Club Event	ISTE,CSI	The BIG 4	Mrs.Rama Dan	17/10/2022	56
3	NOTE CLUB Club Event	ISTE,CSI	HYPERBOLE	Mrs.Rama Dan	31/03/2023	100
4	i-SWET Club Event	ISTE,CSI	PRAVAH	Mrs.Latha S S	18/10/2022	62
5	i-SWET Club Event	ISTE,CSI	JWALAN	Mrs.Latha S S	16/11/2022	56
6	VITA CLUB	ISTE,CSI	CODIGO	Mrs.B.Swathi, Mrs. Karthiyayini J	18/04/2023	50
7	VITA CLUB	ISTE,CSI	EXCELESIOR	Mrs.B.Swathi, Mrs. Karthiyayini J	28/11/2022	50
8	VITA CLUB	ISTE,CSI	XENIUM	Mrs. B.Swathi	20/10/2022	60
9	i-SCRUM	AICTE,ISTE,CSI	FUNDEMENTALS OF	Mrs. Sony	18/04/2023	100

			RSEARCH			
10	i-SCRUM	AICTE,ISTE,CSI	ENIGMA	Mrs. Sony	22/11/2022	200
11	i-SCRUM	ISTE,CSI	DINEROTEK	Mrs. Sony	13/10/2022	40
12	i-CSEH	ISTE,CSI,AICTE	TECHVERSE	Mrs. Shobha & Mrs. Vandana C.P	23/12/2022	83
13	i-CSEH	ISTE,CSI	TECH-CHARADES	Mrs. Shobha & Mrs. Vandana C.P	19/10/2022	48
14	i-CSEH	ISTE,CSI	DEFENDX	Mrs. Shobha & Mrs. Vandana C.P	27/04/2023	40



Figure 4.5.3.1 Glimpse of the event “Enigma” conducted by i-SCRUM club of Department of Information Science and Engineering



Figure 4.5.3.2 Glimpse of the event “TECH VERSE” conducted by i-CSEH club of Department of Information Science and Engineering

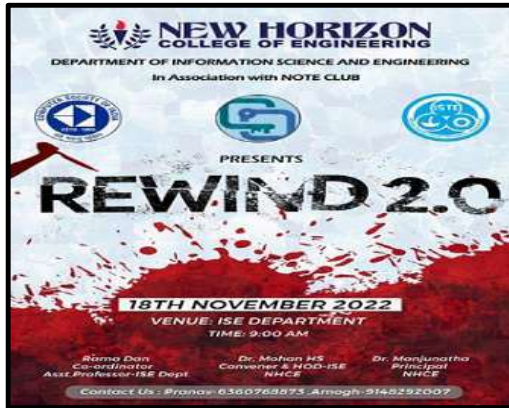


Figure 4.5.3.3 Glimpse of the event “REWIND2.0” conducted by Note club of Department of Information Science and Engineering

Table 4.5.1.3: List of Professional Societies/Chapters and Organizing Engineering Events In ACADEMIC YEAR 2021-2022

S.No	Event Type	Name of the Professional /Chapters	Organized Events and Title	Name of the Coordinators	Organized Date	No of Participation / Attendees
1	i-SWET Club Event	ISTE,CSI	UDBHAVA	Mrs.Latha S Mrs.Mounica B	26/11/2021	117
2	i-SWET Club Event	ISTE,CSI	ABHYUDAY	Mrs.Latha S Mrs.Mounica B	30/12/2021	180
3	i-SWET Club Event	ISTE,CSI	ANWESHA	Mrs.Latha S Mrs.Mounica B	26/04/2022	114
4	i-SWET Club Event	ISTE,CSI	SPECTRAA	Mrs.Latha S Mrs.Mounica B	09/06/2022	100
5	NOTE CLUB Club Event	ISTE,CSI	3D MODELING USING BLENDER	Mrs. Lohitha Mr.Karthik	06/05/2022	50
6	NOTE CLUB Club Event	ISTE,CSI	REWIND	Mrs. Lohitha Mr.Karthik	13/5/2022	150
7	NOTE CLUB Club Event	ISTE,CSI	HACKX	Mrs. Lohitha Mr.Karthik	6/1/2022 & 7/1/2022	55
8	NOTE CLUB Club Event	ISTE,CSI	INCIDENT	Mrs. Lohitha	19/11/2021	56

	CLUB Club Event		BRAINSTROM	Mr.Karthik		
9	VITA CLUB	ISTE,CSI	TECHKRITI	Mrs. B.Swathi	09/06/2022	60
10	VITA CLUB	ISTE,CSI	EYRIS 2022	Mrs. B.Swathi	09/05/2022	60
11	VITA CLUB	ISTE,CSI	ZYPHER	Mrs. B.Swathi	26/11/2021	65
12	i-SCRUM	ISTE,CSI	WORDSVILLE	Mrs. Suvika	07/06/2022	43
13	i-SCRUM	ISTE,CSI	DATA AND DEPLOYMENT WITH TENSOR FLOWS.JS	Mrs. Suvika	05/05/2022	100
14	i-SCRUM	ISTE,CSI	INFOTRIX	Mrs. Bilvika	29/12/2021	106
15	i-SCRUM	ISTE,CSI	TECH UMANG	Mrs. Bilvika	16/11/2021	103
16	i-CSEH	ISTE,CSI	SEMINAR ON ANALYTICS	Mrs. Shobha & Mrs. Vandana C.P	03/06/2022	200
17	i-CSEH	ISTE,CSI	TECHWIZ	Mrs. Shobha & Mrs. Vandana C.P	29/04/2022	40
18	i-CSEH	ISTE,CSI	OMNI TECH	Mrs. Shobha & Mrs. Vandana C.P	17/01/2022	40
19	i-CSEH	ISTE,CSI	CODE-O- FIESTA	Mrs. Shobha & Mrs. Vandana C.P	17/11/2021	50



Figure 4.5.1.4.1 Glimpse of the event “Spectra” conducted by i-SWET(G) Club of Department of Information Science and Engineering



Figure 4.5.1.4.2 Mr.Dinesh Kumar Panigrahi the regional lead at NASSCOM and a governing council member and director at Karnataka Vocational Training Society addressing the gathering in an event organized by i-CSEH club of Information Science and Engineering



Figure 4.5.1.4.3 Glimpse of the event “Data and Deployment with TENSORFLOW.JS” conducted by i-SCRUM club of Department of Information Science and Engineering

Table 4.5.1.4: List of Professional Societies/Chapters and Organizing Engineering Events In ACADEMIC YEAR 2020-2021

S.No	Event Type	Name of the Professional /Chapters	Organized Events and Title	Name of the Coordinators	Organized Date	No of Participation / Attendees
1	NOTE CLUB Club Event	ISTE	DESIGN OVERFLOW	Ms Rafega Begum Mr.Gautam	8/11/2020 to 12/11/2020	10 Teams
2	NOTE CLUB Club Event	ISTE	CODE CRASH	Ms Rafega Begum Mr.Gautam	12/04/2021	60
3	i-SWET Club Event	ISTE,CSI	EXPERT TALK ON IOT BASED APPLICATIONS	Mrs.Divya K V Mrs.Mounica B	05/04/2021	50
4	VITA	ISTE,CSI	TECHNOW HIZZ –“THE BATTLE OF	Mrs B.Swathi	23/09/2020	70

			THE WHIZZARD S!"			
5	VITA	ISTE,CSI	VZARDS	Mrs B.Swathi	10/11/2020	70
6	VITA	ISTE,CSI	GEEK INVASION	Mrs B.Swathi	08/6/2021	60
7	VITA	ISTE,CSI	UTKRANTI	Mrs B.Swathi	22/4/2021	50
8	i-CSEH	ISTE,CSI	KNOWBE4	Mrs. Shobha & Mrs. Vandana C.P	19/10/2020	80
9	i-CSEH	ISTE,CSI	CYBER SECURITY AND CURRENT TRENDS	Mrs. Shobha & Mrs. Vandana C.P	23/03/2021	50
10	i-SCRUM	ISTE,CSI	TEQNIQX	Mr Gowri Prasad	02/06/2021	50
11	i-SCRUM	ISTE,CSI	HANA:IN MEMORY DATABASE AND CLOUD COMPUTING	Mrs Bilvika	17/12/2020	149
12	i-SCRUM	ISTE,CSI	ETHICAL HACKING	Mr Gowri Prasad	12/04/2021	200

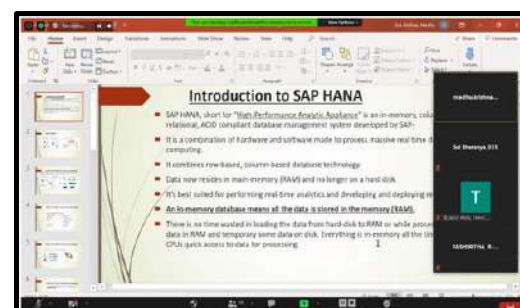


Figure 4.5.1.5.1 Glimpse of the event “HANA:IN-MEMORY DATABASE AND CLOUD COMPUTING” conducted by SCRUM club of Department of Information Science and Engineering graced by Mr Madhu S K , Senior SAP HANA/Cloud Administrator, Forcepoint Ltd

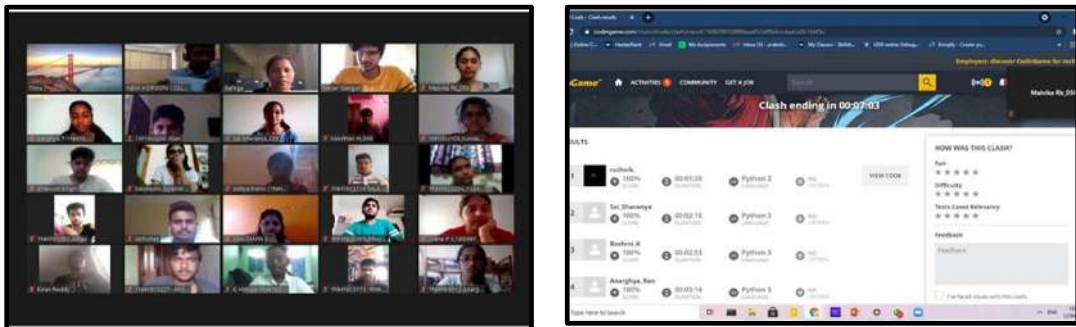


Figure 4.5.1.5.2 Glimpse of the event “Code Crash” conducted by NOTE club of Department of Information Science and Engineering

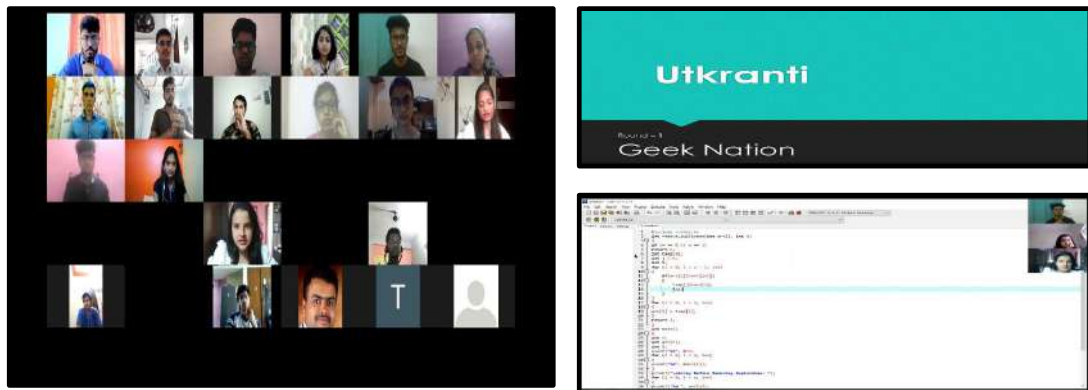


Figure 4.5.1.5.3 Glimpse of the event “Utkranti” conducted by VITA of Department of Information Science and Engineering

Table 4.5.1.5: List of Professional Societies/Chapters and Organizing Engineering Events In ACADEMIC YEAR 2019-2020

S.No	Event Type	Name of the Professional /Chapters	Organized Events and Title	Name of the Coordinators	Organized Date	No of Participation / Attendees
1	i-SWET Club Event	IAENG	TECHNICAL TALK ON AI	Mrs.Divya K V Mrs.Mounica B	26/10/2019	69
2	i-SWET Club Event	IAENG	DATA SCIENCE WITH PYTHON	Mrs.Divya K V Mrs.Mounica B	28/08/2019	60
3	i-SWET Club Event	IAENG	BLOCKCHAIN AND CRYPTOGRAPHY	Mrs.Divya K V Mrs.Mounica B	31/01/2020	76
4	NOTE CLUB Club Event	FSMK	AI AND ITS APPLICATION	Ms. Swetha Ms Rafega Begum	28/01/2020	51
5	NOTE CLUB Club	FSMK	ADVANCED	Ms. Swetha Ms Rafega Begum	31/08/2019	40

Criterion-4 Student Performance



	Event		PYTHON TECHNICAL EVENT			
6	NOTE CLUB Club Event	FSMK	CODING CONTEST USING OPEN SOURCE S/W	Ms. Swetha Ms Rafega Begum	21/10/2019	40
7	VTIA	VMWARE IT ACADEMY	TECHNO MANANCE	Mrs B.Swathi	28/08/2019	50
8	VITA	VMWARE IT ACADEMY	VMWARE IT FORUM	Mrs B.Swathi	14/09/2019	100
9	i-SCRUM	IAENG	WORKSH OP ON VEDIC MATHEMATICS	Mr Gowri Prasad	12/02/2020	140
10	i-SCRUM	IAENG	T-ZEST	Mr Gowri Prasad	11/09/2019	64
11	i-SCRUM	IAENG	GLOBAL EDUCATION AWARENESS	Mr Gowri Prasad	24/09/2019	100
12	i-CSEH	ISTE,CSI	CRYPTOWAR	Mrs. Shobha & Mrs. Vandana C.P	24/10/2019	40
13	i-CSEH	ISTE,CSI	CRYPTOATHON, AWARENESS ABOUT PYTHON AND ITS APPLICATION IN CRYPTOGRAPHY FIELD,	Mrs. Shobha & Mrs. Vandana C.P	26/10/2019	48
14	i-CSEH	ISTE,CSI	SECURELINKS, CRYPTOCURRENCIES AND SMART CONTRACTS	Mrs. Shobha & Mrs. Vandana C.P	08/02/2020	45



Figure 4.5.1.6.1 Dr RJ Anandhi, HOD, ISE felicitating the Guest Mr. Shorupan Pirkaspathy for the event Secure Links, Cryptocurrencies and Smart contracts



Figure 4.5.1.6.2 Resource person for the session was, Mr. Tarique Hasan, Academic Head Competition Forum Interacting with our students



Figure 4.5.1.6.3 Mr. Pirkaspathy is the CEO of Nvest Group of Companies highlighted the need for blockchain and cryptocurrency with the real time applications.

4.5.2. Publication of technical magazines, newsletters, etc. (5)

Table 4.5.2.1 : List of publication of Technical Magazines, Newsletters

S.no	Academic Year	Name of the Magazine, News Letters	Periodicity	Editorial Board	Publisher	Publication Details
1	2022-23	i-News JULY 22- DEC 22	Half Yearly	Deepak T Poorvi J Vigneswara T Surya S Vimjam Tharun	Dept. of ISE, NHCE	Volume -8 Issue- 1
2	2021-22	i-News MARCH 22 - JUNE 22	Half Yearly	Deepak T Poorvi J Vigneswara T Surya S Vimjam Tharun	Dept. of ISE, NHCE	Volume -7 Issue- 2
3		i-News J-SEP 21- DEC 21	Half Yearly	Adith Rao Poorvi J Suraj Antony Deepak T Praneeth S Pranieeth Likith Rama Rovin J	Dept. of ISE, NHCE	Volume -7 Issue- 1
4		i-News J-APR 21- AUG 21	Half Yearly	Poorvi J Aditi Rao Deepak T Suraj Antony	Dept. of ISE, NHCE	Volume -6 Issue- 2
5	2020-21	i-News J-SEP 20-FEB 21	Half Yearly	Poorvi J Aditi Rao Deepak T Suraj Antony Yukthaa S Likith Rama Praneetha S Rovin J Sukriti S	Dept. of ISE, NHCE	Volume -6 Issue- 1

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6	2019-20	i-News J-JAN 20-JUL 20	Half Yearly	K Krtin Vismaya M Anushka Sen Sonali Nandagopalan Sayen Silpa S Malvika Ravi Arpita Chowdary	Dept. of ISE, NHCE	Volume -5 Issue- 2
7		i-News J-JUL 19-DEC 19	Half Yearly	K Krtin Vismaya M Anushka Sen Sonali Nandagopalan Sayen Silpa S Malvika Ravi Arpita Chowdary	Dept. of ISE, NHCE	Volume -5 Issue- 1



Figure 4.5.2.1 Glimpses of Information Science and Engineering News Letters

Table 4.5.2.1.1: List of College publication of Technical Magazines

S.No	Year	Name of the Publication of Technical Magazines /Newsletters	Month of publication
1.	2020-21	NH-Bytes - Volume –XX0- Issue 7 (Monthly College Magazine)	July 2020
2.	2020-21	NH-Bytes - Volume –XX0- Issue 8 (Monthly College Magazine)	August 2020
3.	2020-21	NH-Bytes - Volume –XX0- Issue 9 (Monthly College Magazine)	September 2020
4.	2020-21	NH-Bytes - Volume –XX0- Issue 10 (Monthly College Magazine)	October 2020
5.	2020-21	NH-Bytes - Volume –XX0- Issue 11 (Monthly College Magazine)	November 2020
6.	2020-21	NH-Bytes - Volume –XX0- Issue 12 (Monthly College Magazine)	December 2020
7.	2020-21	NH-Bytes - Volume –XX1- Issue 1 (Monthly College Magazine)	January 2021
8.	2020-21	NH-Bytes - Volume –XX1- Issue 2 (Monthly College Magazine)	February 2021
9.	2020-21	NH-Bytes - Volume –XX1- Issue 3 (Monthly College Magazine)	March 2021
10.	2020-21	NH-Bytes - Volume –XX1- Issue 4 (Monthly College Magazine)	April 2021
11.	2020-21	NH-Bytes - Volume –XX1- Issue 5 (Monthly College Magazine)	May 2021
12.	2020-21	NH-Bytes - Volume –XX1- Issue 6 (Monthly College Magazine)	June 2021
13.	2021-22	NH-Bytes - Volume –XX1- Issue 7 (Monthly College Magazine)	July 2021
14.	2021-22	NH-Bytes - Volume –XX1- Issue 8 (Monthly College Magazine)	August 2021
15.	2021-22	NH-Bytes - Volume –XX1- Issue 9 (Monthly College Magazine)	September 2021
16.	2021-22	NH-Bytes - Volume –XX1- Issue 10 (Monthly College Magazine)	October 2021
17.	2021-22	NH-Bytes - Volume –XX1- Issue 11 (Monthly College Magazine)	November 2021
18.	2021-22	NH-Bytes - Volume –XX1- Issue 12 (Monthly College Magazine)	December 2021
19.	2021-22	NH-Bytes - Volume –XX2- Issue 1 (Monthly College Magazine)	January 2022
20.	2021-22	NH-Bytes - Volume –XX2- Issue 2 (Monthly College Magazine)	February 2022
21.	2021-22	NH-Bytes - Volume –XX2- Issue 3 (Monthly College Magazine)	March 2022

22.	2021-22	NH-Bytes - Volume –XX2- Issue 4 (Monthly College Magazine)	April 2022
23.	2021-22	NH-Bytes - Volume –XX2- Issue 5 (Monthly College Magazine)	May 2022
24.	2021-22	NH-Bytes - Volume –XX2- Issue 6 (Monthly College Magazine)	June 2022
25.	2022-23	NH-Bytes - Volume –XX2- Issue 7 (Monthly College Magazine)	July 2022
26.	2022-23	NH-Bytes - Volume –XX2- Issue 8 (Monthly College Magazine)	August 2022
27.	2022-23	NH-Bytes - Volume –XX2- Issue 9 (Monthly College Magazine)	September 2022
28.	2022-23	NH-Bytes - Volume –XX2- Issue 10 (Monthly College Magazine)	October 2022
29.	2022-23	NH-Bytes - Volume –XX2- Issue 11 (Monthly College Magazine)	November 2022
30.	2022-23	NH-Bytes - Volume –XX2- Issue 12 (Monthly College Magazine)	December 2022
31.	2022-23	NH-Bytes - Volume –XX3- Issue 1 (Monthly College Magazine)	January 2023
32.	2022-23	NH-Bytes - Volume –XX3- Issue 2 (Monthly College Magazine)	February 2023
33.	2022-23	NH-Bytes - Volume –XX3- Issue 3 (Monthly College Magazine)	March 2023

Table 4.5.2.2: Students Publications AY 2021-2022

S.No	Student Name	USN	Title of Paper	Journal/ Conference Details
1	Silpa S	1NH18IS106	Survey on IoT based Pot Hole Detection	IEEE control System Letters
	Sonali Preetha Nandagopalan	1NH18IS109		
	Shripriya J	1NH18IS133		
2	Stebin Sebastian	1NH18IS140	Review on IoT-Mobile App based on Rural Development in Terms of Agriculture	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
	Tadepalli Balaji Sai Swapnil	1NH18IS116		
	Nikhil Ch	1NH18IS071		
	Nidhish Vemula Prabhakar	1NH18IS070		
3	Keerthana H	1NH18IS138	Raspberry Based robotic Device for women Safety	International Journal of Mechanical Engineering
	Mala H R	1NH18IS057		
	Mohammed Faizan	1NH18IS062		
	Mohammed Ismail	1NH18IS063		
4	Vismaye M	1NH18IS126	Soft Support: Specially Abled Communication	International Conference on Advanced Computing Technologies and Applications
	Keerthishree V	1NH18IS135		
	Harshitha R	1NH18IS039		

Criterion-4 Student Performance



	Pradeepthi K	1NH18IS050		
5	Abhishek V Rai	1NH18IS003	Secured Eye Pay: An E-payment a Application for visually impaired people	International Mobile and Embedded Technology Conference (MECON)
	R Likhith	1NH18IS053		
	R Abhiram	1NH18IS002		
	Amogh V Pai	1NH18IS007		
6	Ritom Tamuli	1NH18IS086	Android Based Fall Detection and Tracking App for Aged People	Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)
	Ayush Sinha	1NH18IS019		
	Srutibanta Samantara	1NH18IS112		
7	Arpita Chowdary Vantipalli	1NH18IS016	IOT based AquaSwach	2nd International Conference on Artificial Intelligence and Signal Processing (AISP)
	Darshana Sailu Tanti	1NH18IS028		
	K Malvika Ravi	1NH18IS058		
	Krtin Kannan	1NH18IS044		
8	Yashmitha R	1NH18IS128	IoT based Divyang Assistant Technology: Your Hearing Support	International Conference on Electronics and Renewable Systems (ICEARS)
	Tejal Lalji Rangani	1NH18IS118		
	Anushka Sen	1NH18IS129		
9	B Mounica	1NH18IS065	A Survey of Real-time Health Care Tracking System for Post Covid Patients	Second International Conference on Artificial Intelligence and Smart Energy (ICAIS)
	M Akshatha	1NH18IS006		
	Anupam Kumar	1NH18IS013		
10	Vinay Hegde	1NH18IS124	Securo Point for the Application of Malware Detection in android Apps	International Conference on Software Engineering and Computer Science
	Chrisel Fernandes	1NH18IS026		
11	Sanjana Hombal	1NH18IS134	Health Monitoring System Using IoT	International Conference on Emerging Trends in Engineering and Technology - Signal and Information Processing
	Sanchitha BS	1NH18IS095		
	Shreya L	1NH18IS139		
	Sharanya G	1NH18IS035		
12	Pooja T	1NH18IS076	Survey on IoT based Farm Freshness Mobile Application	International Conference on Advanced Computing Technologies and Applications (ICACTA)
	Punith Kumar S	1NH18IS079		
	Shankar Y	1NH18IS136		
	Gowtham V	1NH18IS037		
13	Samrudh G R	1NH18IS094	Developing an Intelligent Model to Detect Micro Facial Expression	2022 International Conference on Advanced Computing Technologies and Applications (ICACTA)
	Gautam	1NH18IS037		

Criterion-4 Student Performance



	Tejasvi Patil	1NH18IS120		
	Sagar Shankar	1NH18IS090		
	R Karthik	1NH18IS131		
	A Sanjana	1NH18IS097		
14	Sangeetha D	1NH18IS096	Survey on IoT based E-Farming Technology Enabled Farming	2022 International Conference on Sustainable Computing and Data Communication Systems
	K L Suchala	1NH18IS099		
	R H Shravya	1NH18IS081		
	B S Soundhaaryha	1NH18IS110		
15	Manan Agarwal	1NH18IS059	A Survey on Various Approaches to e-waste management	2022 International Conference on Computer Communication and Informatics
	Shubhodeep Sarkar	1NH18IS104		
	Md Asif Kamal Quadri	1NH18IS061		
	Dhruv Gulati	1NH18IS031		
16	G. Pranay Deepak Reddy	1NH18IS036	IoT Based Low-Cost Robotic Agent Design for Covid-19 affected people	2022 International Conference on Electronics and Renewable Systems
	Bs Sai Pramath	1NH18IS074		
	J.A. Trivedh	1NH18IS043		
17	Jnana P J	1NH18IS041	Smart Glove for Blind	2022 IEEE Delhi Section Conference
	Monisha C	1NH18IS064		
	Pallavi V	1NH18IS073		
	Saloni K	1NH18IS093		
18	Karthik R	1NH18IS047	Blockchain-based IoT Device Security	2nd International Conference on Artificial Intelligence and Signal Processing, AISP
	Sanjana A	1NH18IS097		
19	G Sai Mani Kumar	1NH18IS034	Review Paper on E-Traffic Police IoT Based Auto-Detection of Traffic Rule Violation	International Journal of Innovative Technology and Exploring Engineering (IJITEE)
	B Aravind Kumar	1NH18IS022		
	M Vinay Kumar Reddy	1NH18IS054		
	B Sree Harsha	1NH18IS020		

Table 4.5.2.3: Students Publications AY 2020-2021

S.No	Student Name	USN	Title of Paper	Journal/Conference Details
1	Swasti Choudhary	1NH17IS115	An Approach to Credit Card Fraud Detection	International Journal of Research in Engineering and Science (IJRES)
	Thakur Kiran Singh	1NH17IS119		
	Narendra Kumar Reddy	1NH17IS141		
	Vishal S Balan	1NH17IS146		
2	Yashaswini S	1NH17IS132	IoT Based Hygiene Monitor for Senior Citizens and Mentally Challenged	International Journal of Scientific Research in Computer Science, Engineering and Information Technology IJSRCSEIT
	Charitha V	1NH17IS148		
	Varsha Gowda S J	1NH17IS127		
	Judy Kennedy	1NH17IS142		
3	Nithya B S	1NH17IS137	Traffic Analysis Using Artificial Neural Network	International Journal of Scientific Research in Science and Technology
	Rakshitha N	1NH17IS080		
	Sirisha M	1NH17IS102		
4	Sneha M	1NH17IS104	Smart Band for Monitoring Vitals for Elderly People in Quarantine	International Journal for Research in Applied Science & Engineering Technology
	Meghana	1NH17IS135		
	Bhanupriya	1NH17IS046		
5	Joicy Castilino	1NH17IS045	Cost effective social distance maintenance in primary schools	International Journal of Advance Research Ideas and Innovations in Technology
	Harshitha Sundarvelu	1NH17IS139		
	Helen Hephzibah	1NH17IS042		
	Simran Fathima	1NH17IS0101		
6	Purab Shreeniwas A	1NH17IS073	VR simulation of chemistry lab using blender and unity	International Research Journal of Engineering and Technology (IRJET)
	Shijo Yohannan	1NH17IS098		
	Shailesh P.M	1NH17IS094		
	Syed Sahil Abbas	1NH17IS149		
7	A Sassank Gopal Reddy, RS	1NH17IS007	Land Use Case and Utilization Classification using CNN	International Journal of Research in Engineering and Science (IJRES)
	Sathvik Reddy	1NH17IS076		
	T Praneeth	1NH17IS116		
	Vardhini V	1NH17IS125		
8	Hamsa p o	1NH17IS039	Remote Monitoring And Control Unit Of Solar Photo Voltaic Plant Using IoT	International Journal of Research in Engineering and Science (IJRES)
	Anusha k	1NH17IS015		
	Girish R	1NH17IS038		
	Prajwal	1NH17IS069		
9	Sneha B K	1NH17IS103	Face and Hand Gesture Recognition System for Controlling VLC Media Player	International Journal of Scientific Research in Science and Technology
	Sahana K M	1NH17IS088		
	Tejaswini S M Patil	1NH17IS144		

Criterion-4 Student Performance



10	Raahul Narayana Reddy K	1NH17IS077	Statistical Analysis and Visualization of Covid-19	International Research Journal of Engineering and Technology (IRJET)
	Prasanna Bhat	1NH17IS071		
	Apurba Bhattacharjee	1NH17IS016		
	Srinivas M	1NH17IS107		
11	Vibhav Giri	1NH17IS129	A communication aid application for the physically handicapped	International Research Journal of Engineering and Technology (IRJET)
	Tarun Sharma	1NH17IS117		
	Sushant Chaudhary	1NH17IS113		
	Kshitij Raj	1NH17IS049		
12	Akhila S	1NH17IS008	Automatic Social Distancing System Using Thermal Scanners In Huge Auditorium Or Conference Hall Entrances	International Research Journal of Engineering and Technology (IRJET)
	Vaishnavi R	1NH17IS124		
	Varna Murali	1NH17IS126		
13	G.S Nithyashree	1NH17IS134	Acoustic Echo Cancellation For E-Learning Platform	International Research Journal of Engineering and Technology (IRJET)
	Ashwin Venkatakrishnan	1NH17IS140		
	S. Karthik	1NH17IS084		
	Aneesh Mohan Kumar	1NH17IS012		
14	Abhinav Anand	1NH17IS002	Designing a prototype for Mentally Challenged and Alzheimer Patients	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Chinmaya Kumar Nayak	1NH17IS027		
	Ayush Anand	1NH17IS017		
	Deepak Kumar	1NH17IS029		
15	Uma Maheshwari	1NH17IS085	Mask Detection Application	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Sahana N Reddy	1NH17IS089		
	Sanjana Sivakumar	1NH17IS091		
16	Nethan Shaik	1NH17IS059	An Enhanced Surveillance Bot for Identification of Mask Defaulters	International Research Journal of Engineering and Technology (IRJET)
	Pavel Anup	1NH17IS011		
	Kirti Devi	1NH17IS048		
	Stevenson Jacob	1NH17IS152		
17	Shami K	1NH17IS096	Feature Learning and Analysis of Pre Existing Conditions Prone to Covid Virus During Second Wave	International Journal of Innovative Research in Technology
	Sharmistha C	1NH17IS097		
	Sowjanya V	1NH17IS106		
	Aneja P	1NH18IS400		
18	Anitha B	1NH17IS013	Automatic Detection of Crimes Captured in CCTV Images for Safety of Senior Citizens	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Disha Singh	1NH17IS034		
	Divya Shree M	1NH17IS035		
	Kushala R	1NH17IS050		
19	Akshay S Prathap	1NH17IS009	Implementation of Voice	International Journal of Scientific
	Aiswarya V	1NH17IS005		

	Kumar		based Touchless Lift System	Research in Computer Science, Engineering and Information Technology
	Raviteja Kaki	1NH17IS047		
	Ranjitha R	1NH17IS075		

Table 4.5.2.4: Students Publications AY 2019-2020

S.No	Student Name	USN	Title of Paper	Journal/ Conference Details
1	Abhishek Ranjan	1NH16IS003	Deforestation Control and Forest Monitoring using Internet of Trees	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Gagan Prasad	1NH16IS033		
	Harshitha Shankar	1NH16IS038		
2	Harish E	1NH16IS037	Hand Gesture Recognition and Voice Conversion for Hearing and Speech Aided Community	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Nikhil Jain D	1NH16IS067		
	Nirdesh Reddy	1NH16IS069		
3	Lakshmi K	1NH16IS020	Voice for the Paralytic Victims	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Amithesh K	1NH16IS011		
	Vishak J	1NH16IS123		
4	P Nymisha	1NH16IS070	Covid-19 Visualizer	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Shanmathi Kailasam	1NH16IS100		
	Bhawik Tanna	1NH16IS024		
5	Vijay Hegde S	1NH16IS121	Crop Yield Prediction using Machine Learning Algorithm	International Research Journal of Engineering and Technology (IRJET)
	Yashvanth C V	1NH16IS126		
	S Chandra Kiran	1NH16IS129		
6	Prashanth Paul	1NH16IS083	A review on data science approach towards decision-making	International Journal of Scientific Research in Computer Science, Engineering and Information Technology © 2019 IJSRCSEIT
7	Prashanth Paul	1NH16IS081	A Machine Learning Perspective towards Detecting Fake News	International Journal for Research in Applied Science and Engineering Technology
	Prashanth V	1NH16IS084		
	Prem Kumar	1NH16IS086		
8	Muhammad Shahbaz Khan	1NH16IS063	Smart Vision System for	International Research Journal of Engineering and Technology

Criterion-4 Student Performance



	Sunil K A	1NH16IS112	Visually Impaired People	(IRJET)
	Pramod Sencha	1NH16IS080		
9	Akhilendu	1NH16IS008	Fake Indian Currency Note Recognition	International Research Journal of Engineering and Technology (IRJET)
	Anakha A S	1NH16IS012		
	Meghashree K	1NH16IS059		
10	Vachan B D	1NH16IS123	Landmine Detection Using Wireless Robot	International Research Journal of Engineering and Technology (IRJET)
	B S Deepthi	1NH16IS021		
	Geetha B	1NH16IS016		
11	Janav S	1NH16IS049	Solar based Automatic Speed Control of Vehicles in Sensitive Zones	International Journal of Engineering Research & Technology (IJERT)
	Monisha S M	1NH16IS063		
	Pavan Kumar M G	1NH16IS118		
12	Prapul Kumar A	1NH16IS082	Food and Nutrition Evaluation for the Visually Impaired	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Pawan jewan	1NH16IS075		
	Pavan Kumar	1NH16IS072		
13	N Swetha	1NH16IS064	Charging station for E-Vehicles using solar with IOT	International Journal for Research in Applied Science & Engineering Technology (IJRASET)
	Malika G	1NH16IS055		
	Pavithra S	1NH16IS073		
14	Anuj prakash	1NH16IS014	Drone Assisted Effective Pesticide Sprayer	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Arnab bhowal	1NH16IS016		
	Monisha taj D	1NH16IS062		
15	Anusha D Singh	1NH16IS015	Human Detection using Unmanned ground vehicle	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Bharani Prabhakaran	1NH16IS022		
	Joshua Linton J	1NH16IS043		
16	Asha K	1NH17IS400	A Review on Bluetooth embedded robot for agriculture	International Research Journal of Engineering and Technology (IRJET)
	Sakthi Sridevi	1NH17IS401		
	Manisha Samal	1NH16IS056		

Criterion-4 Student Performance



			applications	
17	Sudarshan C	1NH16IS111	Breast Cancer Prediction Using ML Techniques	INTERNATIONAL JOURNAL OF ENGINEERING RESEARCH & TECHNOLOGY
	Pranav Pandhi	1NH16IS081		
	Somya Singh	1NH16IS109		
	Ashwini Holla	1NH16IS018		
18	Sathya N	1NH16IS099	Traffic Surveillance Using Smart Drone	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Likitha R	1NH16IS052		
	Meghana C A	1NH16IS058		
19	Amina Anwar Puthiyaveetil	1NH16IS140	Traffic Density Management using Movable Divider and RFID	International Research Journal of Engineering and Technology (IRJET)
	Ramakanth A	1NH16IS089		
	Samya Mannuru	1NH16IS096		
20	Koushalya R	1NH16IS050	Color Blindness Algorithm Comparison for Developing an Android Application	International Research Journal of Engineering and Technology (IRJET)
	Vishal Roshan J	1NH16IS124		
	Gowtham M N	1NH16IS035		
21	A.Amir Sohail Baig	1NH16IS010	Heart arrhythmia Detection using Deep Learning	International Research Journal of Engineering and Technology (IRJET)
	Amal Singh Bhadauria	1NH16IS009		
	Hemanth Kumar	1NH16IS039		
22	Vrinda Raveendran	1NH16IS125	Machine Learning approaches on Diabetic Retinopathy Prediction	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Sri Vidya B M	1NH17IS403		
	Tejavati Hedge	1NH16IS115		
23	Aashika M suresh	1NH16IS001	Solar Energy Equipped IoT Based Vacuum Cleaner	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Nikita nanju K	1NH16IS068		
	Sanjana V	1NH16IS097		
24	Abhishek Kumar	1NH16IS002	Implementation of Improved Billing	International Journal of Scientific Research in

	Ishu Kumar	1NH16IS040	System	Computer Science, Engineering and Information Technology
	Vathsavi Venkat	1NH16IS143		
25	Siddharth Indoria	1NH16IS105	A literature review on sentiment analysis	International Journal of Scientific Research in Computer Science, Engineering and Information Technology
	Sinchana Bhaskar	1NH16IS107		
	Sharan Gouda	1NH16IS101		

4.5.3 Participation in inter-institute events by students of the program of study (10)

Table 4.5.3.1: Summary of Students Participation in events

CAY(2021-22)		
Number of Students Participated in Inter-Institute Events	Number of Students Participated Within State	Number of Students Participated Outside the State
78	68	10
CAYm1(2020-21)		
Number of Students Participated in Inter-Institute Events	Number of Students Participated Within State	Number of Students Participated Outside the State
44	36	8
CAYm2(2019-20)		
Number of Students Participated in Inter-Institute Events	Number of Students Participated Within State	Number of Students Participated Outside the State
77	57	20

Table 4.5.3.2A: Summary of Participation within State and Awards [2021-2022]

Sl. No	USN	Name of the Student	Institution/ Organization	Event Details	Event Date	Achievement
1.	1NH20IS407	Ganesh	Amrita Viswa Vidyapeetham, Bangalore	Smartcity hackathon	31-Oct-2022	Participation In Hackathon Event
2.	1NH20IS156	Shourya Biswas	Dayananda Sagar College Of Engineering, Bangalore	Reinforce Cyber Security	12-Oct-2022	Participation In Cyber Security
3.	1NH20IS069	Knpranav	Dayananda Sagar College Of Engineering, Bangalore	Hackathon	4-Aug-2022	Participation In Hackathon event

Criterion-4 Student Performance



4.	1NH21IS063	S.V.Hemanth	Proudhadevaraya Institute Of Technology, Bangalore	Electronic E-Quiz	18-Aug-2022	Participation In Quiz	e-
5.	1NH21IS063	Hemanth S V	Ninthsem, Bangalore	Online Quiz	17-Aug-2022	Participation In Quiz	e-
6.	1NH21IS063	Hemanth S V	Ninthsem, Bangalore	Online Quiz	17-Aug-2022	Participation In Quiz	e-
7.	1NH21IS018	Anshika Rajput	Bharat Institutions, Bangalore	Micro plastic Pollution	6-Aug-2022	Participation In Project Event	
8.	1NH20IS161	Shreyas S Gondkar	Manthan South India Business plan, Bangalore	Manthan South India Business plan Competition	17-July-2022	Participation In Manthan South India Business plan Competition	
9.	1NH20IS044	Dhayan D Kedilaya	Manthan South India Business plan, Bangalore	Manthan South India Business plan Competition	17-July-2022	Participation In Manthan South India Business plan Competition	
10.	1NH20IS007	Adithya D	Manthan South India Business plan, Bangalore	Manthan South India Business plan Competition	17-July-2022	Participation In Manthan South India Business plan Competition	
11.	1NH20IS069	KN Pranav	Dayananda Sagar College Of Engineering, Bangalore	Hackathon	4-Jun-2022	Participation In Hackathon Event	
12.	1NH20IS175	T Namratha	GDSC KIIT Chapter, Bangalore	Front End Web Development	8-Jun-2022	Participation In Front End Web Development	
13.	1NH20IS062	Hemsagar N M	Dayananda Sagar College Of Engineering, Bangalore	Hackathon	4-Jun-2022	Participation In Hackathon Event	
14.	1NH20IS014	Amogh Bharadhwaj	Dayananda Sagar College Of Engineering, Bangalore	Hackathon	4-Jun-2022	Participation In Hackathon Event	
15.	1NH20IS161	Shreyas S Gondkar	ISTE Karnataka Staff Section, Bangalore	ISTE Chapter Student Award	18-Apr-2022	ISTE Chapter Student Award	

Criterion-4 Student Performance



16.	1NH18IS109	Sonali Preetha Nandagoplan	NPTEL, Bangalore	NPTEL Discipline Star	Jan 2022 To Apr 2022	NPTEL Discipline Star Award
17.	1NH18IS109	Sonali Preetha Nandagoplan	NPTEL, Bangalore	NPTEL, Believer	Jan 2022 To Apr 2022	NPTEL, Believer Award
18.	1NH18IS109	Sonali Preetha Nandagoplan	NPTEL, Bangalore	NPTEL, Enthusiast	Jan 2022 To Apr 2022	NPTEL, Enthusiast Award
19.	1NH18IS106	Silpa S	NPTEL, Bangalore	NPTEL Enthusiast	Jan 2022 To Apr 2022	NPTEL Enthusiast Award
20.	1NH18IS106	Silpa S	NPTEL, Bangalore	NPTEL Believer	Jan 2022 To Apr 2022	NPTEL Believer Award
21.	1NH18IS106	Silpa S	NPTEL, Bangalore	NPTEL Discipline Star	Jan 2022 To Apr 2022	NPTEL Discipline Star award
22.	1NH20IS161	Shreyas S Gondkar	ISTE Chapter Student Bangalore	Best Performing ISTE Chapter Student Award-2022	17-Apr-2022	Best Performing ISTE Chapter Student Award
23.	1NH20IS161	Shreyas S Gondkar	Tie Global, Mysuru	Investors Meet	20-Apr-2022	Top 3 In 200 Teams
24.	1NH20IS044	Dhayan D Kedilaya	Tie Global, Mysuru	Investors Meet	20-Apr-2022	Top 3 In 200 Teams
25.	1NH21IS063	Hemanth S V	Proudha Devaraya Institute Of Technology, Hosapete	Electronic e-Quiz	10-Aug-2022	Electronic e-Quiz With Passing Score 85%
26.	1NH19IS042	Sai Bhavana	Manthan 2022, AICTE-Delhi	Project Competition	15-Mar-2022	Project Selected
27.	1NH19IS043	Dhivya	Manthan 2022,AICTE-Delhi	Project Competition	15-Mar-2022	Project Selected
28.	1NH19IS027	Bhavana Shree	VTU, Belagavi	Basketball(W)	5-Dec-2022 To 6-Dec-2022	Participation In Sports Event
29.	1NH18IS175	Tushar Raj	VTU, Belagavi	Basketball(M)	5-Dec-2022 To 6-Dec-2022	Participation In Sports Event
30.	1NH20IS127	Rahul G	VTU, Belagavi	Basketball(M)	5-Dec-2022 To 6-Dec-2022	Participation In Sports Event
31.	1NH20IS102	P Jayaveer	VTU, Belagavi	Basketball(M)	5-Dec-2022	Participation In Sports Event

Criterion-4 Student Performance



					To 6-Dec- 2022	
32.	1NH18IS143	Harsh Ankit	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
33.	1NH19IS203	D Lalith Adithya Raj	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
34.	1NH18IS031	Dhruv Gulati	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
35.	1NH18IS008	Anamika Bhattacharya	VTU, Belagavi	Basketball(W)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
36.	1NH19IS123	Vignesh K S	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
37.	1NH20IS057	Harshita Mahapatra	VTU, Belagavi	Basketball(W)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
38.	1NH19IS010	Aman Kumar Jha	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
39.	1NH20IS098	Nistha Srivastava	VTU, Belagavi	Basketball(W)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
40.	1NH19IS203	D Lalith Adithya Raj	VTU, Belagavi	Basketball(M)	5-Dec- 2022 To 6-Dec- 2022	Participation In Sports Event
41.	1NH19IS175	Tushar Raj	VTU, Belagavi	Basketball(M)	28-Nov- 2022 To 29-Nov- 2022	Participation In Sports Event
42.	1NH20IS133	Ritika Patil	VTU, Belagavi	Basketball(W)	5-Dec- 2022 To 6-Dec-	Fourth Place

Criterion-4 Student Performance



					2022	
43.	1NH19IS077	Kirthin R	Manthan 2021, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
44.	1NH19IS082	Likith Rama	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
45.	1NH19IS075	Kevin John	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
46.	1NH19IS021	Dinesh Parbhu	Manthan 2021, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
47.	1NH19IS125	Rohith Bharadwaj	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
48.	1NH19IS194	Hast Sinha	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
49.	1NH19IS009	Aditya Sunit	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
50.	1NH19IS183	Vinayak Bajpayee	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
51.	1NH19IS192	Swapnil Anand	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
52.	1NH19IS195	Gajjala Ganasasank Reddy	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
53.	1NH19IS013	Ankit	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
54.	1NH19IS073	Karan	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
55.	1NH19IS017	Argha	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
56.	1NH19IS193	Ankurit Bhaktha	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
57.	1NH19IS092	Mihir Raj	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
58.	1NH20IS062	Hemasagar K M	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
59.	1NH19IS050	Harshith	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
60.	1NH19IS001	Naveen	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
61.	1NH19IS045	Chetan A S	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
62.	1NH20IS063	Hrithik U	Manthan 2022, Bangalore	Hackathon	28-Oct-2021	Participated In Hackathon Event
63.	1NH20IS069	Pranav	B.M.S College Of Engineering, Bangalore	Optimize Prime	26-Nov-2021	Participation In Optimize Event
64.	1NH19IS122	Rohan	Manthan 2022, AICTE-Delhi	Hackathon	28-Oct-2021	Participated In Hackathon Event

65.	1NH19IS017	Argha	National Engineering Olympiad, Bangalore	National Engineering Test	29-May-2021	He Scored 109 Marks In Aptitude Test
66.	1NH20IS173	Suraj	Software Infotech, Bangalore	C,C++ Course	15-Jun-2021	Completed The Course
67.	1NH20IS173	Suraj	Software Infotech, Bangalore	Diplomo Computer Application	15-Jun-2021	Completed The Course
68.	1NH20IS173	Suraj	Child Rights Foundation, Bangalore	Service For Children	5-Dec-2021	Active Participation In Children Empowerment

Table4.5.3.2B: Summary of Participation in outside State and Awards [2021-2022]

Sl. No	USN	Name of the Student	Institution/ Organization	Event Details	Event Date	Achievement
1.	1NH21IS077	Kushi	IIT-BOMBAY	Wordemort	28-Dec-2022	Participation in an event
2.	1NH21IS077	Kushi	IIT-BOMBAY	Spell-Bound	28-Dec-2022	Participation in an event
3.	1NH21IS077	Kushi	IIT-BOMBAY	Bollyvaganza	29-Dec-2022	Participation in an event
4.	1NH21IS018	Ansika rajput	Bharat Institute f Engineering and Technology, Telangana	Webinar on Micro plastic Pollution	06-Aug-2022	Participation in the webinar on Micro plastic Pollution
5.	1NH20IS407	Ganesh	IIT, Kharagpur	Maths Olympiad of Kascade	7-Mar-2022	Participated in maths Olympiad
6.	1NH19IS017	Argha	Digital India Quiz,AICTE-Delhi	Digital India Quiz	1-July-2022	Participated in Digital india Quiz
7.	1NH19IS017	Argha	Google, US	Google Digital Unlocked	09-Sep-2021	Successful Completion of exam
8.	1NH19IS167	Suhas K M	B.S. Abdur Rahman Crescent Institute of Science and Technology Tamilnadu	Toycathon (A National Level Hackathon)	23-Jun-2021	Won cash prize 25,000
9.	1NH19IS173	Tharun Kumar P	B.S. Abdur Rahman Crescent Institute of Science and Technology Tamilnadu	Toycathon (National level hackathon)	23-Jun-2021	Won cash prize 25,000

Criterion-4 Student Performance

10	1NH19IS170	Surya S	B.S. Abdur Rahman Crescent Institute of Science and Technology, Tamilnadu	Toycathon (National level hackathon)	23-Jun-2021	Won cash prize 25,000
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Figure 4.5.3.2B: “BEST PERFORMING ISTE CHAPTER STUDENT AWARD-2022 “ for the academic year 2021-22 is awarded to Mr. Shreyas S of 4th Semester, Information Science and Engineering



Figure 4.5.3.2A: The final year students of Information Science & Engineering Department, Sonali Preetha Nanadagopalan and Silpa S are recognized as NPTEL ENTHUSIAST, DISCIPLINE STAR, BELIEVER for JAN-APR 2022



Figure 4.5.3.2A: The Best Project of the Year Award in Information Science and Engineering



Figure 4.5.3.2A: The Third year students of Information Science & Engineering Department, Shreyas, Dhyan, Adithiya participated in Manthan South India Business plan event in Bangalore and received best entrepreneur award



Figure 4.5.3.2A: The Third year students of Information Science & Engineering Department, Shreyas, Dhyan participated in Manthan South India Business plan event in Bangalore and received best entrepreneur award

Table 4.5.3.2 C: Summary of Participation within State and Awards [2020-2021]

Sl. No	USN	Name of the Student	Institution/ Organization/ Event Name	Event Details	Event Date	Achievement
1.	1NH18IS076	Ms.Pooja T	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale

Criterion-4 Student Performance



2.	1NH18IS078	Ms.Prakriti Sharma	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
3.	1NH18IS086	Ms.Ritom Tamuli	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
4.	1NH18IS110	Yashmitha R	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
5.	1NH18IS137	Reshma K	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
6.	1NH18IS002	Anusha	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
7.	1NH19IS171	Swati Annapashet	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
8.	1NH19IS182	Vigneshwara	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
9.	1NH19IS170	Surya S	All India Council For Technical Education, Ministry Of Women, Bangalore	Toycathon 2021	17-Oct-2021	Selected To Grand Finale
10.	1NH18IS109	Sonali Nandha gopalan	Hands-On Coding Workshops For Women, Bangalore	Shecodes	20-Aug-2021	Third Place
11.	1NH18IS106	Ms.Silpa S	Hands-On Coding Workshops For Women, Bangalore	Shecodes	20-Aug-2021	Third Place
12.	1NH18IS090	Ms.Nithyashree	Hands-On Coding Workshops For Women, Bangalore	Shecodes	20-Aug-2021	Third Place

Criterion-4 Student Performance



13.	1NH18IS078	Prakirti Sharma	Ieee- Computational Society Certificate Of Achievement, Bangalore	She Hacks - A Women Only Hackathon	7-Aug-2021	Computational Society Certificate Of Achievement
14.	1NH18IS106	Ms.Silpa S	Ieee- Computational Society Certificate Of Achievement, Bangalore	She Hacks - A Women Only Hackathon	7-Aug-2021	Computational Society Certificate Of Achievement
15.	1NH18IS109	Sonali Nandhagopalan	Ieee- Computational Society Certificate Of Achievement, Bangalore	She Hacks - A Women Only Hackathon	7-Aug-2021	Computational Society Certificate Of Achievement
16.	1NH19IS121	Manisha	KSCST, Bangalore	KSCST	12-July-2021	Best Project Of The Year - KSCST
17.	1NH17IS400	Asha	KSCST, Bangalore	KSCST	12-July-2021	Best Project Of The Year - KSCST
18.	1NH17IS419	Shakti	KSCST, Bangalore	KSCST	12-July-2021	Best Project Of The Year – KSCST
19.	1NH19IS027	Bhavana Shree	VTU, Belagavi	Basketball (Women)	16-Dec-2021 To 18-Dec-2021	Second Runner Up
20.	1NH20IS098	Nistha Srivastava	VTU, Belagavi	Basketball (Women)	16-Dec-2021 To 18-Dec-2021	Second Runner Up
21.	1NH20IS133	Ritika Patil	VTU, Belagavi	Basketball (Women)	16-Dec-2021 To 18-Dec-2021	Second Runner Up
22.	1NH18IS090	Nithya shree	All India Lowe's India Campus Challenge 2020, Bangalore	All India Lowe's India Campus Challenge 2020	12-Jun-2020	Won Third Place
23.	1NH19IS020	Ashwin	All India Lowe's India Campus Challenge 2020, Bangalore	All India Lowe's India Campus Challenge 2020	12-Jun-2020	Won Third Place
24.	1NH19IS020	Karthik	All India Lowe's India Campus Challenge 2020, Bangalore	All India Lowe's India Campus Challenge 2020	12-Jun-2020	Won Third Place
25.	1NH18IS086	Ritom Tamuli	Kristu Jayanti College, Bangalore	Hackathon	3-Feb-2020	Participation In Hackathon
26.	1NH17IS108	Srivatsa R V	Cousera, Bangalore	Learn To Program	27-Jan-2020	Successful Completion Of The Course

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27.	1NH18IS030	Dhanush Biligiri	Christ University, Bangalore	Basketball (M)	28-Feb-2020	Won Gold Medal
28.	1NH17IS113	Sushant Chaudhary	Cufee, Bangalore	Cricket	14-Feb-2020 To 23-Feb-2020	Participation In Sports Event
29.	1NH17IS113	Sushant Chaudhary	RVCE, Bangalore	Cricket	16-Feb-2020 To 19-Feb-2020	Participation In Sports Event
30.	1NH17IS113	Sushant Chaudhary	VTU, Belagavi	Cricket	11-Mar-2020 To 15-Mar-2020	Participation In Sports Event
31.	1NH18IS030	Dhanush Biligiri	Cufee, Bangalore	Cricket	14-Feb-2020 To 23-Feb-2020	Participation In Sports Event
32.	1NH18IS030	Dhanush Biligiri	RVCE, Bangalore	Cricket	16-Feb-2020 To 19-Feb-2020	Participation In Sports Event
33.	1NH18IS030	Dhanush Biligiri	VTU, Belagavi	Cricket	11-Mar-2020 To 15-Mar-2020	Participation In Sports Event
34.	1NH18IS031	Dhruv Gulati	Cufee, Bangalore	Cricket	14-Feb-2020 To 23-Feb-2020	Participation In Sports Event
35.	1NH18IS031	Dhruv Gulati	RVCE, Bangalore	Cricket	16-Feb-2020 To 19-Feb-2020	Participation In Sports Event
36.	1NH18IS031	Dhruv Gulati	VTU, Belagavi	Cricket	11-Mar-2020 To 15-Mar-2020	Participation In Sports Event

Table 4.5.3.2 D: Summary of Participation in outside Country, State and Awards [2020-2021]

Sl. No	USN	Name of the Student	Institution/ Organization	Event Details	Event Date	Achievement
1.	1NH19IS154	Shreya Narayan	Unnat Bharat Abhiyan, Gov. Of India, Delhi	Poster Making Competition For COVID-19 Awareness	11-Nov-2021	Winners of Poster Making Event
2.	1NH19IS205	Ankita	Unnat Bharat Abhiyan, Gov. Of India, Delhi	Poster Making Competition For COVID-19 Awareness	11-Nov-2021	Winners of Poster Making Event
3.	1NH19IS118	Rimi Sarkar	Cyber Crime, Mumbai	Cyber Crime Intervention Officer	2-Nov-2021	Cyber Crime Intervention Officer
4.	1NH19IS143	Shaik anju minayar	Ministry of Defence, Delhi	Ministry of Defence	15-Oct-2021	Awarded Grade A in Ministry of Defence
5.	1NH19IS016	Apurva Nagar	AICTE-Corona Safe Engineering Fellowship, Delhi	AICTE-Corona Safe Engineering Fellowship.	21-Oct-2021	Corona Safe Engineering Fellowship.
6.	1NH17IS108	Srivatsa R V	BITS -Pilani K.K birla Goa campus	Conference	25-Dec-2021	Participation in Conference
7.	1NH17IS108	Srivatsa R V	Solo learn, Mumbai	Python Course	11-Feb-2020	Completed Python Course
8.	1NH17IS108	Srivatsa R V	Solo learn, Mumbai	SQL Course	21-Feb-2020	Completed SQL Course



Figure 4.5.3.2C: The 7th semester student of Information Science and Engineering Department, Nithya Shree, Sonali, silpa has participated in the SheCodes Project Competition organized by IEEE CIS Chapter



Figure 4.5.3.2C: The 7th semester student of Information Science and Engineering Department, Winners of Toycathon -Digital Edition, Govt of India

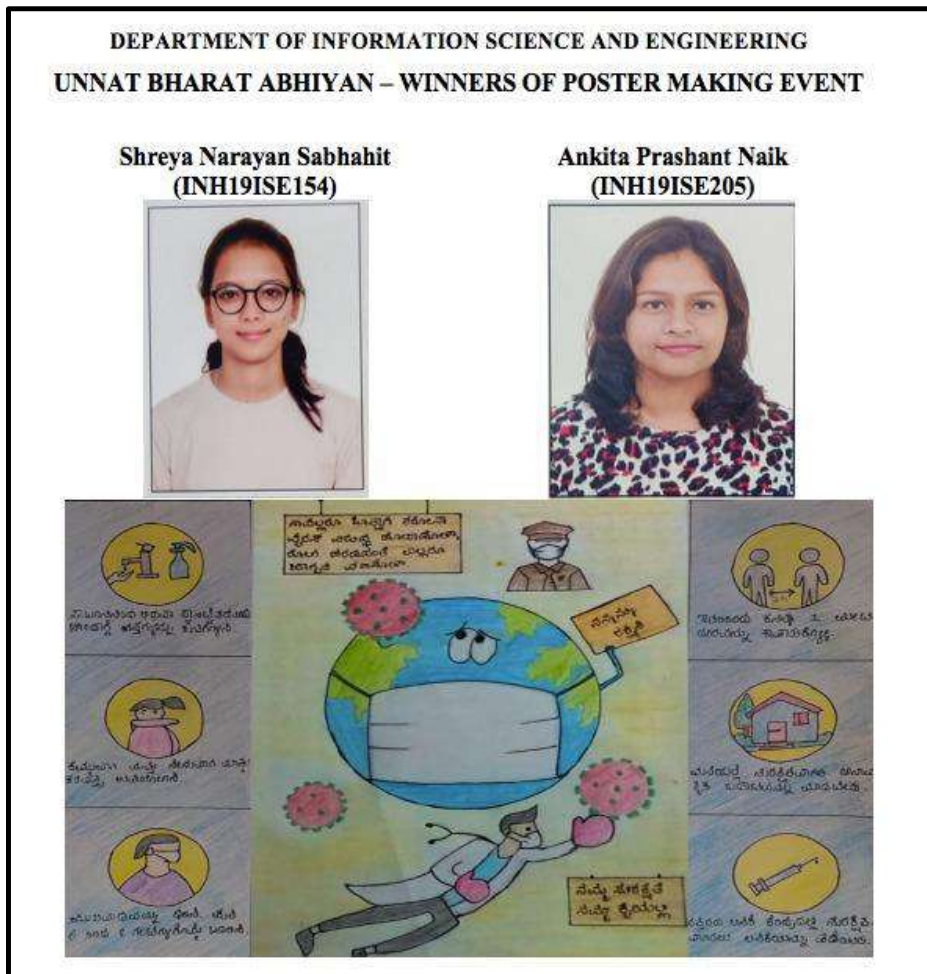


Figure 4.5.3.2D: The 7th semester student of Information Science and Engineering Department, Shreya narayan ,Ankita are the winners of poster making event named UNNAT BHARAT ABHIYAN



Figure 4.5.3.2D: The 7th semester student of Information Science and Engineering Department, Shaik anju minayar Awarded Grade A in Ministry of Defence



Figure 4.5.3.2D: The 7th semester student of Information Science and Engineering Department, Apurva Nagar was awarded with "Corona Safe Engineering Fellowship"

Table 4.5.3.2 E: Summary of Participation within State and Awards (2019-2020)

Sl. No	USN	Name of the Student	Institution/ Organization	Event Details	Event Date	Achievement
1.	1NH17IS162	Kundalam Sainayana	Dayananda Sagar College Of Engineering, Bangalore	Torque 8.0	6-Jun-2019	College Topper Award - Autonomous Graduating Batch
2.	1NH17IS162	Sudip Kundel	Dayananda Sagar College Of Engineering, Bangalore	Torque 8.0	10-Oct-2019	First Place In Techorizon '19
3.	1NH17IS053	Mervin Shibhu George	Jain University, Bangalore	Hackathon Contest	25-Oct-2019	First Place In Hackathon Contest
4.	1NH18IS014	Anurag	IISC, Bangalore	Footprints, Pravega 20	25-Nov-2019	Won The First Place
5.	1NH19IS036	Chirag S	RVCE, Bangalore	Hackathon	13-Nov-2019	Runners
6.	1NH16IS059	Megashree R	VTU, Belagavi	Vtu(Bcz)	16-Oct - 2019	She Was The 2nd Runner Up In VTU Competition
7.	1NH18IS054	Vinay Kumar Reddy	Botathon, Bangalore	Edge Verve And Hackerearth	15-Jun-2019	Jury Special Award

Criterion-4 Student Performance



8.	INH17IS136	Ashwal Srinivas	Jain University, Bangalore	Fashion Show , Lasya 2020	14-Jan-2020	He Won Third Place In Competition
9.	INH18IS086	Ms. Madhura	IISc, Bangalore	Blind Coding	29-Feb-2020	She Won Second Place In Blind Coding Competition
10.	INH19IS189	Yashvanth V	St. John Medical College Cultural Fest, Bangalore	Mime	17 -May-2019	Participation In Intercollege Event
11.	INH18IS079	Punith S	St. John Medical College Cultural Fest, Bangalore	Mime	17 -May-2019	Participation In Intercollege Event
12.	INH17IS066	Pooja	Jain university Bangalore	Mystery-Box(Cooking Without Fire)	21-Apr-2019	Winners Of Mystery-Box(Cooking Without Fire)
13.	INH18IS011	Ankitha	IISc, Bangalore	Rangeen	15-Feb-2019	Runner
14.	INH18IS014	Anurag	IISC, Bangalore	Footprints, Pravega 20	5-Nov-2019	Won The First Place
15.	INH19IS036	Chirag S	RVCE, Bangalore	Techfest	10-Dec-2019	Won Second Place
16.	INH17IS122	Ulwal PB	Indian Institute Of Management, Bangalore	Ethical Hacking Workshop	15-Jul-2019	Participation In Workshop
17.	INH18IS004	Adhesh Rakshith	Nimhans Convention Centre, Bangalore	Workshop On Future Of Foods	04-Sep-2019	Participated In Workshop
18.	INH18IS030	Dhanush	VTU, Belagavi	Single Zone Tournament	17 -Sep-2019 To 18- Sep-2019	Winner In Single Zone Tournament
19.	INH18IS028	Dharshana Tanti	NMIT, Bangalore	ANAADY ANTA 2019	6-Mar-2019 To 9-Mar-2019	Participated In An Event
20.	INH18IS028	Dharshana Tanti	St.Johns Medical College, Bangalore	AUTUMN MUSE 2019	28-Sep-2019	Second Prize
21.	INH18IS104	Subhadeep Sarkar	IETE, Bangalore	Workshop	20-Oct-2019	Participated In Workshop
22.	INH18IS123	Vignesh K S	CMRIT, Bangalore	Cultura	22-Mar-2019	Winner
23.	INH18IS123	Vignesh K S	MVJ College Of Engineering, Bangalore	Swayam 2K19	12-Apr-2019	Participated In Workshop
24.	INH18IS123	Vignesh K S	CMRIT, Bangalore	SPARDHA	26-Sep-2019	Winner
25.	INH18IS037	Gowtham V	NIMHANS Convention Centre,	Human Digitalization	05-Sep-2019	Participated In Workshop

Criterion-4 Student Performance



			Bangalore			
26.	1NH16IS097	Sanjana Nagvekar	NIMHANS Convention Centre, Bangalore	Human Digitalization	05-Sep-2019	Participated In Workshop
27.	1NH17IS019	Bhoomika K C	NIMHANS Convention Centre, Bangalore	Human Digitalization	05-Sep-2019	Participated In Workshop
28.	1NH17IS108	Srivatsav R V	NIMHANS Convention Centre, Bangalore	Human Digitalization	05-Sep-2019	Participated In Workshop
29.	1NH17IS108	Sowjanya S V	NIMHANS Convention Centre, Bangalore	Human Digitalization	05-Sep-2019	Participated In Workshop
30.	1NH18IS030	Dhanush Biligiri N H	Court Wars, Bangalore	Basketball (M)	1-Sep-2019 To 8-Sep-2019	Participation In Sports Event
31.	1NH18IS030	Dhanush Biligiri N H	VTU, Belagavi	Basketball (M)	17-Oct-2019 To 18-Oct-2019	Won Gold Medal
32.	1NH18IS030	Dhanush Biligiri N H	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
33.	1NH18IS030	Dhanush Biligiri N H	Spiel/JNC, Bangalore	Basketball (M)	11-Feb-2019 To 15-Feb-2019	Participation In Sports Event
34.	1NH18IS030	Dhanush Biligiri N H	CUFE, Bangalore	Basketball (M)	28-Feb-2019 To 2-Mar-2019	Participation In Sports Event
35.	1NH18IS030	Dhanush Biligiri N H	CMP, Bangalore	Basketball (M)	25-Mar-2019	Participation In Sports Event
36.	1NH17IS113	Sushant Chaudhary	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
37.	1NH17IS113	Sushant Chaudhary	Spiel/JNC, Bangalore	Basketball (M)	11-Feb-2019 To 15-Feb-2019	Participation In Sports Event
38.	1NH17IS113	Sushant Chaudhary	CUFE, Bangalore	Basketball (M)	28-Feb-2019	Participation In Sports Event

Criterion-4 Student Performance



					To 2-Mar- 2019	
39.	1NH17IS113	Sushant Chaudhary	CMP, Bangalore	Basketball (M)	25- Mar-2019	Participation In Sports Event
40.	1NH17IS113	Sushant Chaudhary	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
41.	1NH18IS031	Dhruv Gulati	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
42.	1NH18IS031	Dhruv Gulati	Spiel/JNC, Bangalore	Basketball (M)	11-Feb-2019 To 15-Feb-2019	Participation In Sports Event
43.	1NH18IS031	Dhruv Gulati	CUFE, Bangalore	Basketball (M)	28-Feb-2019 To 2-Mar-2019	Participation In Sports Event
44.	1NH18IS031	Dhruv Gulati	CMP, Bangalore	Basketball (M)	25- Mar-2019	Participation In Sports Event
45.	1NH18IS031	Dhruv Gulati	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
46.	1NH17IS006	Akash K R	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
47.	1NH17IS006	Akash K R	Spiel/JNC, Bangalore	Basketball (M)	11-Feb-2019 To 15-Feb-2019	Participation In Sports Event
48.	1NH17IS006	Akash K R	CUFE, Bangalore	Basketball (M)	28-Feb-2019 To 2-Mar-2019	Participation In Sports Event
49.	1NH17IS006	Akash K R	CMP, Bangalore	Basketball (M)	25- Mar-2019	Participation In Sports Event
50.	1NH17IS006	Akash K R	RVCE, Bangalore	Basketball (M)	15-Feb-2019 To 20-Feb-2019	Participation In Sports Event
51.	1NH17IS006	Goutham S	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To	Participation In Sports Event

Criterion-4 Student Performance



					10-Feb-2019	
52.	1NH17IS147	Goutham S	RVCE, Bangalore	Basketball (M)	8-Feb-2019 To 10-Feb-2019	Participation In Sports Event
53.	1NH17IS147	Goutham S	Spiel/JNC, Bangalore	Basketball (M)	11-Feb-2019 To 15-Feb-2019	Participation In Sports Event
54.	1NH17IS147	Goutham S	CUFE, Bangalore	Basketball (M)	28-Feb-2019 To 2-Mar-2019	Participation In Sports Event
55.	1NH17IS147	Goutham S	CMP, Bangalore	Basketball (M)	25- Mar-2019	Participation In Sports Event
56.	1NH18IS123	Vignesh K S	VTU, Belagavi	Badminton (M)	24-Aug-2019	Third Place
57.	1NH18IS123	Vignesh K S	Praxis Business School, Bangalore	Badminton (M)	26-Sep-2019	Winner

Table 4.5.3.2 F: Summary of Participation in outside Country, State and Awards [2019-2020]

Sl. No	USN	Name of the Student	Institution/ Organization	Event Details	Event Date	Achievement
1.	1NH17IS090	Shijo Yahannan	IIT, Bombay	National Level For The Final Round In The Mega Event "Iot Challenge – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "Iot Challenge – 2019"
2.	1NH17IS092	Shophytyag	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"
3.	1NH17IS108	Srivatsa R V	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"

Criterion-4 Student Performance



				GE – 2019" Conducted By		
4.	1NH17IS111	Sujith Ram Prasad	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"
5.	1NH17IS140	Ashwinvenkat eshkrishna	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"
6.	1NH17IS152	Karthik	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"
7.	1NH17IS134	Nithyashree G S	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"
8.	1NH17IS170	Vaishnavi S	IIT, Bombay	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019" Conducted By	10-Nov-2019	National Level For The Final Round In The Mega Event "IOT CHALLENGE – 2019"

Criterion-4 Student Performance



9.	1NH18IS109	Sonali	SAP Labs India Pvt.Ltd, Hyderabad	Semicolon Hackathon 3.0	14-Nov-2019	Participation In Hackathon Event
10.	1NH18IS106	Silpa	SAP Labs India Pvt.Ltd, Hyderabad	Semicolon Hackathon 3.0	14-Nov-2019	Participation In Hackathon Event
11.	1NH17IS106	Sowjanya	Nasscom Foundation, Delhi	Job Fair	20-Nov-2019	Participation In Job Fair
12.	1NH17IS136	Ashwal Srnivas	Nasscom Foundation, Delhi	Job Fair	20-Nov-2019	Participation In Job Fair
13.	1NH17IS097	Sharmistha	Hackerearth, Delhi	Code Street 2019	15-Aug-2019	Participation In Code Street
14.	1NH18IS404	Bhanupriya K N	NPTEL, IIT Madras	Data Science For Engineers	July-Sep 2019	Completed NPTEL Exam
15.	1NH17IS040	Harini V N	NPTEL, IIT Madras	Data Science For Eineers	July-Sep 2019	Completed NPTEL Exam
16.	1NH17IS134	G S Nithyashree	NPTEL, IIT Madras	Data Science For Engineers	July-Sep 2019	Completed Nptel Exam
17.	1NH17IS212	Vaishnavi Ramesh Kumar	NPTEL,IIT Madras	Data Science For Engineers	Aug -Oct 2019	Completed NPTEL Exam
18.	1NH17IS132	Yashaswini	NPTEL, IIT Kharagpur	Cloud Computing	Aug -Oct 2019	Completed NPTEL Exam
19.	1NH17IS020	Vimal Gowda	NPTEL, IIT Kharagpur	Cloud Computing	Aug -Oct 2019	Completed NPTEL Exam
20.	1NH17IS130	Vinay V Raj	NPTEL, IIT Kharagpur	Cloud Computing	Aug -Oct 2019	Completed NPTEL Exam



Figure 4.5.3.2F: Hackathon was conducted on March 11, 2019 by MD Club, BIT Club and ACE Club, The first prize was won by Sahnmathi Kailasam and Mervin Shibu George team of ISE department,

**Department of Information
Science & Engineering**

Criterion-5

**Faculty Information and
Contributions**

Criteria-5 Faculty Information and Contributions

CRITERION 5	FACULTY INFORMATION AND CONTRIBUTIONS	200
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2022-2023

Sl. No.	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date on which Designated as Professor /Associate Professor	Date of Joining the Institution	Department	Specialization	Academic Research			Currently Associated (Y/N)	Nature of Association (Regular/Contract)
		Degree (From Highest Degree)	University	Year of Graduation							Research Paper Publication	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years		
1	Dr. Mohan H S	PhD	Dr.MGR University	2012	20.07.2022	Professor & Head	20.07.2022	20.07.2022	ISE	Network Security	4	4	1	Yes	Regular
2	Dr. R J Anandhi	PhD	Dr.MGR University	2011	07.07.2018	Professor & Dean Academics	07.07.2018	07.07.2018	ISE	Computer Science & Engg	1	3	1	Yes	Regular
3	Dr. K Saravanan	PhD	Anna University	2013	31.08.2019	Professor	31.8.2019	31.08.2019	ISE	Computer Science and Engineering	3	3	-	Yes	Regular
4	Dr. Arvind S Kapse	PhD	Singhania University	2019	01.09.2020	Professor	01-09-2020	01.09.2020	ISE	CSE	8	4	-	Yes	Regular
5	Dr. Mangayarkarasi	PhD	VTU	2019	23.07.2018	Associate Professor	01.08.2019	23.07.2018	ISE	Software Engineering	-	-	-	Yes	Regular
6	Dr. Kalavani D	PhD	VIT, University	2020	19.10.2020	Associate Professor	19-10-2020	19.10.2020	ISE	Computer Network Engineering	4	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

7	Dr. SenthilKumar R	PhD	SRM	2020	30.11.2020	Associate Professor	30.11.2020	30.11.2020	ISE	Computer Science & Engg	-	-	-	Yes	Regular
8	Dr. L. Srinivasan	PhD	Anna	2020	17.07.2019	Associate Professor	01.08.2020	17.7.2019	ISE	Text Mining	1	-	-	14.01.2023	Regular
9	Dr. Gautam K S	PhD	Amrita	2021	28.09.2020	Associate Professor	01.01.2022	28.9.2020	ISE	Computer Science & Engg	-	-	-	Yes	Regular
10	Dr. Rajlakshmi Ghatkamble	PhD	CMR University	2021	30.08.2022	Associate Professor	30.08.2022	30.08.2022	ISE	Digital Image Processing	3	-	-	Yes	Regular
11	Dr. SivarannaKrishnan S	PhD	Anna	2019	06.10.2022	Associate Professor	06.10.2022	06.10.2022	ISE	Wireless Sensor Networks	1	-	-	Yes	Regular
12	Dr. Tejas Rayan	PhD	VTU	2022	30.08.2022	Associate Professor	30.08.2022	30.08.2022	ISE	Machine Learning and AI	-	-	-	Yes	Regular
13	Dr. D. Roja Ramani	PhD	Anna	2020	30.08.2022	Associate Professor	30.08.2022	30.08.2022	ISE	Image Processing, Data Science, AI, ML	-	-	-	Yes	Regular
14	Dr. Swathi B	PhD	Jain University	2023	25.08.2011	Associate Professor	01.02.2023	25.08.2011	ISE	Computer Science and Engineering	1	-	-	Yes	Regular
15	Dr.Vandana .C.P	PhD	VTU	2023	24.07.2013	Associate Professor	01.03.2023	24.07.13	ISE	Computer Networks	-	-	-	Yes	Regular
16	Mrs. J Karthyayini	M.E	Bangalore University	2011	26.07.2017	Assistant Professor		26.07.2017	ISE	Software Engineering	1	-	-	Yes	Regular
17	Mrs. Shanmugam Shoba M	M.Tech	Dr M G R University	2011	21.07.2014	Assistant Professor		21.07.2014	ISE	Computer Science and Engineering	-	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

18	Mrs. Rafega Beham A	M.Tech	SASTRA University	2004	01.08.2014	Assistant Professor		01.08.2014	ISE	Advanced Communication Systems	-	-	-	Yes	Regular
19	Mr. Gangadhar Immadi	M.Tech	M.Tech	VTU	11.08.2011	Assistant Professor		11.08.2011	ISE	Computer Science & Engg.	-	-	-	Yes	Regular
20	Mrs. Divya K V	M.Tech	Bangalore university	2012	21.07.2014	Assistant Professor		21.07.2014	ISE	Software engineering	3	-	-	Yes	Regular
21	Mrs. Bivika K M	M.Tech	VTU	2013	17.07.2019	Assistant Professor		17.07.2019	ISE	Computer Science & Engg	-	-	-	Yes	Regular
22	Mr. SanthoshKumar B S	M.Tech	VTU	2018	01.06.2020	Assistant Professor		01.06.2020	ISE	Computer Science & Engg	-	-	-	Yes	Regular
23	Ms.Latha S S	M.Tech	VTU	2016	27.09.2021	Assistant Professor	-	27.09.2021	ISE	Software Engineering	-	-	-	Yes	Regular
24	Ms.Shruthi G R	M.Tech	VTU	2012	20.09.2021	Assistant Professor	-	20.09.2021	ISE	CSE	-	-	-	Yes	Regular
25	Ms.Rama Bansidhar Dan	M.Tech	RTM NAGPUR UNIVERSITY	2014	15.11.2021	Assistant Professor	-	15.11.2021	ISE	CSE	-	-	-	Yes	Regular
26	Ms.Suvika KV	M.Tech	VTU	2017	20.09.2021	Assistant Professor	-	20.09.2021	ISE	CNE CSE	-	-	-	Yes	Regular
27	Ms.Sony Kuriakose	M.Tech	Kerala University	2016	05.10.2021	Assistant Professor	-	05.10.2021	ISE	Computer Science & Engineering	2	-	-	Yes	Regular
28	Ms.Priya N	M.Tech	VTU	2012	20.09.2021	Assistant Professor	-	20.09.2021	ISE	CSE	-	-	-	Yes	Regular
29	Mr.J Karthick Myilvahanan	M.Tech	Anna University	2010	21.12.2021	Assistant Professor	-	21.12.2021	ISE	Information Technology	1	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

30	Ms. Krishnaveni A	M.Tech	JNTU Kakimada	2012	03.01.2022	Assistant Professor	-	03.01.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
31	Ms. Shalini	M.Tech	St. Peters University	2013	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Information Technology	-	-	Yes	Regular
32	Ms. Anitha	M.Tech	Anna University	2017	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
33	Ms. Bibiana Jennifer	M.E	Anna University	2014	06.10.2022	Assistant Professor	-	06.10.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
34	Ms. Chitti	M.Tech	JNTU-H	2014	06.10.2022	Assistant Professor	-	06.10.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
35	Ms. Neha Jadav	M.Tech	JNTUH	2018	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
36	Ms. Bata Saranya	M.Tech	N.B.K.R IST, JNTU A	2017	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Computer Science & Engineering	-	-	Yes	Regular
37	Mr. Kiran Kumar	M.Tech	JNTUK	2014	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Computer Science Engineering	-	-	Yes	Regular
38	Ms. Nivetha	M.Tech	Dr.M.G.R. University	2021	30.08.2022	Assistant Professor	-	30.08.2022	ISE	Computer Science Engineering	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

2021-22

Sl. No.	Name of the Faculty Member	Qualification			Association with the Institution	Designation	Date on which Designated as Professor /Associate Professor	Date of Joining the Institution	Department	Specialization	Academic Research			Currently Associated (Y/N)	Date of Leaving (In case Currently Associated is ("NO"))	Consultancy and Nature of Association (Regular/Contract)
		Degree (From Highest Degree)	University	Year of Graduation							Research Paper Publication	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years			
1	Dr. R.J Anandhi	PhD	Dr MGR University	2011	07.07.2018	Professor & Head	07.07.2018	07.07.2018	ISE	Computer Science & Engg	3	3	2	Yes	Regular	
2	Dr. K Saravanan	PhD	Anna University	2013	31.08.2019	Professor	31.8.2019	31.08.2019	ISE	Computer Science and Engineering	3	1	-	Yes	Regular	
3	Dr. Arvind S Kapse	PhD	Singhania University	2019	01.09.2020	Professor	01.09.2020	01.09.2020	ISE	CSE	8	2	-	Yes	Regular	
4	Dr. Mangayarkarasi	PhD	VTU	2019	23.07.2018	Associate Professor	01.08.2019	23.07.2018	ISE	Software Engineering	-	-	-	Yes	Regular	
5	Dr. Nagendra Prabhu S	PhD	JNTU	2018	11.03.2019	Associate Professor	11.03.2019	11.03.2019	ISE	Computer Science & Engg	2	-	-	Yes	Regular	
6.	Dr. Subhashini	PhD	Anna	2018	01.08.2019	Associate Professor	01.08.2019	01.08.2019	ISE	Distributed Computing	5	-	-	Yes	Regular	

Criteria-5 Faculty Information and Contributions

	PhD	VIT, University	2020	19.10.2020	Associate Professor	19.10.2020	19.10.2020	ISE	Computer Network Engineering	3	-	-	Yes	Regular
7	Dr. Kalavani D	VIT, University	2020	19.10.2020	Associate Professor	19.10.2020	19.10.2020	ISE	Computer Network Engineering	3	-	-	Yes	Regular
8	Dr. Senthil Kumar R	Satyabama	2020	30.11.2020	Associate Professor	30.11.2020	30.11.2020	ISE	Computer Science & Engg	2	-	-	Yes	Regular
9	Dr. L. Srinivasan	Anna	2020	17.7.2019	Associate Professor	01.08.2020	17.7.2019	ISE	Text Mining	6	-	-	Yes	Regular
10	Dr.Suresh A	Anna	2021	04.05.2021	Associate Professor	04.05.2021	04.05.2021	ISE	ICE	-	-	-	Yes	Regular
11	Dr. Gautam K S	Amrita	2021	28.9.2020	Associate Professor	01.01.2022	28.9.2020	ISE	Computer Science & Engg	-	-	-	Yes	Regular
12	Mrs. J Karthiyayini	Bangalore University	2011	26.07.2017	Assistant Professor		26.07.2017	ISE	Software Engineering	1			Yes	Regular
13	Mrs. Shammugam Shoba M	Dr M G R University	2011	21.07.2014	Assistant Professor		21.07.2014		Computer Science and Engineering	3	-	-	Yes	Regular
14	Mrs. Vandana .C.P	VTU	2013	24.07.2013	Assistant Professor		24.07.2013	ISE	Computer Networks	2	-	-	Yes	Regular
15	Mrs. Rafega Beham A	SASTRA University	2004	01.08.2014	Assistant Professor		01.08.2014	ISE	Advanced Communication Systems		-	-	Yes	Regular
16	Mrs. Mounica .B	JNTU	2012	25.07.2012	Assistant Professor		25.07.2012	ISE	Computer Science and Engineering		-	-	30.06.2022	Regular
17	Mr. Gangadhar Immadi	VTU	2009	11.08.2011	Assistant Professor		11.08.2011	ISE	Computer Science & Engg.	-	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

Sl. No.	Name	Qualification	Institution	Year	Start Date	End Date	Position	25.08.2011	25.08.2011	25.08.2011	Computer Science and Engineering	3	-	-	Yes	Regular
18	Mrs. Swathi B	M.Tech	JNTU Hyderabad	2011	25.08.2011	25.08.2011	Assistant Professor				ISE	3	-	-		
19	Mrs. Divya K V	M.Tech	Bangalore university	2012	21.07.2014	21.07.2014	Assistant Professor				ISE	1	-	-	Yes	Regular
20	Mrs. Gowri Prasad	M.Tech	Calicut University	2015	26.07.2017	26.07.2017	Assistant Professor				ISE	-	-	-	30.06.2022	
21	Mrs. Bithika K M	M.Tech	VTU	2013	17.07.2019	17.07.2019	Assistant Professor				ISE	-	-	-	30.06.2022	Regular
22	Mrs. Mridula J	M.Tech	VTU	2012	23.07.2018	23.07.2018	Assistant Professor				ISE					
23	Mr. Santhosh Kumar B S	M.Tech	VTU	2018	01.06.2020	01.06.2020	Assistant Professor				ISE	-	-	-	Yes	Regular
24	Mrs. Lohitha Mallireddy	M.Tech	JNTU	2015	23.07.2018	23.07.2018	Assistant Professor				ISE	1	-	-	03.07.2022	Regular
25	Ms. Akshata Patil	M.Tech	VTU	2015	08.11.2021	08.11.2021	Assistant Professor				ISE	1	-	-	25.06.2022	Regular
26	Ms. Latha	M.Tech	VTU	2016	27.09.2021	27.09.2021	Assistant Professor				ISE	1	-	-	Yes	Regular
27	Ms. Shruthi G R	M.Tech	VTU	2012	20.09.2021	20.09.2021	Assistant Professor				ISE	-	-	-	Yes	Regular
28	Ms. Rama Bansidhar Dan	M.Tech	RTM NAGPUR UNIVERSITY	2014	15.11.2021	15.11.2021	Assistant Professor				ISE	1	-	-	Yes	Regular
29	Ms. Suvika KV	M.Tech	VTU	2017	20.09.2021	20.09.2021	Assistant Professor				ISE	1	-	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

30	Ms.Sony Kuriakose	M.Tech	Kerala University	2016	05.10.2021	Assistant Professor	-	05.10.2021	ISE	Computer Science & Engineering	-	-	-	Yes	Regular
31	Ms.Anusha	M.Tech	VTU	2017	05.10.2021	Assistant Professor	-	05.10.2021	ISE	Computer Science & Engineering	-	-	-	20.07.2022	Regular
32	Ms.Priya N	M.Tech	VTU	2012	20.09.2021	Assistant Professor	-	20.09.2021	ISE	CSE	1	-	-	Yes	Regular
33	Mr.J Karthick Mayilvahanan	M.Tech	Anna University	2010	21.12.2021	Assistant Professor	-	21/12/2021	ISE	Information Technology	1	-	-	Yes	Regular
34	Ms. Krishmaveni A	M.Tech	JNTU Kakinada	2012	23.01.2022	Assistant Professor	-	23.01.2022	ISE	Computer Science & Engineering	-	-	-	Yes	Regular

2020-2021

Sl. No.	Name of the Faculty Member	Qualification		Association with the Institution	Designation	Date on which Designated as Professor /Associate Professor	Date of Joining the Institution	Department	Specialization	Academic Research			Currently Associated (Y/N)	Date of Leaving (In case Currently Associated is "NO")	Consultancy and Nature of Association (Regular/Contract)
		Degree (From Highest Degree)	University							Year of Graduation	Research Paper Publication (Guidance)	Ph.D. during the Assessment Years			
1	Dr. R J Anandhi	PhD	Dr.MGR University	2011	Professor & Head	07.07.2018	07.07.2018	ISE	Computer Science & Engg	5	-	-	Yes	Regular	Regular
2	Dr. K Saravanan	PhD	Anna University	2013	Professor	31.8.2019	31.08.2019	ISE	Computer Science and Engineering	2	-	-	Yes	Regular	Regular

Criteria-5 Faculty Information and Contributions

	Dr. Arvind S Kapse	PhD	Singhania University	2019	01.09.2020	Professor	01.09.2020	01.09.2020	01.09.2020	ISE	CSE	1	-	Yes	Regular
3	Dr. Arvind S Kapse	PhD	Singhania University	2019	01.09.2020	Professor	01.09.2020	01.09.2020	01.09.2020	ISE	CSE	1	-	Yes	Regular
4	Dr. Mangayarkarasi	PhD	VTU	2019	23.07.2018	Associate Professor	23.07.2018	01.08.2019	23.07.2018	ISE	Software Engineering	2	-	Yes	Regular
5	Dr. Nagendra Prabhu S	PhD	JNTU	2018	11.03.2019	Associate Professor	11.03.2019	11.03.2019	11.03.2019	ISE	Computer Science & Engg	-	-	Yes	Regular
6.	Dr.Subhashini	PhD	Anna	2018	01.08.2019	Associate Professor	01.08.2019	01.08.2019	01.08.2019	ISE	Distributed Computing	-	-	Yes	Regular
7	Dr. Kalaivani D	PhD	VIT, University	2020	19.10.2020	Associate Professor	19.10.2020	19-10-2020	19.10.2020	ISE	Computer Network Engineering	-	-	Yes	Regular
8	Dr. SenthilKumar R	PhD	Satyabama	2020	30.11.2020	Associate Professor	30.11.2020		30.11.2020	ISE	Computer Science & Engg	-	-	Yes	Regular
9	Dr. L. Srinivasan	PhD	Anna	2020	17.07.2019	Associate Professor	17.07.2019	01.08.2020	17.07.2019	ISE	Text Mining	4	-	Yes	Regular
10	Dr.Suresh A	PhD	Anna	2021	04.05.2021	Associate Professor	04.05.2021	04.05.2021	04.05.2021	ISE	ICE	-	-	Yes	Regular
11	Dr.Supriya S	B.Tech	VIT	2020	26.08.2020	Assistant Professor	26.08.2020		26.08.2020	ISE	Deep Learning	-	-	29.05.2021	Regular
12	Mrs. J Karthiyayini	M.E	Bangalore University	2011	26.07.2017	Assistant Professor	26.07.2017		26.07.2017	ISE	Software Engineering	5	-	Yes	Regular
13	Mrs. Shanmugam Shoba M	M.Tech	Dr.M G R University	2011	21.07.2014	Assistant Professor	21.07.2014		21.07.2014		Computer Science and Engineering	4	-	Yes	Regular
14	Mrs.Vandana .C.P	M.Tech	VTU	2013	24.07.2013	Assistant Professor	24.07.2013		24.07.2013	ISE	Computer Networks	5	-	Yes	Regular

Criteria-5 Faculty Information and Contributions

	M.Tech	SASTRA University	2004	01.08.2014	Assistant Professor	01.08.2014	01.08.2014	ISE	Advanced Communication Systems	-	-	Yes	Regular
15	Mrs. Rajęga Beham A				Assistant Professor								
16	Mrs. Mounica .B	JNTU	2012	25.07.2012	Assistant Professor	25.07.2012	25.07.2012	ISE	Computer Science & Engg.	1	-	Yes	-
17	Mr. Gangadhar Inmadi	VTU	2009	11.08.2011	Assistant Professor	11.08.2011	11.08.2011	ISE	Computer Science & Engg.	1	-	Yes	-
18	Ms.Swathi B	JNTU Hyderabad	2011	25.08.2011	Assistant Professor	25.08.2011	25.08.2011	ISE	Computer Science and Engineering	4	-	Yes	Regular
19	Mrs. Divya K V	Bangalore university	2012	21.07.2014	Assistant Professor	21.07.2014	21.07.2014	ISE	Software engineering	6	-	Yes	Regular
20	Mrs. Gautham K S	Anna	2021	28.07.2020	Assistant Professor	28.07.2020	28.07.2020	ISE	Computer Science & Engg	2	-	Yes	Regular
21	Mrs. Jessica Prathyusha	JNTU	2014	05.10.2020	Assistant Professor	05.10.2020	05.10.2020	ISE	Computer Science & Engg	-	-	30.07.2021	Regular
22	Mrs. Bilvika K M	VTU	2013	17.07.2019	Assistant Professor	17.07.2019	17.07.2019	ISE	Computer Science & Engg	1	-	Yes	Regular
23	Mrs. Gowri Prasad	Calicut University	2015	26.07.17	Assistant Professor	26.07.17	26.07.17	ISE	Computer Science & Engg.	-	-	Yes	Regular
24	Mrs. Lohitha Mallireddy	JNTU	2015	23.07.2018	Assistant Professor	23.07.2018	23.07.2018	ISE	Computer Science & Engg	1	-	Yes	Regular
25	Mrs. Preethi J D	VTU	2012	03.01.2014	Assistant Professor	03.01.2014	03.01.2014	ISE	Computer Science & Engg.	-	-	30.07.2021	
26	Mrs. Kavitha K K	VTU	2015	21.07.2014	Assistant Professor	21.07.2014	21.07.2014	ISE	Computer Science & Engg.	-	-	30.07.2021	
27	Mrs. Mirdula J	VTU	2012	23.07.2018	Assistant Professor	23.07.2018	23.07.2018	ISE	Computer Science & Engg	-	-	Yes	Regular
28	Ms. Santhosh B S	VTU	2018	01.06.2020	Assistant Professor	01.06.2020	01.06.2020	ISE	Computer Science & Engg	-	-	Yes	Regular

CRITERION 5	FACULTY INFORMATION AND CONTRIBUTIONS	200
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5.1 Student-Faculty Ratio (SFR) (20)

S: F ratio = N/F ; F = No. of faculty = (a + b – c) for every assessment year

a: Total number of full-time regular Faculty serving fully to 2nd, 3rd and 4th year of this program

b: Total number of full-time equivalent regular Faculty (considering fractional load) serving this program from other Program(s)

c: Total number of full time equivalent regular Faculty (considering fractional load) of this program serving other program(s)

Regular Faculty means:

Full time on roll with prescribed pay scale. An employee on contract for a period of not less than two years AND drawing consolidated salary not less than applicable gross salary shall only be counted as a regular employee.

Prescribed pay scales mean pay scales notified by the Regulatory Authority/ Central Government and implementation as prescribed by the Central/State Government as the case may be. In case State Government prescribes lesser consolidated salary for a particular cadre then same will be considered as reference while counting faculty as a regular faculty.

$N = \text{No. of students} = 3x$ where x is (approved intake + Actual Admitted Lateral Entry)

Marks to be given proportionally from a maximum of 20 to a minimum of 10 for average SFR between 15:1 to 20:1 and zero for average SFR higher than 20:1.

(To be calculated at Department Level)

No. of UG Programs in the Department (n): 1

No. of PG Programs in the Department (m): 0

No. of Students in UG 2nd Year= u1

No. of Students in UG 3rd Year= u2

No. of Students in UG 4th Year= u3

No. of Students in PG 1st Year= p1

No. of Students in PG 2nd Year= p2

Criteria-5 Faculty Information and Contributions



No. of Students = Sanctioned Intake + Actual admitted lateral entry students

(The above data to be provided considering all the UG and PG programs of the department)

S=Number of Students in the Department = UG1 + UG2 +.. +UGn + PG1 + ...PGn

F = Total Number of Faculty Members in the Department (excluding first year faculty)

Student Faculty Ratio (STR) = S / F

Year	CAY		CAYm1		CAYm2	
	(2022-23)		(2021-22)		(2020-21)	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students
2nd Year(U1.1)	180	17	180	18	180	15
3rd Year(U1.2)	180	18	180	15	120	12
4th Year(U1.3)	180	15	120	12	120	01
UG1=U1.1+U1.2+U1.3	540	50	480	45	420	28
Total No. of Students in the Department (S)	S1=590		S2=525		S3=448	
No. of Faculty in the Department(F)	F1=37		F2=34		F3=27	
Student Faculty Ratio (SFR)	SFR1=S1/F1=15.95		SFR2= S2/F2=15.44		SFR3= S3/F3=16.59	
Average SFR	SFR=(SFR1+SFR2+SFR3)/3=15.99					

Note: 75% should be Regular/full time faculty and the remaining shall be Contractual Faculty/Adjust Faculty/Resource persons from industry as per AICTE norms and standards. The contractual faculty will be considered for assessment only if a faculty is drawing a salary as prescribed by the concerned State Government for the contractual faculty in the respective cadre

5.1.1. Provide the information about the regular and contractual faculty as per the format mentioned below:

Year	Total number of regular faculty in the department	Total number of contractual faculty in the department
CAY (2022-23)	37	0
CAYm1(2021--22)	34	0
CAYm2(2020-21)	27	0

Average SFR for three assessment years:

Assessment SFR: 15.99

5.2 Faculty Cadre Proportion (20)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

F1: Number of Professors required = $1/9 \times$ Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

F2: Number of Associate Professors required = $2/9 \times$ Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

F3: Number of Assistant Professors required = $6/9 \times$ Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

Cadre Ratio Marks= $[(AF1/RF1) + (AF2 \times 0.6/RF2) + (AF3 \times 0.4/RF3)] \times 10$

If AF1 = AF2= 0 then zero marks

Maximum marks to be limited if it exceeds 20

Criteria-5 Faculty Information and Contributions



Example: Intake = 60 (i.e. total no. of students= 180); Required number of Faculty: 9; RF1= 1, RF2=2 and RF3=6

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY (2022-23)	3	4	6	8	19	25
CAYm1 (2021-22)	2	3	5	7	17	24
CAYm2 (2020-21)	2	3	4	6	14	18
Average Numbers	RF1=2.33	AF1=3.33	RF2=5	AF2=7	RF3=16.67	AF3=22.33

Cadre Ratio Marks

$$[(AF1 / RF1) + [(AF2 / RF2) * 0.6] + [(AF3 / RF3) * 0.4]] * 10$$

$$\text{Cadre Ratio} = (0.909 + 1.14 \times 0.6 + 0.955 \times 0.4) \times 10 = 20.00$$

5.3 Faculty Qualification (20)

$FQ = 2.0 \times [(10X + 4Y)/F]$ where x is no. of regular faculty with Ph.D., Y is no. of regular faculty with M. Tech., F is no. of regular faculty required to comply 20:1 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

Year	X	Y	F	$FQ=2 \times [(10X+4Y)/F]$
CAY (2022-23)	12	25	29	15.17
CAYm1 (2021-22)	11	23	26	15.54
CAYm2 (2020-21)	10	17	22	15.27
Average Assessment				15.33

4 Faculty Retention (10)

- A. $\geq 90\%$ of required Faculties retained during the period of assessment keeping CAYm2 as base year (10)
- B. $\geq 75\%$ of required Faculties retained during the period of assessment keeping CAYm2 as base year (08)
- C. $\geq 60\%$ of required Faculties retained during the period of assessment keeping CAYm2 as base year (06)
- D. $\geq 50\%$ of required Faculties retained during the period of assessment keeping CAYm2 as base year (04)
- E. Otherwise (0)

Description	2021-22 (CAYm1)	2020-21 (CAYm2)
Total Number of Regular Faculty	27	27
Number of Regular Faculty Retained	23	16
% of Faculty Retained	85%	59%

Assessment Marks: 06

5.5. Faculty competencies in correlation to Program Specific Criteria (10)

The competency of faculty members is measured based on their excellence in academic degrees, academic related training, certifications, achievements and research publications. Faculty members articulate their domain specific knowledge to groom the students to excel in academics and prepare them to participate in various events like Smart India Hackathons, Ideathon, Internships, Paper presentation, Project Presentation, etc.

Faculty members show consistent progress in their domain by publishing their research works in renowned Journals and actively contributing their services to the industries as consultancy works.

To measure the competency of faculty members, following factors are considered.

- Degree specialization (UG / PG /PhD).
- Research area, Research guidance (UG/PG/PhD).
- Research paper publication.
- Reviewer / Editor in refereed journals.
- Books, Book Chapters Published.
- Patents Published.
- MOOC Courses Completed/Mentored.
- Online courses / FDP / training programs / workshops / seminars / series of webinars attended in relevance to the academic specialization.
- Awards received.

Table 5.5.1 Faculty Competencies in Program Specific criteria

Sl. No.	Program Specific Criteria	Name of the Faculty	Competency Attained Through
1.	Data Structures, Design and Analysis of Algorithm	Dr. Mangayarakarasi, Dr. Kalaivani and Ms. Karthiyayini	Published a Book Titled "Data Structures and Algorithms Implementation using C Language"
		Mr. Gangadhar Immadi Mrs. Shobha Mrs. Divya	Mentors for NPTEL Course " Design and Analysis of Algorithm " to the students
		Dr. Gautam	Completed PhD in Video Analytics titled " Design and Development of Algorithms for Anomaly Detection in Video "

Criteria-5 Faculty Information and Contributions



2.	Digital Electronics Based	Mrs. Rafega Beham	Degree Specialization B.E – Electronics and Communication Engineering M.Tech – Advanced Communication Systems
		Dr. Sivaramakrishnan	Degree Specialization BE - Electronics and Communication Engineering ME- Communication System PhD -Wireless Sensor Networks
3.	Networks Security	Dr. Kalaivani	Degree Specialization- B.E in CSE M. Tech in Computer Networks
		Dr. Vandana	Degree Specialization- B. Tech in CSE M.Tech in Computer Networks
4.	Database Management Systems	Mrs. Karthiyayini Mrs. Mounica	Completed NPTEL course" Database Management System"
5.	Programming for problem solving	Dr. L . Srinivasan Dr . K .Saravanan Dr . Kalaivani D	Published a Book Titled" Learn Python-The easy way"
		Mrs. Vandana, Mrs. Kathyayini	Completed NPTEL course "Programming in Java"
		Dr. Supriya, Mrs. Vandana, Mrs. Mounica, Mrs. Swathi, Mrs. Bilvika, Mr. Gangadhar Immadi	Completed NPTEL course "Joy of Computing using Python "
		Mrs. Vandana, Mr. Gangadhar Immadi & Mrs. Rafega Beham	Faculty were the mentors for NPTEL course "Joy of Computing using Python " to the students
		Mrs. Karthiyayini	Completed NPTEL course "

			Introduction to Programming in C "
		Mrs. Karthiyayini	Currently working on Book titled "Basic Programming concepts in Java"
		Mrs. Shanmugam Shobha	
		Mrs. Divya	
		Mrs. Karthiyayini	One of the top 5% performers in NPTEL Certification on "Programming in Java"
		Dr. Senthil Kumar R	Participated in Train The Trainer Program on "Java Programming" conducted by Infosys Limited
6.	Software Engineering,	Mrs. Karthiyayini	Completed NPTEL course on "Software Engineering"
	Software Testing	Dr. K. Saravanan	Completed NPTEL course on "Software Testing"
		Mrs. Bilvika	
		Mrs Lohitha Mallireddy	
		Dr. P. Mangayarkarasi	
	Dr. Swathi B	One of the top 5% performers in NPTEL Certification on "Programming in Java"	
7.	Mobile Application Development	Dr. R J Anandhi	Published a Book Titled" Mobile Application Development"
		Dr. Saravanan K	
		Dr. Srinivasan L	
		Dr. Saravanan K	Mentor for NPTEL Course " Modern Application Development" to the students
8.	Data Mining & warehousing	Dr. R J Anandhi	Guided two scholars and guiding four scholars in DM and related domains.
	Machine Learning	Dr. Srinivasan L	Completed Ph.D in Datamining titled "An Improved Framework for Authorship Identification in online message using clustering techniques and metaheuristic algorithms"
		Dr. P. Mangayarkarasi	Completed NPTEL course on "Data Mining"
		Mrs. Gouri Prasad	
		Mrs. Karthiyayini	Opted Machine Learning Techniques as a PhD course work subject and completed in VTU
		Mrs. Suvika	
		Mrs. Latha	

		Dr. Arvind S Kapse Mr. Gautam Mrs. Latha S Mrs. Priya Mrs. Sony Mrs. Akshatha Patil	Mentor for NPTEL Course on "Introduction to Machine Learning" to the students.
		Dr. Subhashini S J	Participated Six days STTP on "Exploring Real World Applications of Blockchain Technology with Machine Learning Models".
9.	Operating system, Soft Computing	Dr. Swathi	Completed PhD in Soft Computing titled "Incorporating Soft computing Technique for Test Optimization"
		Mrs. Mounica. B	Completed NPTEL course on "Operating System"
10.	Internet of Things	Dr. R J Anandhi	Guided UG Project titled "Android Based Application to detect potholes & uneven roads in Bengaluru " and applied for KSCST.
		Dr. Vandana	Completed Ph.D. in IOT titled "Design of Resource Discovery Framework in Internet of Things"
11.	Cloud Computing	Dr. P. Mangayarkarasi	Completed NPTEL course on "Cloud Computing"
		Dr. Srinivasan L	
		Mrs. J Karthiyayini	
		Mrs. Shanmugam Shoba	
		Mrs. Divya	
		Mrs. Bilvika	
12.	Object Oriented Analysis and design	Dr. Saravanan Dr L. Srinivasan Mrs. J. Karthiyayini	Mentor for NPTEL Course " Object Oriented Analysis and design " to the students
		Mrs. J Karthiyayini	Completed NPTEL course on "Object Oriented Analysis and design "
		Mrs. Divya K V	
		Dr. Swathi B	

Table 5.5.2 Faculty Competencies in correlation to Courses (Sample)

SI. No	Name of the Faculty	Competency	E- Content Web Links
1	Dr. Mangayarakarasi	Data Mining and Data Warehousing	https://information-science-engineering.newhorizoncollegeofengineering.in/ise63/
2	Dr. Kalaivani D	Digital Logic Design	https://information-science-engineering.newhorizoncollegeofengineering.in/digital-logic-design/
3	Dr. Kalaivani D	Software testing and Automation	https://information-science-engineering.newhorizoncollegeofengineering.in/software-testing-automation/
4	Dr. Srinivasan L	Internet of Things	https://information-science-engineering.newhorizoncollegeofengineering.in/iot-videos/
5	Dr. Supriya S	Machine Learning	https://information-science-engineering.newhorizoncollegeofengineering.in/machine-learning-ise/
6	Ms. J Karthiyayini	Java & J2EE	https://information-science-engineering.newhorizoncollegeofengineering.in/ise641-java-j2ee/
7	Ms. J Karthiyayini	Data Structures Using C	Data Structures using C - Information Science & Engineering (newhorizoncollegeofengineering.in)
8	Mrs. Shobha Shanmugam M	Data Structures Using C	Data Structures using C - Information Science & Engineering (newhorizoncollegeofengineering.in)
9	Mrs. Shobha Shanmugam M	Vmware Virtualization Essentials	https://information-science-engineering.newhorizoncollegeofengineering.in/vm-ware/
10	Ms. Vandana CP	Java & J2EE	https://information-science-engineering.newhorizoncollegeofengineering.in/ise641-java-j2ee/
11	Mr. Gangadhar Immadi	Java & J2EE	https://information-science-engineering.newhorizoncollegeofengineering.in/ise641-java-j2ee/
12	Ms. Swathi B	Object Oriented Programming with	https://information-science-engineering.newhorizoncollegeofengineering.in/

		JAVA	se44-oops-with-java-class/
13	Mr. Gautam K.S	Data Science	https://information-science-engineering.newhorizoncollegeofengineering.in/data-science-2/
14	Mrs. Gowri Prasad	Data Mining and Data Warehousing	https://information-science-engineering.newhorizoncollegeofengineering.in/se63/
15	Mrs. Lohitha M	Software testing and Automation	https://information-science-engineering.newhorizoncollegeofengineering.in/software-testing-automation/

Table 5.5.3 Faculty Competencies Based on Book Publications

Sl. No	Name of Faculty	Title of the Book / Book Chapter	Book / Book Chapter	Book Publication Details	Date of Publication
1	Dr L Srinivasan	Learn Python- The easy way	Book	ISBN 978-935574-12	2022
	Dr K Saravanan				
	Dr Kalaivani D				
2	Mrs.Divya. K.V	Mobile Application Development	Book	ISBN 978-939152227-8	2022
	Dr.Thirukkumaran				
	Dr.Anthoniraj				
3	Dr Mangayarkarasi	Data Structures and Algorithms Implementation using C Language	Book	ISBN 978-939152234-6	2022
	Dr Kalaivani D				
	Ms Karthiyayini J				
4	Dr. R J Anandhi	Mobile	Book	ISBN: 978-93-90785-43-8	2021

Criteria-5 Faculty Information and Contributions



	Dr. Saravanan K	Application Development			
	Dr. Srinivasan L				
5	Mr. Gautam K S	Strategies for Boosted learning using VGG3 and Deep Neural Network as Baseline Models	Book Chapter	Intelligent Data Communication Technologies and Internet of Things, Lecture Notes on Data Engineering and Communication 5Technologies, Vol 57	2021
	Mr. Vishnu Kumar				
	Ms. M. Akila				
6	Mr. Gautam K S	Intelligent Autonomous system for Smart Cities	Book Chapter	G6reen Approaches for Smart Cities - Artificial Intelligence and IoT	2021
	Dr. R J Anandhi				

Table 5.5.4 Faculty competencies in correlation to Research Patents

Sl. No	Name of the Authors	Patent details			
		Title of the Patent	Application No.	Date of Application /Publication	Publication Status
1.	Dr. Kalaivani	Earthquake Early Prediction	202341019979	Mar 2023	Published
2.	Dr Sivaramakrishnan	VLSI layouts for connected and pyramid networks using deep neural learning	202341014746 A	Mar 2023	Published
3.	Dr. K. Saravanan	Implementation	202341005716 A	Feb 2023	Published

Criteria-5 Faculty Information and Contributions



		Of Artificial Intelligence Based Technique Integrated with Machine Learning In Asset			
4.	Dr. Arvind S. Kapse	Iring– A Smart Finger for Visually Challenged	202241046373	Sep 2022	Published
5.	Dr. Arvind S. Kapse	An Effective Mechanism of Data Hiding For Magnifying capacity Using Reversible Data Hiding	202221045137	Aug 2022	Published
6.	Dr. Saravanan	IRING – A Smart Finger for Visually Challenged	202241046373	Aug 2022	Filed
	Dr. Arvind Kapse				
	Dr. Kalaivani				
	Mrs. Shobha				
	Ms. Preethi				
	Ms. Shalini				
	Ms. Soujanya				
	Ms. Sushmitha				
7.	Dr. Mangayarakarasi	Infectious Disease Predictor Using Random Forest Classifier	202241047182	Aug 2022	Filed
	Mrs. Karthiyayini				

Criteria-5 Faculty Information and Contributions



	Mrs. Divya				
	Mrs. Lohita				
8.	Dr R J Anandhi	3D Printed Model for Toothbrush with Toothpaste Pouch for Elderly	202241039510	Aug 2022	Filed
	Dr L Srinivasan,				
	Mrs. Swathi				
	Mrs. Mounica				
	Mr. Himanshu Bhatt				
	Mr. Hitesh Suhas				
	Mr. Mohammed Owez				
9.	Dr Gowtham	Acoustic Echo Cancellation for E - Learning Platform	202241040765	July 2022	Filed
	Mrs. Vandana C P				
	Mrs. Latha				
	Ms. Nithyasree				
	Mr. Ashwin Venkatakrishnan				
	Mr. Aneesh				
	Mr. S Karthik				
10.	Mr.J.Karthick Myilvahanan	Iot Based Smart Traffic Control System for Emergency Vehicles	202241037190	June 2022	Published

11.	Dr. Arvind S. Kapse	Embedded Based Hand Writing Device to Reach a Product While Shopping In A Departmental Store	202141005360	Feb 2021	Published
12.	Dr. Anandhi R. J	Big Data Based Data Analytics Method for Privacy Preservation	202041057125 A	Jan 2021	Published
	Dr. Saravanan				
13.	Dr Rajkumar S	Automatic Corona Detection using Thermal Scanner and RFID Reader for the Travellers in Motor Vehicle	202041052847A	Nov -2020	Published
	Mr. Niranjan Venkatesan				
	Mr. Roshan Akthan				
	Dr. S Ashwin				
	Dr. Kalaivani D				
	Dr. Ramani				
Dr. Prabhakaran					
14.	Dr. R J Anandhi	Novel System, Method and Design of Bluetooth Embedded Robotic	202041056557	Oct 2020	Filed
	Ms. Rafega Beham				
	Ms. Karthiyayini J				

Criteria-5 Faculty Information and Contributions



	Ms. Bilvika K M	Assistance for Agriculture Plowing			
	Ms. Asha K				
	Ms. Sakthi Sridevi				
	Ms. Manisha Samal				
15.	Dr. R J Anandhi	Novel System, Method and Design of Chatbot for Monitoring Mental Health	202041056558	Oct 2020	Published
	Dr Saravanan				
	MS. Shanmugam Shobha M				
	Mr. Gangadhar Immadi				
	Mr. Manoj				
	Ms. Pratiksha Sharma				
	Ms. Sindhu K S				
16.	Dr. R J Anandhi	Novel System, Method and Design of Smart Glasses for Visually Impaired	202041056560	Oct 2020	Published
	Dr. Mangayarakarasi				
	Ms. Vandana C P				
	Ms. Mounica B				
	Mr. Sunil K A				
	Mr. Muhammad Shahbaz Khan				
	Mr. Pramod Sencha				
17.	Dr. R J Anandhi	Novel System, Method and	202041056559	Oct 2020	Filed

	Dr. Srinivasan	Design of Voice Enabled Support for Paralytic Victims			
	Ms. Divya K V				
	Mrs. Swathi Basavaraju				
	Ms. Gouri Prasad				
	Mr. Amithesh.K. N				
	Mr. Vishak.J.U. U				
	Ms. Lakshmi.K.S. S				
18.	Dr. Mangayarakarasi et. al	The Severity Level and Early Prediction of Covid-19 Using CEDCNN Classifier	2020102631	Nov 2020	Published
19.	Dr. L. Srinivasan	Guidance Algorithm for UGV Using IOE Systems And Fog Computing	2020101429	Aug 2020	Published
20.	Dr. K. Saravanan	Sleep Apnea Detection Method for In Bed Patients from Spo2 Signal Using Machine Learning	202041028286 A	Jul 2020	Published
	Dr. Srinivasan L et. al				
21.	Dr. Mangayarakarasi et. al (7)	Ensemble Multi-Stage System and Method to Predict Underwater	202011009855 A	Mar 2020	Published

		Seismic Rated on Aquatic Behavior Application No. Dt 07/03/2020			
22.	Dr. Saravanan	Unmanned Aerial Vehicle (UAV) to Autonomously and Wirelessly Monitor Security	202041010349 A	Mar 2020	Published
23.	Dr. R. J. Anandhi	Novel System, Method and Approach for Real-Time Dynamic Potholes Alert System (DPAS) for Two Wheelers Based on Sensor Devices and Android Based Application	201941048767	Nov 2019	Published
	Dr. Mohan Kumar				
	Ms. J. Karthiyayini				
	Ms. Rafega Beham				
24.	Ms.Mounica P	Novel System and Method of Dynamic Toll Charge System for Traffic Management	201941048766	Nov 2019	Published
	Dr.R.J. Anandhi				
	Ms. Swathi				
	Dr. Mohan Kumar				
	Ms. Vandana				

	Ms.Merlin Mathew				
	Ms.Aishwarya Balakrishnan				
	Mr.BikkyKumar Goit				
25.	Dr. Mangayarkarasi et. al (7)	The Remote Health Monitoring System with Wireless Sensor and IoT through Multivariate Medical Data	201941044768 A	Nov 2019	Published
26.	Dr. Mohan Kumar	Novel System Method and Design of Smart Helmet for Air Quality and Hazardous Event Detection using Smart Band System	201841013789	Oct 2019	Published
	Mrs. Karthiyayini				
27.	Mrs. Karthiyayini	Novel System, Method and Design of Emergency Rescue System with IOT And Wireless Sensors	201841013790	Oct 2019	Published
	Dr. Mohan Kumar				
28.	Dr. S Mohan Kumar	Novel System, Method and Design of IoT Based Real Time- Remote Healthcare	201841013794	Oct 2019	Published
	Mrs.J. Karthiyayini				

		Monitoring System			
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Table 5.5.5 Faculty competencies in guidance of projects (Sample)

Sl.No	Name of the Faculty	Competency	Projects Guided
1	Dr. R J Anandhi	Datamining, IOT	Android Based Application to detect potholes & uneven roads in Bengaluru
			Bluetooth embedded robotic with agriculture seeding plowing and grass cutting powered by solar energy
2	Dr. Saravanan	Networks, IoT	Rural development in regards to agriculture
			Fire Alarm using IoT
3	Dr. Arvind S Kapse	Networks	Android based fall detection and tracking app for aged people
			Social distancing maintaining 4robot using Arduino covibot
4	Dr. Kalaivani D	Networks	Seuropoint for the application of malware detection in android
			Leaf classification and disease detection using CNN
5	Dr. L Srinivasan	IoT, Networks	An improved robotic agent design for disabled and covid-19 affected people
			Android based application development for enhanced

			logistics of e waste
6	Mrs. J Karthiyayini	IoT, Big Data, SE	"Aqua Swach" An APP for water purifier using IoT
			Garbage Monitoring system using IoT
7	Mrs. Shanmugam Shoba M	Networks, IoT	Hybrid cryptographic techniques for secured transmission of medical images
			e- forming: Technology enabled forming
8	Mrs. Vandana. C P	IoT	IoT based analysis of impact of detergents on Varthur lake, Bengaluru
			Plantae disease recognition
9	Mrs. Mounica. B	Machine Learning	Medifind
			Number plate recognizer using Machine learning
10	Mrs. Swathi B	IoT, Networks	Kannada App for booking cab services using smart phones for visually impaired
			Smart street lights using IoT for energy conservation
11	Mrs. Divya k V	SE, IoT, Mobile Application Development	Predictive and IoT enabled solutions for air quality monitoring
			Assistance technology Divyang
12	Mr. Gautam K S	Networks, IoT	Intelligent model building and implementation
			Efficient solar energy application for villagers

13	Mrs. Bilvika K	IoT, Mobile Application Development, Networks	Smart Glove for Blind
			3D Printed Model for Toothbrush With Toothpaste Pouch For Elderly People
14	Mrs. Lohitha Mallireddy	IoT	Tripwire - an anti-theft application for mobiles
15	Mrs. Rama Dan	IoT, SE, Cloud Computing	Object detection using helmet for Visually Impaired.
			Driving Drowsiness Detection using IOT
16	Mr. Karthick	SE, IoT	Accident detection and rescue system using IoT
17	Mrs. Shruthi	Image Processing, IOT	Image regeneration
18	Mrs. Akshatha	IOT, Cloud Computing	Intelligent Reader for Visually Impaired
			Control based system for aged people

Table 5.5.6 FDP/STTP/Webinar organized by the faculty

Sl. No	Event Name	Date and Year	Event organized by	Faculty who organized the event
1	Technical Training for the Lab Instructors	29/10/2022	ISE	Dr. D Kalaivani, Dr. Arvind S. Kapse, Dr. K Saravanan and Dr. L Srinivasan.
2	Faculty Training Program on “Smart Board++”	11/07/2022, 12/07/22, 13/07/22 & 25/07/22	ISE	Dr. R J Anandhi, Professor&Dean-Academics
3	Technical Training conducted for lab Staff	28/10/2021	ISE	Mrs. J Karthiyayini, Mrs. K M Bilvika, Mrs. Shobha S and Mrs Rafega Beham

4	Webinar on Supply chain digital Transformation trends	15/10/2020	ISE	Mrs. J Karthiyayini
5	5 Day Virtual FDP on VMWARE VSPHERE	22/06/2020 to 26/06/2020	ISE	Ms. Swathi
6	1 Day webinar on Introduction to Data Science and Machine Learning	20/06/2020	ISE	Mr. Gangadhar Immadi Mr. Vinayak B (ME)
7	3 Days FDP on Cyber Security and Digital Forensics	12/12/2019 to 14/12/2019	ISE	Dr P. Mangayarkarasi Mrs Shobha

5.6 Innovations by the Faculty in Teaching and Learning (10)

Innovations by the Faculty in teaching and learning shall be summarized as per the following description. Contributions to teaching and learning are activities that contribute to the improvement of student learning. These activities may include innovations not limited to, use of ICT, instruction delivery, instructional methods, assessment, evaluation and inclusive class rooms that lead to effective, efficient and engaging instruction. Any contributions to teaching and learning should satisfy the following criteria:

- The work must be made available on Institute website
- The work must be available for peer review and critique
- The work must be reproducible and developed further by other scholars

The Department/Institution may set up appropriate processes for making the contributions available to the public, getting them reviewed and for rewarding. These may typically include statement of clear goals, adequate preparation, use of appropriate methods, and significance of results, effective presentation and reflective critique.

In the Department of Information Science and Engineering, much importance is given for incorporating innovative techniques in teaching. During the beginning of every semester, a refresher program is conducted to share the innovative practices followed by other faculties pertaining to a new/enriched course offered in the semester. Such brainstorming sessions help transfer the best practices amongst faculties in the department. Pedagogies, Innovative Assessments, Assignments, Content-out-of- Syllabus are typically discussed in the sessions. Lectures are presented by faculty members using a variety of teaching tools such as chalk and board, PowerPoint presentation, video lectures, models, charts, animation, and other teaching techniques such as lecture, group discussion, seminar, tutorials, guest lectures, and demonstration.



Table 5.6.1 Summary of Innovative Teaching techniques in Teaching Learning Process


Sl. No	Item	Description
1	Usage of Smart Boards	All the class rooms are equipped with smart boards which faculty members can use to take TLP process to a higher Level.
2	Usage of online platforms	Faculty members use Zoom, Google drive, Google Meet etc. for discussions as well as sharing of course materials.
3	Usage of Modern Tools	SMART BOARD, LCD Projectors, Web Camera, Wi-Fi enabled laptops are usually employed in classrooms and other student learning environments.
4	Academic reinforcement based on project-based model	Every semester student has to complete a mini project as a part of their curriculum and these are evaluated for on spot programming skills by mini project reviewers based on the rubrics. Mini projects are available in public forum.
5	Semester break Internship and AICTE Activity points.	Every semester break, students are advised to go for Internship activities and students are involving in social activities.
6	Reinforcement through student club activities	Learning/Reinforcement of concepts is encouraged through the activities of various student clubs monitored by faculty coordinator. Students get leadership quality and learn team work through the involvement in Club activities.
7	Innovative practices during regular TLP process	During the lecture sessions, various innovative strategies like inquiry-based learning, team-based learning, activity-based learning, Role Play,


		Games, brain storming methods, flip classroom techniques are also used.
8	Usage of animated videos, models, charts in TLP process	During the lecture sessions animated videos, models, charts in TLP process.
9	Availability of course materials in institution website.	The videos of the Courses and Labs are available in the college website.
10	Usage of Video conference room in the Digital Library	Students and Faculty members avail the same for the discussion and usage of expert video lectures.
11	Usage of visual library, digital library and other Open-Source platforms	Faculty members use visual library, digital library and other Open-Source platforms to make the subject easy to understand. A copy of e – learning material is kept in individual department and in digital library.
12	Train the trainer using short term courses, MOOC courses, staff development programs, Conferences and workshops	The faculty members are encouraged to participate in webinars, short term courses, staff development programs, Conferences and workshops on advanced topics to keep pace with the advanced level of knowledge and skills.
13	Availability of immense resources at institutional website	The students and faculty members are encouraged to make use of the various resources available in the website which enables research-based learning. Some of the resources which are available in institution website are given below.


- Reprography and printing facility is available in the college premises.
- Books are arranged subject wise and department wise and personal attention is given for fulfilling their library related needs.
- Open access facility is available. Library Staff motivate the students for open access to aware them about the latest arrivals.
- Separate Reference, Periodical, Circulation, Digital Library section and reading room facility is available in the library.
- In addition to the central Library, each department has its own Departmental Library to facilitate easy access to the faculty, students and research scholars.


5.6.2 Innovative Teaching Practices Based on Pedagogical Approaches

Sl.No.	Course Code - Course Name	Topic Name	Faculty Name	Innovative Practices with Photos
Innovative Methodology- Activity-based learning				
1	20ISE651A- User Interface Design	Exploring the New words in UID	Dr. Kalaivani	<p>Here, students learn new topics by expressing the words in action. This activity made students to innovatively perform the action for the given word and also recall the words learnt in the concept of UID.</p>  


2	20ISE653A-C# & .Net	String Manipulation	Mrs. Priya N	<p>Students actively participated in their own learning experience through practically engaging in activities such as independent investigation, students working together on activities or learning tasks in a group small enough to ensure that everyone participates. Students in the different group worked on separate activities and each group discussed about the activity.</p> 
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3	20ISE71A- Software Testing and Automation	Automation Testing Tools	Mrs. Shobha	<p>Activity Based Teaching method was used in class for exploring various automation testing tools. Many of the innovative learning strategies we discussed are active learning strategies. This method encourages students to discuss, contribute, participate, investigate, and create.</p>  
Innovative Methodology- Project-based learning				
1	20ISE62A- Advanced Java	JDBC & Servlets	Mrs. J Bibiana Jenifer	<p>Students were taught about the connectivity of Java Application and Database</p> <p>Task 1: Design, Develop and Implement a JDBC based program using Prepared statement object to perform update operation and display the updated Product data. Assume suitable columns for the Product table and JDBC drivers</p>



				 <p>Working with servlets: Students learnt about the architecture and life cycle of servlets also the classes and interfaces of javax. servlet and javax.servlet.http. Using classes and Interfaces they were given a scenario of creating Library home page and using servlets making a connection with Database ,retrieving details from database displaying in a html format in web page.</p> <pre> LabExperiment7 > Deployment Descriptor: LabExperiment7 > JAX-WS Web Services > src/main/java > com.nhce.advancedJava > ConnectDB.java > LibraryServlet.java > JRE System Library [JavaSE-11] > Server Runtime [Apache Tomcat v8.5] > Referenced Libraries > build > src > main > java > webapp </pre>
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2	20SE552A IOT	Sensors	Mrs. Priya N	<p>It is an instructional approach designed to give students the opportunity to develop knowledge and skills through engaging projects set around challenges and problems they may face in the real world. Project title was discussed by individual team and simulation part was shared among all other teams. It encourages students to actively participate in their own learning experience through practically engaging in discussing of topics.</p> 




3	20SE552A-IOT	Programming with microcontroller and sensors	Mrs.Vandana CP	<p>The course ‘Internet of Things’ module 5 deals with programming concepts in IoT.</p> <p>In order to make students understand the real-world applications of IoT, project-based learning pedagogy was employed to facilitate these topics. Following steps were followed as a part of the pedagogy.</p> <p>Step 1: Students Group/Team creation</p> <p>Step 2: Assigning the problem statement related to real world home automation/vehicle parking/smart irrigation/health management systems.</p> <p>Step 3: Students facilitated with hardware- Arduino and sensors</p> <p>Step 4: Students to discuss the requirements and understanding the pin diagram and circuit layout needed.</p> <p>Step 5: Students installed Arduino SDK and coding</p> <p>Students took active participation in the activity. Students understood the various sensors like temperature sensor, gas sensor, IR sensor, PIR sensor, moisture sensor, humidity sensors, sonic sensors, light sensors, load sensors.</p>
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4	20ISE62A-Advanced Java	Spring Framework	Mrs. Swathi	<p>Spring Framework Programming was taught in a hands-on lab. Theory with basic example programs was taught and some programs were given to students to solve.</p> <p>Prior to using the Spring framework, programs with the following concepts were revisited:</p> <ul style="list-style-type: none"> • Loosely coupled classes • Interface programming (Using Interfaces to achieve Loose Coupling) • Limitations and Constraints using Interfaces. • Spring Framework <p>Project-based on creating a Gaming Application, with a common Interface Gaming Console and Gaming classes, were created and data was accessed using Spring Framework. The focus was mainly on using Spring Framework.</p> <p>Students gained</p> <ul style="list-style-type: none"> • A better understanding of Spring Framework. • Practical Implementation


				<p>of applications with Springs.</p> <ul style="list-style-type: none"> • Complexity in dealing with instantiating and creating objects. • Opportunity to collaborate with each other.  
Innovative Methodology- Collaborative Teaching				
1	20ISE814A- Management and Entrepreneurship	Types of Organization, Steps involved in resource planning	Dr R J Anandhi	<p>Discussion-Based Learning along with collaborative learning techniques facilitates the students self-learning process and out of box thinking capability. Student groups are created and organized around units of instruction. Group created includes the uniform distribution of the competency skill of the students. Students are made responsible for their pre-learning as well as teamwork. Learning and team growth will be aided by team assignments. This method enabled recognizing problems, obtaining data, developing potential solutions,</p>


				<p>refining ideas, and discussion of same with peer members.</p> <p>The students took an active role in the activity. A week was allotted for selecting and preparing learning materials. Statistics and mathematical data were collected by students to make evidence related justifications to their findings. Students discussed their findings and ideas.</p>  
2	20ISE61A- Mobile Application Development	Android Services	Mr. J. Karthick Myilvahanan	<p>The Collaborative learning was conducted for the topic Android Services. Students were showed a video on how a particular a service is being created and used in a particular android device and then a group of students are formed as a team on projects and different teams are made to collaborate on the projects to prepare for the class on the specific given topic with the help</p>

				<p>of online lecture, internet and books. The students are encouraged to discuss on the topic on which they have created and they present the topic to the fellow group and the other groups.</p> 
3	20ISE641A-Data Visualization	Revision on First Module by Students	Mrs.Anitha R	<p>First module topics were revised by group of students to other peers using PPT, chalk and talk and discussion of the concepts with sample programs in class. Students were actively participated Students used chalk and talk, PPT and questionnaire methods.</p> 



				
4	20ISE62A-Advanced Java	Revision on First Module by Students	Mrs. J Bibiana Jenifer	<p>First module topics were revised on every class by group of students to other peers using PPT, notepad discussion of the concepts with sample programs executed using smart boards in class. Students were actively participated, Students used smart boards, PPT and questionnaire methods.</p>  



5	20ISE73A- Cryptography and Information Security	Kerberos	Mrs. Krishnaveni A	<p>Kerberos uses symmetric key cryptography and requires trusted third-party authorization to verify user identities.</p> <p>Kerberos has three parts: a client, server, and trusted third party (KDC) to mediate between them.</p> <p>Students learn about Kerberos collaboratively.</p> 
6	20ISE651A- User Interface Design	Menu selection and content organization	Mrs. Vandana CP	<p>Collaborative learning approach was adopted wherein the students were given certain topics to prepare. On the spot assessment in the form of a quiz was conducted. Students can discuss and give their opinion for the quiz questions.</p> <p>Students developed:</p> <ol style="list-style-type: none"> 1. Self-learning and took responsibility to understand certain topics 2. Collaborative learning by answering the quiz in groups. 3. Students had a brain storming session as the quiz questions were not direct and required




				<p>discussions.</p> <ol style="list-style-type: none"> 4. Teams discussed the multiple options which were the answers and finally responded back. 5. Students had arguments in favour and against certain answers. Amongst the team also discussions were conducted. <p>Lot of enthusiasm was observed amongst students during the session and they were able to learn certain topics by collaborative learning approach.</p> 
7	20ISE72A - Cloud computing	Cloud security	Mrs. Rama Dan	<p>When a group of two or more students work together to complete an activity, discuss a question, or collaborate on a task, we call it collaborative learning. The intended consequence of accomplishing tasks together is to help students learn the complexities of solving a problem and promote deeper learning through doing. The benefits of collaborative learning include: Development</p>

				<p>of higher-level thinking, oral communication, self-management, and leadership skills.</p> <p>Cloud security, also known as cloud computing security, is a collection of security measures designed to protect cloud-based infrastructure, applications, and data.</p> 
8	20ISE45A- Operating Systems	Introduction to Operating Systems	Mrs. Divya K V	<p>As a part of collaborative learning approach, the students in the class is divided in groups and assigned a topic. Students have to search and find out the information and discuss with peers. The topics given were: History of operating system, different types of operating systems available currently, operating systems for smart phones, operating systems for smart watches, Importance of operating systems</p> <p>Each group shared the information collected with their class mates. Students were enthusiastically participated and got benefited with the current trends in operating system along with its history .</p>



				
Innovative Methodology-Experiential learning				
1	20ISE51A-Web Internet Programming	XML with CSS and Xslt programs	Ms. J Bibiana Jenifer	<p>Few topics from 5th module has been given for few students as seminar and they have taken seminars on JSON, AJAX, jQuery Foundations .XML with CSS and Xslt programs topics were given them as part of peer-to-peer learning.</p> 
2	20ISE62A-Advanced Java	Servlets	Ms,Swathi	<p>Experiential Learning is the process of learning by doing. By engaging students in hands-on experiences and reflection, they</p>


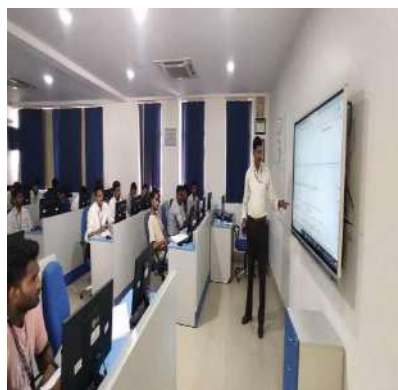
				<p>are better able to connect theories and knowledge learned in the classroom.</p> <p>Servlet Programming was taught with hands-on lab. Theory with basic example programs were taught and some programs were given to students to solve.</p> <p>Students gained</p> <ul style="list-style-type: none"> • A better understanding of Servlets interfaces and Classes. • Practical Implementation of Dynamic Web applications with servlets. • Opportunity to collaborate with each other.  
3	20ISE72A-Computer Network	Exploring the programs for variable data framing	Dr. Kalaivani	<p>“Experiential Learning” is the process of learning by doing. By engaging students in hands-on experiences and reflection, they are better able to connect theories and knowledge learned in the classroom to real-world situations.</p>



				<p>Students were told to explore using programs how to frame the data and perform stuffing and de-stuffing for variable data framing.</p> 
4	21IS37A-DBMS	SQL Functions	Mrs. B. Saranya	<p>Experiential learning is an engaged learning process whereby students “learn by doing” and by reflecting on the experience. Experiential learning activities include hands-on laboratory experiments. Problem-solving exercises were provided to stimulate the development of skills in the students. Well-planned, supervised and assessed experiential learning programs can stimulate academic inquiry by promoting interdisciplinary learning, career development, cultural awareness, leadership, and other professional and intellectual skills.</p> 

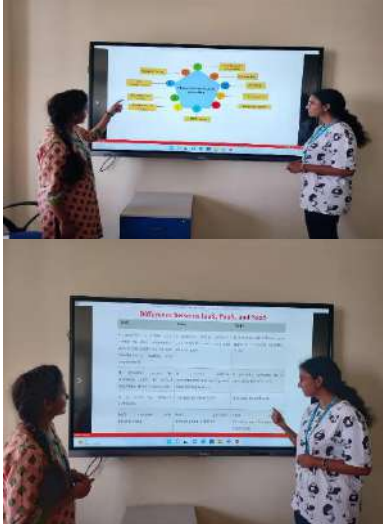
				
5	20ISE63A- Machine Learning	Apriori and FP growth algorithm to generates frequent patterns for association rule mining.	Ms. Suvika K V	<p>Machine Learning being a very technical course, learning Apriori and FP growth algorithm via Experimental based method was adopted. Problem-solving exercises were provided to stimulate the development of skills in the students.</p> <p>Apriori algorithms generates frequent patterns by making the item sets using pairings such as single item set, double itemset, and triple itemset. FP Growth generates an FP-Tree for making frequent patterns.</p>  


6	20SE552A-Internet of Things	Introduction to Sensors and Microcontroller	Mrs. Vandana CP	<p>The course 'Internet of Things' provides the fundamental understanding on how the various physical entities can be connected to the digital era, with the paradigm IoT. Module 1 deals with fundamentals related to the course, deals with application of IoT in various domain. In order to make students understand the real-world applications of IoT, experiential leaning pedagogy was employed to facilitate these topics. Following steps were followed as a part of the pedagogy.</p> <p>Step 1: Introducing the various sensors in class room</p> <p>Step 2: Applications of the sensors and the specifications</p> <p>Step 3: Students participated in experiencing the various hardware of the sensors</p> <p>Step 4: Students to discuss the various feature of the sensors and actuators</p> <p>Students took active participation in the activity. Students understood the various sensors like temperature sensor, gas sensor, IR sensor, PIR sensor, moisture sensor, humidity sensors, sonic sensors, light sensors, load sensors.</p>
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Innovative Methodology-Inquiry based learning				
1	20ISE643A - OOMD	Revision on Second and Third Module	Mrs. J Karthiyayini	<p>Students were grouped and topics were assigned to them from second and third module. 10 groups were formed. Students from one group asked the question to other group based on the topics assigned to that group. Student eagerly asked the questions to their peers. After discussion, students felt happy that in one hour second internal portions got revised along with their peers.</p> 

				
Innovative Methodology-Problem Based Learning				
1	20ISE6- Compiler Design	Finite Automata	Dr. Mohan H S	<p>In order to make students understand and engage Problem based Learning is one of the best approaches. Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem. This problem is what drives the motivation and the learning.</p> <p>Problems based on Finite Automata (DFA, NFA) were explained to the students and basic problems were given to the students to practice.</p> 


Innovative Methodology- Flipped Learning				
1	21ISE36A- Operating systems	Page Replacement & CPU Scheduling Algorithms	Mrs. Neha Jadav	<p>CPU Scheduling: Scheduling of processes/work is done to finish the work on time. CPU Scheduling is a process that allows one process to use the CPU while another process is delayed (in standby) due to unavailability of any resources such as I/O etc, thus making full use of the CPU.</p> <p>Page Replacement: a page replacement algorithm is needed to decide which page needs to be replaced when a new page comes in. Students explained CPU Scheduling & Page Replacement Algorithms.</p>  
2	20ISE742A- Cloud	Cloud Infrastructure Services and Characteristics	Mrs. Latha S S	Flipping classroom allows students as a teacher. This lets students to correct them and help



	Computing	of cloud computing.		<p>them to understand how problem works In this Innovative teaching Best practices students Discussing about Cloud Infrastructure Services. It is offering of computing where the provider supplies on-demand access to computing resources such as networking, storage, and servers. Within the providers' infrastructure, clients run their platforms and applications.</p> 
Innovative Methodology-Case study-based Approach				
1	20ISE62A-Advanced Java	Servlet and DBMS connectivity	Mrs. Vandana CP	<p>J2EE Technology based case study topics were given to the students to prototype and show the demonstration of the same. Advanced Java being a very technical course, learning curve via project-based, thinking-based, problem-based, and competency-based was adopted. Students must develop their analytical problem-solving abilities. With the help of a group or individual projects, problem-solving exercises were</p>



				<p>provided to stimulate the development of skills in the students. Focus on the particular competencies of every student can considered to form group. Students used Servlet, JSP, html for coding the scenarios in the case study model: Ticket booking Room Reservation Hospital Management Attendance Management Assignment Tracking</p> 
Innovative Methodology- Discussion Approach				
1	21ISE36A - Operating System	Deadlock	Dr. Mohan H S	<p>Facilitating class discussions can be an extremely valuable pedagogical technique. A deadlock in OS is a situation in which more than one process is blocked because it is holding a resource and also requires some resource that is acquired by some other process. The four necessary conditions for a deadlock situation to occur are mutual exclusion, hold and wait, no pre-emption and circular set.</p>

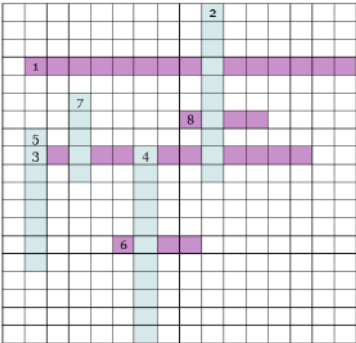
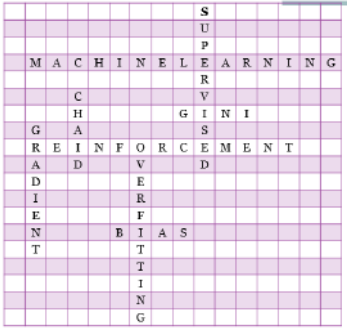
Criteria-5 Faculty Information and Contributions

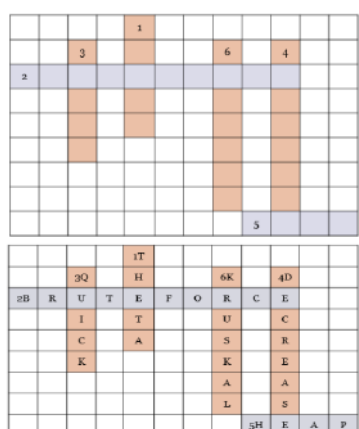
				
2	21ISE35A- Logical design and computer organization	Asynchronous Data Transfer, DMA	Dr. Sivaramakrishnan	<p>“Student Seminar” help students to prepare on a particular topic, improves their presentation skills, and provides a platform for students to discuss about the pros and cons of the technology.</p>  

3	21ISE36A - Operating systems	2-Dimensional Array	Mr. B.Kirankumar	<p>“Discussion Approach” is one in which the students and the instructor exchange their ideas in order to get a better understanding of a topic. It can be a whole period or be a part of a lesson. The discussion method, when used properly, is a good way to stimulate thinking on the part of the student.</p> 
Innovative Methodology -Peer Learning				
1	20ISE63A- Machine Learning	Training Convolution Neural Network (CNN)	Mrs. Shruthi	<p>Peer learning is an education method that helps students solidify their knowledge by teaching each other. One student tutoring another in a supervised environment can result in better learning and retention. Why? Because to teach another, one must first fully understand a concept themselves. Verbalizing a concept and sharing the information with a peer serves to reinforce the knowledge gained.</p> <p>Students were taught different layers of CNN separately with example. Now in the given topic - training CNN , all the layers has to be collaborated and to be demonstrated with a single example. Instead of repeating the topic, this peer learning methodology</p>

				<p>was introduced in the class.</p> <p>Students were allowed to sit in their comfortable group ensuring both slow, average and fast learners were in right mixture and allowed to write answer to the given question after discussing/teaching/listening and ensuring right answer. Topic was more clear when their own friends teaching the other. Showcased good team work as well.</p>  
Innovative Methodology- Gamified Learning				
1	20ISE63A- Machine Learning	Training Convolution Neural Network (CNN)	Mrs. Shruthi	Gamification is about applying gaming strategies to improve learning and make it more engaging for individuals. Gamification for learning can be beneficial because games instill lifelong skills such as

				<p>problem-solving, critical thinking, social awareness, cooperation, and collaboration.</p> <p>Students played a sudoku game and meanwhile understood the concepts of backtracking applied in the game. They were asked to analyze how their brains apply tricks and strategies to solve sudoku. Each team was given a time period of 10 minutes to solve a sudoku puzzle, 10 minutes to analyze and discuss among the team members, and 20 minutes to write the steps in the backpropagation algorithm and how it is applied in the Soduko game.</p> <p>Students were enthusiasts and enjoyed the gamified way of learning the tough topic - Backpropagation algorithm.</p>  
2	20ISE63A- Machine Learning	Puzzle- Algorithms in Machine Learning	Ms. Suvika K V	Two modules were completed. So, this teaching methodology was to check the understanding of the students in a fun way by giving puzzle which can be solved with the given clues of subject. It's an

				<p>individual task and the students were informed about the rules and first the puzzle with empty spaces were shown as below:</p>  <p>Then the clues were given for all the questions. The students enthusiastically solved all the puzzles and even started searching from Module 1 and Module 2 notes, ppt etc. It was like a revision by remembering all the important concepts. At last, the answers were displayed after collecting the written answers from them.</p> 
3	20ISE52A- Design and Analysis of Algorithms	Algorithms and its Analysis	Mrs. Divya K V	As a part of Games and simulation-based learning approach, the students were given with a puzzle which contains brainstorming questions related to algorithms and its analysis. The following questions were given:

				<ol style="list-style-type: none"> 1. I am a type of time complexity. I may not be the best but, I am not the worst also. I am a 5-letter asymptotic notation. What am I? 2. I am the easiest method you have come across. Read the problem statement and start solving. You followed me in string matching. Which method am I ? 3. I help you in sorting. You increment, decrement index values while comparing pivot element. Which sorting technique am I? 4. I sort only graphs or trees. Source removal method or topological sorting are the names you have used. I fall under which conquering method? 5. I am the method where you draw binary trees again and again to sort the elements. I am simple but lengthy sorting. What am I? 
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5.7 Faculty as participants in Faculty development/training activities/ STTPs (15)

A Faculty scores maximum five points for participation

Participation in 2 to 5 days Faculty/faculty development program: 3 Points

Participation >5 days Faculty/faculty development program: 5 points

Name of the Faculty	(Faculty development/training activities/STTPs)		
	CAY m1	CAYm2	CAYm3
	2021-22	2020-21	2019-20
Dr. R J Anandhi	3	3	3
Dr. K Saravanan	5	5	5
Dr. Arvind S Kapse	5	5	-
Dr. Mangayarkarasi	3	5	5
Dr. Nagendra Prabhu S	-	3	3
Dr. Subhashini	3	5	-
Dr. Kalaivani D	5	5	-
Dr. Senthil Kumar R	3	5	-
Dr. L Srinivasan	3	5	5
Dr. Gautam K S	3	5	-
Dr. Supriya S	-	5	-
Mrs. J Karthiyayini	5	5	5
Mrs. Shanmugam Shoba M	5	5	5
Mrs. Vandana. P	3	5	5
Mrs. Rafega Beham A	5	5	5
Mrs. Mounica. B	5	5	5
Mr. Gangadhar Immadi	3	3	5
Mrs. Swathi B	3	5	5
Mrs. Divya K V	3	5	5

Criteria-5 Faculty Information and Contributions



Mrs. Gowri Prasad	3	5	5
Mrs. Bilvika K M	5	5	5
Mrs. Mridula J	-	3	3
Mr. Santhosh Kumar B S	3	3	-
Mrs. Lohitha Mallireddy	5	5	-
Ms. Akshata Patil	5	-	-
Ms. Latha	3	-	-
Ms. Shruthi G R	3	-	-
Ms. Rama Bansidhar Dan	3	-	-
Ms. Suvika KV	3	-	-
Ms. Sony Kuriakose	3	-	-
Ms. Anusha	3	-	-
Ms. Priya N	3	-	-
Mr. J Karthick Mayilvahanan	3	-	-
Ms. Krishnaveni A	3	-	-
Mrs. Preethi J D	-	-	3
Mrs. Kavitha K K	-	-	3
Mrs. Shwetha K S	-	-	3
SUM	113	110	83
RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1	29	26	22
Assessment = $3 \times (\text{Sum}/0.5 \text{ RF})$ (Marks limited to 15)	23.38	25.38	22.64
Average assessment over last three years (Marks limited to 15) =23.8			15

5.8 Research and Development (75)

5.8.1 Academic Research (20)

Academic research includes research paper publications, Ph.D. guidance, and faculty receiving Ph.D. during the assessment period.

Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc. (15)

Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute (5)

All relevant details shall be mentioned

The Department of Information Science and Engineering encourages faculty members to participate in active research by participating in conferences, journal publications, MOOC courses, FDP participation etc.

Paper publications

Table 5.8.1 Summary of paper publications

Sl. No	Academic Year	Total No of Publications
1	2021-22	42
2	2020-21	33
3	2019-20	30

Criteria-5 Faculty Information and Contributions

Table 5.8.1.1 List of paper Publications: 2021-2022

Year 2021-22

Sl. No	Title of paper	Name of the author/s	Name of journal	Year of publication	ISSN number	Link to website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC list/Scopus/Web of Science/other, mention
1	An efficient scalable dynamic session identification framework for web usage mining.	Dr. R J Anandhi Mrs. H K Sowmya	International Journal of Information Technology	2022	1515-1523	https://link.springer.com/	https://link.springer.com/article/10.1007/s41870-022-00867-3	Springer
2	Semantic Based Weighted Web Session Clustering Using Adapted K-Means and Hierarchical Agglomerative Algorithms	Dr. R J Anandhi Mrs. H K Sowmya	Journal of Web Engineering	2022	1540-9589	https://journals.riverpublishers.com/index.php/JWE/index	https://journals.riverpublishers.com/index.php/JWE/article/view/6577	Springer

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3	Optimal Design and performance analysis of Vertically Stacked Nanosheet Tunnel Field Effect Transistor	Dr. Saravanan K	Springer-Silicon	2022	2633-1829	https://link.springer.com/article/10.1007/s12633-022-01829-x	Springer
		Mr.S. Anthominiraj					
4	WMLP: Web-based Multi-Layer protocols for Emergency Data Transmission in Mobile Ad Hoc Network	Dr.K. Saravanan	E3S Web of Conferences	2022	2267-1242	https://doi.org/10.1051/e3sconf/202129701065	Scopus
		Mr.S. Anthominiraj					
5	Power Adjustment Algorithm for Higher Throughput in Mobile Ad-Hoc Networks	K. Saravanan	E3S Web of Conferences	2022	2267-1242	https://doi.org/10.1051/e3sconf/202129701064	Scopus
		Mr.S. Anthominiraj					
		Mr. Kumarganesh					
6	Chronological salp swarm algorithm	Mr.T.Senthil Kumar	International Journal of	2022	https://doi.org/10.1002/ijof.1002	https://onlinelibrary.wiley.com/doi/abs/10.1002/ijof.1002	SCOPUS
		Dr. Srinivasan L					

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	based deep belief network for intrusion detection in cloud using fuzzy entropy	Dr Loheshwaran	Numerical Modeling: Electronic Networks, Devices and Fields	2022		1002/inm.2948	m/	/inm.2948	
7	Using multipath TCP and opportunistic routing in IoT network	Dr. Srimivasan L Dr Kalaivani	Proceedings of the Fourth International Conference on Smart Systems and Inventive Technology	2022	978-1-6654-0118-0	https://ieeexplore.ieee.org/document/9716336	https://ieeexplore.ieee.org/document/9716336	Scopus	
8	A Survey on Various Approaches to e-waste management	Dr. Srimivasan L Mr Manan Agarwal	2022 International Conference on Computer Communication and Informatics	2022	978-1-6654-8035-2	https://ieeexplore.ieee.org/abstract/document/9740930	https://ieeexplore.ieee.org/abstract/document/9740930	Scopus	
9	IoT Based Low-Cost Robotic Agent Design for Covid-19 affected people	Dr. Srimivasan L Mr Trivedh	Proceedings of the International Conference on Electronics and Renewable Systems	2022	978-1-6654-8425-1	https://ieeexplore.ieee.org/abstract/document/9751926	https://ieeexplore.ieee.org/abstract/document/9751926	Scopus	
10	Soft Support: Specially Abled	Dr. Srimivasan L	International Conference	2022	978-1-6654-	https://ieeexplore.ieee.org/document/9753219	https://ieeexplore.ieee.org/document/9753219	Scopus	

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	Communication	Ms Suvika	on Advanced Computing Technologies and Applications	2022	9515-8			
11	Android Based Fall Detection and Tracking App for Aged People	Mrs. Shanmugam Shoba	Artificial Intelligence and Smart Systems (ICAIS)	2022	978-1-6654-0052-7	http://icaise.in/2022/	https://ieeexplore.ieee.org/document/9743024/authors#authors	Scopus
12	A Review on Data Hiding Mechanism for Enhancing Embedding Capacity	Dr. Arvind. S. Kapse	Second International Conference on Sustainable Expert Systems	2022	978-981-16-7657-4	https://link.springer.com/chapter/10.1007/978-8-981-16-7657-4_40	https://link.springer.com/chapter/10.1007/978-981-16-7657-4_40	Scopus
13	An Effective High Level Capacity Reversible Data Hiding in Encrypted Images	Dr. Arvind S. Kapse	IEEE	2022	ISBN:978-1-6654-0053-4	https://ieeexplore.ieee.org/document/9742887/metrics#metrics	https://ieeexplore.ieee.org/document/9742887/metrics#metrics	Scopus
14	Android Based Fall Detection and	Arvind S Kapse	IEEE	2022	ISBN: 978-1-	https://ieeexplore.ieee.org/document/9742887/metrics#metrics	https://ieeexplore.ieee.org/document/9743024	Scopus

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	Shanmugam Shoba										
15	Tracking App for Aged People	Shanmugam Shoba	2022	International Journal of Business Data Communications and Networking	2022	DOI: 10.4018/IJBDN.309412	6654-0052-7	https://www.igi-global.com/article/shuffled-squirrel-optimization-and-fractional-lms-model-for-in-network-aggregation-in-wireless-sensor-network/309412	Scopus, WOS		
16	Shuffled Squirrel Optimization and Fractional LMS Model for In-Network Aggregation in Wireless Sensor Network	Dr-Mohan H. S	2022	International Journal of Business Data Communications and Networking	2022	DOI: 10.4018/IJBDN.309412	6654-0052-7	https://www.igi-global.com/article/shuffled-squirrel-optimization-and-fractional-lms-model-for-in-network-aggregation-in-wireless-sensor-network/309412	Scopus, WOS		
16	Detection of Face Mask: A Systematic Approach	Dr-Subhashini S J	2022	2022 3rd International Conference for Emerging Technology (IN CET)	2022		978-1-6654-9499-1	https://ieeexplore.ieee.org/document/9824524	Scopus		
17	A Review on Digital Coin Investing Predictor	Dr-Subhashini S J	2022	2022 International Conference for Advancement in Technology (ICONAT)	2022		978-1-6654-2577-3	https://ieeexplore.ieee.org/document/9726092	Scopus		
18	Comparative Analysis of Algorithms for Recognizing Emotions by Eye	Dr-Subhashini S J	2022	2022 International Conference for Advancement in Technology (ICONAT)	2022		978-1-6654-2577-3	https://ieeexplore.ieee.org/document/9725875	Scopus		

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Blink	nt in Technology (ICONAT)	2022	2169-3536	https://10.1109/ACCESS.2021.3059863	https://10.1109/ACCESS.2021.3059863	Scopus
19	Block chain-based IoT Device Security	Mrs. Vandana, C.P.	2022	2169-3536	https://10.1109/ACCESS.2021.3059863	Scopus
20	Automated Test Case Prioritization and Evaluation using Genetic Algorithm	Mrs. Baswaraju Swathi	2022	978-1-6654-6883-1	https://ieeexplore.ieee.org/abstract/document/9885260/proceeding	Scopus
21	Survey on IOT Based Pothole Detection	Mrs. Baswaraju Swathi Dr. Anandhi RJ	2022	978-1-6654-5883-2	https://ieeexplore.ieee.org/document/9753122	Scopus
22	Survey on IoT based Farm Freshness Mobile Application	Mrs. Baswaraju Swathi	2022	978-1-6654-9515-8	https://ieeexplore.ieee.org/document/9752796?	Scopus

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23	IoT based Divyang Assistant Technology: Your Hearing Support	Mrs.Divyaa KV	IEEE Xplore	2022	978-1-6654-8425-1	https://ieeexplore.ieee.org/document/9752307	Scopus
24	Survey on IoT based E-Farming Technology Enabled Farming	Mrs. Shoba Shanmugam M	International Conference on Sustainable Computing and Data Communication Systems (ICSCDS)	2022	978-1-6654-7884-7	https://ieeexplore.ieee.org/document/9760870	Scopus
25	IOT based AquaSwach	Mrs.Karthiyayini J	2nd International Conference on Artificial Intelligence and Signal Processing.	2022	2640-5768	https://ieeexplore.ieee.org/document/9760657	Scopus
26	Flower Identification System Using Vision Based Technique	Mrs. Priya N Mrs Akshatha Patil Mrs Rama Bansidhar	2nd International Conference on Artificial Intelligence and Signal Processing (AISP)	2022	2640-5768	https://ieeexplore.ieee.org/document/9760663	Scopus

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27	Using multipath TCP and opportunistic routing in IoT network	Dr Kalaivani, D. Dr Srinivasan, L. Dr Saravanan, K.	International Conference on Smart Systems and Inventive Technology (ICSSIT)	2022	978-1-6654-0119-7	https://ieeexplore.ieee.org/document/9716336	Scopus	
	28	Humanoid Robotics Ad-Hoc Network (HURANET) using Kalman Filtering Method	Mr. J Karthick Myilvahanan	13th International Conference on Advances in Computing, Control, and Telecommunication Technologies	2022	2395-5295	http://thegrenz.com/index.php?display=page&view=journalabstract&absid=1270&id=8	Scopus
	29	Flower Identification system using vision based technique	Mrs. Rama Bansidhar Dan	2022 2nd International Conference on Artificial Intelligence and Signal Processing (AISP)	2022	2640-5768	https://ieeexplore.ieee.org/document/9760663	Scopus
30	Block chain Based Framework for Document Verification	Mrs. Anusha Shettar	2022 2nd International Conference on Artificial Intelligence and Signal Processing (AISP)	2022	2640-5768	https://ieeexplore.ieee.org/document/9760651?	Scopus	

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31	Secured Eye Pay: An E-payment Application for visually impaired people	Mrs. Latha S	2022 International Mobile and Embedded Technology Conference (MECON),	2022	978-1-6654-2020-4	https://ieeexplore.ieee.org/document/9752334	https://ieeexplore.ieee.org/document/9752334	Scopus
32	Block chain Based Framework for Document Verification	Mrs. Latha S	2nd International Conference on Artificial Intelligence and Signal Processing (AISP'22)	2022	2572-1259	https://ieeexplore.ieee.org/document/9760651	https://ieeexplore.ieee.org/document/9760651	Scopus
		Mrs. Priya N						
		Mrs. Anusha Shettar						
33	A communication for aid application for the physically handicapped	Dr. K. Saravanan	International Research Journal of Engineering and Technology	2021	2395-0056	https://www.ijret.net/archives/V8/i7/IRJET-V8I7507.pdf	https://www.ijret.net/archives/V8/i7/IRJET-V8I7507.pdf	UGC
34	A Review on Classification of Techniques for IoT Based Home Security	Dr. Arvind S. Kapse	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2021	2456-3307	https://ijsrseit.com/	https://ijsrseit.com/paper/CSEIT21841.pdf	UGC

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35	Performance Analysis of Effective Video Copy detection Technique of Multimedia Content in Cloud Environment	Dr. Arvind S. Kapse	The International journal of analytical and experimental modal analysis	2021	0886-9367	https://ijaema.com/	https://drive.google.com/file/d/1jZwl_q5CPWVVC7OtdxBpbnAhhDycz6fZ/view	UGC
36	Performance Analysis of Effective Video Copy detection using AES & KNN Algorithm of Multimedia Content in Cloud Environment	Dr. Arvind S. Kapse	International Journal Of Scientific Research In Engineering And Management (IJSERM)	2021	2582-3930	https://ijaema.com/	http://ijsrem.com/volume-05-issue-08-august-2021/	UGC
37	Review on IoT-Mobile App based on Rural Development in Terms of Agriculture	Dr Saravanan	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2022	2278-3075	https://www.ijitee.org/	https://www.ijitee.org/wp-content/uploads/papers/v11i3/C96960111322.pdf	UGC
38	Multi criteria decision based ranked discovery framework for iot resources	Mrs. Vandana C P	INDIAN JOURNAL OF COMPUTER SCIENCE AND	2021	0976-5166	http://www.ijcse.com	http://www.ijcse.com/docs/INDJCSE21-12-05-138.pdf	UGC

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	ENGINEER ING(IJCSE) e-									
39	Raspberry Based robotic Device for women Safety	Dr. Kalaivani D	2022	0974- 5823	https://kalaharijournals.com/resources/JUNE-102.pdf	UGC				
40	Smart Glove for Blind	Dr.P Mangayarkarasi Dr. Anandhi R J	2022	2175977 8	https://ieeexplore.ieee.org/document/9752913	Scopus				
41	Block chain – based IoT device security	Mrs. Vandana C P Saravanan Kalaivanan	2022	2174434 5	https://ieeexplore.ieee.org/document/9760674	Scopus				
42	Review Paper on E-Traffic Police IoT Based Auto- Detection of Traffic Rule Violation	Mrs. Priya N	2022	2278- 3075	https://www.ijitee.org/wp-content/uploads/papers/v11i18/G99960611722.pdf	UGC				

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Year 2020-2021

Sl.No	Title of paper	Name of the author/s	Name of journal	Year of publication	ISSN number	Link to website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC list/Scopus/ Web of Science/other, mention
1	Automatic Social Distancing System Using Thermal Scanners In Huge Auditorium Or Conference Hall Entrances	Dr. Anandhi RJ	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	https://www.irjet.net/	https://www.irjet.net/https://www.irjet.net/archives/V8/i7/IRJET-V8I7763.pdf	Scopus
2	Acoustic Echo Cancellation For E-Learning Platform	Dr. Anandhi RJ	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V8/i7/IRJET-V8I7722.pdf	Scopus

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3	A communication aid application for the physically handicapped	Dr. Saravanan	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	www.irjet.net	Scopus
4	An Enhanced Surveillance Bot for Identification of Mask Defaulters	Dr. Srinivasan L	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	https://www.irjet.net/archives/V8/i7/IRJET-V8I7422.pdf	Scopus
5	Comprehensive Analysis of Cloud based Databases	Dr.Senthil Kumar R	Comprehensive Analysis of Cloud based Databases	2021	1757-899X	https://iopscience.iop.org/article/10.1088/1757-899X/1131/1/012021/meta	Scopus
6	Air quality index analysis of Bengaluru city air pollutants using Expectation Maximization clustering	Dr.Senthil Kumar R	IEEEExplore	2021	978-1-6654-2829-3	https://ieeexplore.ieee.org/document/9675669	Scopus

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10	Improving the Performance of TCP Flows in Wireless Networks by Using TCP Aware Back pressure and AODV Algorithms	Dr. S. J. Subhashini	Turkish Journal of Computer and Mathematics Education	2021	1309-4653	https://www.turcomat.org/index.php/turcomat/article/view/4690/3917	Scopus
11	Fault Tolerant Cross Layer Scheme Using Virtual Cluster Head for Heterogenous Sensor Networks	Dr. S. J. Subhashini	Comptes rendus de l'Academie bulgare des Sciences, Vol 74, No11, pp.1657-1666	2021	1310-1331	http://www.proceedings.bas.bg/_11.html	WOS
12	Lung Cancer Detection and Severity Level Classification Using Sine Cosine Sail Fish Optimization	Dr. Nagendra Prabhu S	The Computer Journal	2021	0010-4620	https://academic.oup.com/comjnl/advance-article-abstract/doi/10.1093/comjnl/141/6399871?redirectedFrom=fulltext	SCI

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	Based Generative Adversarial Network with CT Images						https://doi.org/10.1002/online.1416399871		
13	Exponentially- spider monkey optimization based allocation of resource in cloud	Dr. Nagendra Prabhu S	2021	2521- 2542	International Journal of Intelligent Systems (Wiley)		https://onlinelibrary.wiley.com/doi/abs/10.1002/int.22783	SCI	
14	An Ameliorated Ensemble Approach for IoT Resource Feature Selection Based on Discriminating and Service Relevance Criteria	Mrs. Vandana .C.P	2021	2185- 3118	International Journal of Intelligent Engineering & Systems		http://www.inass.org/2021/2021063036.pdf	Scopus	

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15	Video Analytics based Intelligent Transport System for passenger flow forecast and Social Distancing Indication	Mr. Gautam	Turkish Journal of Computer and Mathematics Education	2021	1309-4653	https://www.turcomat.org/index.php/turkbilmat/article/view/3646	Scopus
16	Strategies for Boosted Learning Using VGG 3 and Deep Neural Network as Baseline Models	Mr. Gautam	Under: Lecture notes in Data Engineering and Communication Technology, Published in: Intelligent Data Communication Technologies and Internet of Things	2021	ISBN: 978-981-15-9508-0	https://www.springerprofessional.de/en/strategies-for-boosted-learning-using-vgg-3-and-deep-neural-netw/18874238	Springer
17	Designing a prototype for Mentally Challenged and Alzheimer Patients	Dr. Saravanan K	International Journal of Scientific Research in Computer Science, Engineering d	2021	2456-3307	https://www.academia.edu/91070733/Designing_a_prototype_for_Mentally_Challenged_and_Alzheimer_Patients	UGC

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18	Personalized Web Search: A Review	Dr. Arvind S Kapse	Information Technology	2020	2456-3307	https://ijsrceit.com/PDF.php?pid=CSEIT20316&v=4&j=11&y=2020&m=September	UGC
19	Smart Band for Monitoring Vitals for Elderly People in Quarantine	Mrs. J. Karthiyayini	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2021	2321-9653	https://www.ijsrceit.com/archivedetail.php?AID=121	UGC
20	IoT based auto-alert and follow-up of covid-19 cases in an educational campus	Ms. Lohitha Mallireddy	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2021	2321-9653	https://www.ijsrceit.com/fileserve.php?FID=37255	UGC

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21	An Approach to Credit Card Fraud Detection	Ms. Divya K V	International Journal of Research in Engineering and Science (IJRES)	2021	2320-9356	https://www.ijres.org/	https://www.ijres.org/papers/Volume-9/Issue-7/Series-12/H09074449.pdf	UGC
		Ms. Swasti Choudhary						
22	Feature Selection: An empirical Study	Mrs. Vandana C P	International Journal of engineering trends and technology	2021	2231-5381	https://www.researchgate.net/	https://www.researchgate.net/publication/347252280_Feature_Selection_An_Empirical_Study	UGC
		Dr Ajeeth A						
23	Association Rule Based Recommendation System Using Map reduce	Mrs. Divya K V	International Conference on Innovative Research in Engineering, Management and Sciences	2021	2456-330	https://ijrescit.com/	https://ijrescit.com/paper/CSEIT19491158.pdf	UGC

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24	IoT Based Hygiene Monitor for Senior Citizens and Mentally Challenged	Mrs.Mounica B	International Journal of Scientific Research in Computer Science, Engineering and Information Technology IJSRCSEIT	2021	2456-3307	https://doi.org/10.32628/CSEIT217458	UGC
25	Traffic Analysis Using Artificial Neural Network	Mrs.Mounica B	International Journal of Scientific Research in Science and Technology	2021	2456-3307	https://www.researchgate.net/publication/354300612_Traffic_Analyses_Using_Artificial_Neural_Network	UGC
26	Cost effective social distance maintenance in primary schools	Mrs. Vandana CP	International Journal of Advance Research Ideas and Innovations in Technology	2021	2454-132X	https://www.ijarrit.com/manuscripts/v7i4/V7I4-1402.pdf	UGC

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27	Land Use Case and Utilization Classification using CNN	Dr. P. Mangayarkarasi	International Journal of Research in Engineering and Science (IJRES)	2021	2320-9364	https://www.ijres.org/	https://www.ijres.org/papers/Volume-9/Issue-7/Series-15/G09074045.pdf	UGC
28	Remote Monitoring And Control Unit Of Solar Photo Voltaic Plant Using IoT	Dr. P. Mangayarkarasi	International Journal of Research in Engineering and Science (IJRES)	2021	2320-9356	https://www.ijres.org/	https://www.ijres.org/papers/Volume-9/Issue-7/Series-7/C09071013.pdf	UGC
29	Face and Hand Gesture Recognition System for Controlling VLC Media Player	Mrs.K M Bilvika	International Journal of Scientific Research in Science and Technology	2021	2456-3307	https://www.researchgate.net/	https://www.researchgate.net/publication/354303600_Face_and_Hand_Gesture_Recognition_System_for_Controlling_VLC_Media_Player	UGC
30	Statistical Analysis and Visualization of Covid-19	Mrs. Shanmugam Shoba	International Research Journal of Engineering and Technology (IRJET)	2021	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V8/i7/IRJET-V8I7393.pdf	UGC

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31	Automatic Detection of Crimes Captured in CCTV Images for Safety of Senior Citizens	Mrs. Swathi Baswaraju	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2021	2456-3307	https://www.researchgate.net/	https://www.researchgate.net/publication/354308332_Automatic_Detection_of_Crimes_Captured_in_CCTV_Images_for_Safety_of_Senior_Citizens	UGC
32	Implementation of Voice based Touchless Lift System	Mrs. Swathi Baswaraju	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2021	2456-3307	https://www.academia.edu/	https://www.academia.edu/51338718/Implementation_of_Voice_based_Touchless_Lift_System	UGC
33	Feature Learning and Analysis of Pre Existing Conditions Prone to Covid Virus During Second Wave	Mrs. Karthiyayani J	International Journal of Innovative Research in Technology	2021	2349-6002	https://ijirt.org/	https://ijirt.org/master/publishedpaper/IJIRT152431_PAPER.pdf	UGC

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Year 2019-2020

Sl.No	Title of paper	Name of the author/s	Name of journal	Year of publication	ISSN number	Link to website of the Journal	Link to article/paper/abstract of the article	Is it listed in UGC list/Scopus/Web of Science/other, mention
1	An Exhaustive Algorithm for Preprocessing of Web Log File.	Sowmya, H.K. Anandhi, R. J	International Journal of Engineering Trends and Technology	2020	2231-5381	http://www.ijettjournal.org/	https://www.internationaljournalssrg.org/uploads/specialissuepdf/ICT-2020/2020/OTHERS/P107.pdf	Scopus
2	Diversity based self-adaptive clusters using PSOclustering for crime data	Pati, S. Anandhi, R. J.	International Journal of Information Technology	2019	12, pages 319-327 (2020)	https://link.springer.com/article/10.1007/s41870-019-00311-z	https://link.springer.com/article/10.1007/s41870-019-00311-z	Springer
3	Quality of service (QoS) and priority aware models for energy efficient and demand	Dr. Saravanan	Springer Nature - Journal of Ambient Intelligence and Humanized Computing	2019	4019-4026	https://doi.org/10.1007/s12652-020-01769-7	https://doi.org/10.1007/s12652-020-01769-7	Scopus

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	routing procedure in mobile ad hoc networks												
4	Dynamic Reusability Prediction Model for SMEs Based on Real time Constraints	Dr. P. Mangayarkarasi Dr. R. Selvarani	International Journal of Engineering Trends and Technology	2020	2231-5381	https://ijetjournal.org/	https://www.internationaljournalssrg.org/uploads/specialissuepdf/ICT-2020/2020/OTHERS/P111.pdf	Scopus					
5	S-COAP: Semantic Enrichment of COAP for Resource Discovery	Vandana CP	Springer Nature Computer Science	2020	https://doi.org/10.1007/s42979-020-0104-y	https://www.springer.com/journal/42979	https://link.springer.com/article/10.1007/s42979-020-0104-y	Springer					
6	Robust Classifier Design with Ensemble Neural Network using Differential	Shobha T	International Journal of Engineering Trends and Technology	2020	2231-5381	https://ijetjournal.org/	http://www.internationaljournalssrg.org/uploads/specialissuepdf/ICT-2020/2020/OTHERS/P127.pdf	Scopus					

Criteria-5 Faculty Information and Contributions

	Anandhi R. J										
Evolution.											
7	Dr. P. Mangayarkarasi Muhammad Shahbaz Khan Sumil K A Pramod Sencha N	International Research Journal of Engineering and Technology (IRJET)	2020	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V7/i4/IRJET-V7I4I93.pdf	UGC				
8	Dr. P. Mangayarkarasi Akhilendu Anakha A S Meghashree K Faris A B	International Research Journal of Engineering and Technology (IRJET)	2020	2395-0056	https://www.irjet.net	https://www.irjet.net/archives/V7/i5/IRJET-V7I5915.pdf	UGC				

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9	Automated Software Design Reusability using a Unique Machine Learning Technique	P. Mangayarkarasi	International Journal of Innovative Technology and Exploring Engineering (IJITEE)	2020	2278-3075	http://www.ijitee.org	https://www.ijitee.org/wp-content/uploads/papers/v9i5/E3010039520.pdf	UGC
10	Abadent Object Detection & IOT Based Multi-sensor Smart Robot for Surveillance Security System	Srinivasan. L Nalini. C	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2019	2456-3307	https://ijsrscsit.com/	https://ijsrscsit.com/paper/CSEIIT19491107.pdf	UGC
11	Landmine Detection using Wireless Robot	Vachan B D B S Deepthi Geetha B C L Srinivasan	International Research Journal of Engineering and Technology (IRJET)	2020	2395-0056	https://www.irjet.net	https://www.irjet.net/archives/V7/i4/IRJET-V7I4132.pdf	UGC

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12	Solar based Automatic Speed Control of Vehicles in Sensitive Zones	Monisha S M Janav S Pavan Kumar M G L Srinivasan	International Journal of Engineering Research & Technology (IJERT)	2020	2278-0181	https://www.ijert.org/	solar-based-automatic-speed-control-of-vehicles-in-sensitive-zones	UGC
13	License plate recognition and detection using Machine Learning	Karthiyayini J Dr. V. Hanuman Kumar	International journal of research in applied science and engineering technology	2020	2321-9653	https://www.academia.edu/	Food and Nutrition Evaluation for the Visually Impaired	UGC
14	Charging station for E-Vehicles using solar with IOT	J Karthiyayini N Swetha	International journal of research in applied science and engineering technology	2020	2321-9653	https://www.academia.edu/	Charging Station for E Vehicle s using Solar with Io T	UGC

Criteria-5 Faculty Information and Contributions

15	Drone Assisted Effective Pesticide Sprayer	Vandana C P Anuj Prakash Arnab Monisha Taj	International Journal of Scientific Research in Computer Science Engineering and Information Technology	2020	2456-3307	https://www.researchgate.net/publication/346728350_Drone_Assisted_Effective_Pesticide_Sprayer	UGC
16	Solar Energy Equipped IoT Based Vacuum Cleaner	Vandana CP Nikitha Sanjana	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2020	2456-3307	https://www.researchgate.net/publication/345780720_Solar_Energy_Equipped_IoT_Based_Vacuum_Cleaner	UGC
17	Deforestation Control and Forest Monitoring using Internet of Trees	Divya K V	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2020	2456-3307	https://ijsrcs.eit.com/paper/CSEIT206340.pdf	UGC
18	Hand Gesture	Divya K V	International Journal	2020	2456-	https://ijsrcs.com/CS	UGC

Criteria-5 Faculty Information and Contributions

	Recognition and Voice Conversion for Hearing and Speech Aided Community	Harish E Nikhil Jain D Nirdesh Reddy B	of Scientific Research in Computer Science, Engineering and Information Technology		3307	eit.com/	https://ijsrcs.com/paper/CSEIT2062129.pdf	UGC
19	Voice for the Paralytic Victims	Divya K V Lakshmi K S Amithesh K N Vishak J U	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2020	2456-3307	https://ijsrcs.com/	https://ijsrcs.com/paper/CSEIT19491158.pdf	UGC
20	Association Rule Based Recommendation System Using Mapreduce	Divya K V	International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2019	2456-3307	https://ijsrcs.com/	https://ijsrcs.com/paper/CSEIT19491158.pdf	UGC

Criteria-5 Faculty Information and Contributions

21	House Price Prediction Analysis using Machine Learning	Swathi B Shravani V	International Journal for Research in Applied Science & Engineering Technology	2019	2321-9653	https://www.ijraset.com/	https://www.ijraset.com/fileserve.php?FID=22740	Other
22	Test Case Generation Process using Soft Computing Techniques	Baswaraju Swathi Harshvardhan Tiwari	International Journal of Innovative Technology and Exploring Engineering (IJTTEE)	2019	2278-3075	https://www.ijitee.org/	https://www.ijitee.org/wp-content/uploads/papers/v9i1/A4302119119.pdf	UGC
23	Implementation of Improved Billing System	Baswaraju Swathi Abhishek kumar	International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT)	2020	2456-3307	https://www.researchgate.net/	https://www.researchgate.net/publication/345776202_Implementation_of_Improved_Billing_System	UGC

Criteria-5 Faculty Information and Contributions

24	Color Blindness Algorithm Comparison for Developing an Android Application	Baswaraju Swathi Koushalya R	International Research Journal of Engineering and Technology (IRJET)	2020	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V7/i5/IRJET-V7I5687.pdf	UGC
25	Covid-19 Visualize	Mrs M Shanmugam Shoba P Nymisha Shanmathi Kailasam Bhawik Tanna	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2020	2321-9653	https://www.iraset.com/	https://scholar.google.co.in/scholar?q=Statistical+Analysis+and+Visualization+of+Covid-19+m+shannugam+shobha&hl=en&as_sdt=0&as_vis=1&oi=scholar	UGC
26	Crop Yield Prediction using Machine	Mrs M Shanmugam Shoba	International Research Journal of Engineering and	2020	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V7/i4/IRJET-V7I4642.pdf	UGC

Criteria-5 Faculty Information and Contributions

	Learning Algorithm	Vijay Hegde S			Technology (IRJET)	2019	2456-3307	ISSN : https://www.ijrscseit.com/CS/EIT19491106	UGC
		Yashvanth C V	S Chandra Kiran	Mrs M Shanmugam Shoba					
27	Enhancement of Signature Schemes for Heightening Security in Block chain	Dr. Rekha B Venkatapur		IJSRCSEIT					
28	Traffic Surveillance Using Smart Drone	Mounica. B Sathya N		International Journal of Scientific Research in Computer Science, Engineering and Information Technology	2020	2456-3307	https://www.academia.edu/44776611/Traffic_Surveillance_Using_Smart_Drone	UGC	
29	Traffic Density Management using Movable Divider and RFID	Gangadhar Immadi		International Research Journal of Engineering and Technology (IRJET)	2020	2395-0072	https://www.ijret.net/archives/V7/i5/IRJET-V7I51167.pdf	UGC	

Criteria-5 Faculty Information and Contributions



30	Heart Arrhythmia Detection using Deep Learning	Ameena Anwar	International Research Journal of Engineering and Technology (IRJET)	2020	2395-0056	https://www.irjet.net/	https://www.irjet.net/archives/V7/15/IRJET-V7I5658.pdf	UGC
		Bilvika K M, A.						
		Amir Sohail Baig Amal Singh Bhadauria						

Book Publications

Table 5.8.1.2 Summary of Book Publications/Book Chapters

Sl. No	Name of the Faculty	Title of the Book published	Title of the Chapter published	Title of the proceedings of the conference	Name of the conference	National / International	Year and month of publication	ISBN of the Book/Conference	Name of the Publisher
1.	Mrs.Karthiyayini Mrs.Shoba Mrs.Divya K. V	Java Programming For Absolute Beginners	Book	NA	NA	NA	July 2023	ISBN: 978-935574467-8	Walnut Publication

Criteria-5 Faculty Information and Contributions

	Dr. Srinivasan Dr Saravanan Dr Kalaivani	Learn Python- The easy way	Book	NA	NA	NA	-	2022	978-935574-12	Walnut Publication
2.	Dr. Arvind S. Kapse	NA	Cloud Computing Technologies for Smart Agriculture and Healthcare	NA	NA	NA	National	Dec-2021	9781032068039	CRC Press, Taylor & Francis Group
3.	Dr. Srinivasan L Dr.K.Saravanan Dr.Kalaivani D	Python Programming	NA	NA	NA	NA	NA	Aug-2022	9789355741912	Walnut Publication
4.	Dr. Saravanan, Dr R J Anandhi, Dr.Srinivasan	Mobile Application Development using ANDROID	NA	NA	NA	NA	NA	Feb-21	978-939078543	Walnut Publications
5.	Mr. Gautam, K.S., Kaliappan, V.K., Akila, M.	Lecture Notes on Data Engineering and Communications Technologies	Strategies for Boosted Learning Using VGG 3 and Deep Neural Network as Baseline Model	Intelligent Data Communication Technologies and Internet of Things	ICICI 2020	International	2021	Print ISBN: 978-981-15-9508-0	978-939152227-8	Publisher: Springer Singapore
6.	Mrs. Divya. K. V, Dr.Thirukkumara n, Dr. Anthoniraj	Mobile Application Development with simple exercises	NA	NA	NA	NA	NA	Feb-22	978-939152227-8	Walnut Publications

Criteria-5 Faculty Information and Contributions

7.	Dr. Mangayarakarasi, Dr.Kalaivani, Ms.Karthiyayini	Data Structures and Algorithms Implementation using C Language	NA	NA	NA	NA	978-939152234-6	Walnut Publications
8.	Dr. Arvind P. Kapse	Cloud Computing Technologies for Smart Agriculture and Healthcare	Importance of Cloud Computing Technique in Agriculture Field using Different Methodologies	NA	NA	NA	9781003203926	Chapman and Hall
9.	Dr. Kalaivani D	Innovating with Augmented Reality	Modernized Healthcare using Augmented Reality- Applications in Education and Industry	NA	NA	NA	9781032008127	Auerbach publications

Ph.D. Guidance

Table 5.8.1.3 Ph.D. guided during the assessment periods while working in the institute with NHCE as Research Centre

Sl. No	Faculty Name	No of Students Guided/Guiding	University Name & Research Centre
1	Dr. Mohan H S	4/4	VTU-NHCE
2	Dr. R J Anandhi	2/4	VTU-NHCE
3	Dr. Mohan Kumar	2/0	VTU-NHCE
4	Dr. Saravanan	0/3	VTU-NHCE
5	Dr. Arvind Kapse	0/4	VTU-NHCE

Criteria-5 Faculty Information and Contributions

PhD awarded

Table 5.8.1.4 Ph.D. awarded during the assessment periods while working in the Institute

Sl. No	Name of Faculty Member	University	Year of Completion	Research Area	Research Title	Guide's Name
1	Dr. Srinivasan L	Anna University	2020	Datamining	An Improved Framework for Authorship Identification in online message using clustering techniques and metaheuristic algorithms	Dr. Nalini
2	Dr Gautham	Amrita University	2021	Video Analytics	Design and Development of Algorithms for Anomaly Detection in Video	Dr. T Senthil Kumar
3	Dr. Swathi	Jain University	2023	Soft computing	Incorporating Soft computing Technique for Test Optimization	Dr. Harshavardhan Diwari
4	Dr. Vandana	VTU	2023	IOT	Design of Resource Discovery Framework in Internet of Things	Dr. Ajeet Chikkamannur

Criteria-5 Faculty Information and Contributions

Table 5.8.1.4a List of Scholars other than regular faculty members awarded PhD during the assessment period

Sl. No	Name of the Scholar	University	Year of Completion	Research Area	Research Title	Guide's Name
1	Ms. Sowmya HK	VTU	2023	Web mining	Session Identification and Optimization Framework for Web Usage Mining	Dr. R. J. Anandhi
2	Ms. Anisha Rebinath	VTU	2023	Image Processing	Design And Implementation Using Multiple Kernel Learning Approach for Glaucomatous Image Classification-Cad System	Dr. Mohan Kumar
3	Mr. Darpan Kumar	VTU	2023	Image Processing	Applications Of Edge Computing Paradigms in Iot Based Distributed Computing Systems for Health Care Solutions Using Machine Learning tools	Dr. Mohan Kumar

Criteria-5 Faculty Information and Contributions

5.8.2 Sponsored Research (20)

Funded research from outside; Cumulative during CAYm1, CAYm2 and CAYm3

Amount > 50 Lakh – 20 Marks,

Amount >40 and < 50 Lakh – 15 Marks,

Amount >30 and < 40 Lakh – 10 Marks,

Amount >15 and < 30 Lakh – 5 Marks,

Amount< 15 Lakh – 0 Marks

Details of funded projects received by the faculty members

Academic Year 2021-22

Name of the faculty	Project Title	Project Type Research/Consultancy	Funding Agency	Amount	Duration
Dr. R.J Anandhi Mrs. Swathi Baswaraju	(Enhancement) -Android based application to detect potholes and uneven roads	Sponsored Research	Karnataka State Council for Science and Technology	6000	2021-22
Dr. Kalaivani D Dr. R J Anandhi	A raspberry pi based robotic device for women safety	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Mrs. Lohitha Mallireddy Dr. R. J. Anandhi	Secure haven – an anti-theft application for android	Sponsored Research	Karnataka State Council for Science and Technology	4500	2021-22
Mrs. M Shobha Shanmugam Dr. Kalaivani D	Hybrid cryptographic technique for secured storage of health records	Sponsored Research	Karnataka State Council for Science and Technology	4500	2021-22

Criteria-5 Faculty Information and Contributions

Mrs. Karthiyayini Dr. R J Anandhi	Dynamic route schedule for garbage collection.	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Mr. L Srinivasan Dr. R J Anandhi	app for enhanced logistics and effective management of e-waste	Sponsored Research	Karnataka State Council for Science and Technology	3000	2021-22
Mrs. Anusha Shettar Dr. R J Anandhi	IoT based system for sandalwood trees protection and cultivation	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Ms. Akshatha Patil Dr. R. J. Anandhi	customer friendly IoT based touch less shopping.	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Ms. Priya N Dr. Kalaivani d	e-traffic police IoT based auto-detection of traffic rule violation	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Dr. Gautam k s Dr. Arvind S Kapse	optimization in solar energy harvesting	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Dr. R J Anandhi Mrs. Divya K V	e-hearing aid	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Dr. Arvind s. Kapse Mrs. Shanmugam Shobha M	e-assistant: support for elderly/parkinson patients	Sponsored Research	Karnataka State Council for Science and Technology	5000	2021-22
Dr. Manjunatha Dr. Saravanan K Dr. Gurulakshmi B	Scheme for Promoting Interest Creativity and Ethics Among Students (Spices)	Sponsored Research	All India Council for Technical Education	100000	2021-22
Dr. Giriprasad C	A comprehensive analysis of	Sponsored Research	VGST	300000	2021-22

Criteria-5 Faculty Information and Contributions

Dr. Arvind Kapse	SPT-CPT Correlation for soil modulation in Benaguru city.					
Dr. R J Anandhi	Slim Satellite: On Board Computer (OBC), Coding and Programming along with Testing	Sponsored Research	Sat NOGS Mobile App for Ground Station-Phase 3	120000	2021-22	
Dr. Srinivasan	Responsibilities, SatNOGS					
Dr. P. Mangayarkarasi	MobileApp for Ground Station-Phase 3					
Mr. Gangadhar						
Immadi						
Mrs. Mounica						
Mrs. Shobha						
Shanmugam						
Total Amount Sanctioned Rs.				16,58,000		

Academic Year 2020-21

Name of the faculty	Project Title	Project Type	Funding Agency	Amount	Duration
Dr. R J Anandhi	STTP	Sponsored Research	All India Council for Technical Education	25000	2020-21
Dr. R J Anandhi Mrs. K M Bilvika	3D Printed Model for Toothbrush with Toothpaste Pouch for Elderly	Sponsored Research	Karnataka State Council for Science and Technology	4000	2020-21

Criteria-5 Faculty Information and Contributions

Mrs. Gowri prasad Dr. R. J Anandhi	iRing – A smart finger for the visually challenged	Sponsored Research	Karnataka State Council for Science and Technology	4500	2020-21
Dr. Supriya Suresh Dr. R. J Anandhi	Feature learning and analysis of pre-existing conditions prone to COVID Virus during second wave using Binary Markov random fields.	Sponsored Research	Karnataka State Council for Science and Technology	3000	2020-21
Dr. Anandhi. R. J	Acoustic echo cancellation for e-learning platform	Sponsored Research	Karnataka State Council for Science and Technology	3000	2020-21
Dr. P. Mangayarakarasi	One Day National Conference on Research challenges and opportunities in digital and cyber forensics	Sponsored Research	VTU	10000	2020-21
Total Amount Sanctioned Rs				2,74,500	

Academic Year 2019-20

Name of the faculty	Project Title	Project Type Research/Consultancy	Funding Agency	Amount	Duration
Dr. R. J Anandhi Dr. Saravanan	Chatbot for monitoring Mental health	Sponsored Research	Karnataka State Council for Science and Technology	4500	2019-20
Dr. P. Mangayarakarasi	Smart Glasses for Visually Challenged People	Sponsored Research	Karnataka State Council for Science and Technology	4500	2019-20
Dr. K. Gopalakrishnan	Bluetooth Embedded Robotic with	Sponsored Research	Karnataka State Council for Science and	4500	2019-20

Criteria-5 Faculty Information and Contributions

Dr. R J Anandhi Mrs. A. Rafega Beham	Agriculture Blowing, Seeding and Grass Cutting Powered by Solar Energy			Technology		
Dr. R J Anandhi Mrs. Divya K V	Voice for Paralytic Victims	Sponsored Research		Karnataka State Council for Science and Technology	4500	2019-20
Dr. R J Anandhi	PRERANA - GRANTS	Sponsored Research		All India Council for Technical Education	651667	2019-20
Dr. K. Gopalakrishnan Dr. R J Anandhi Dr. P. Mangayarkarasi Mr. Gangadhar Immedi Mrs. Mounica Mrs. Shobha Shanmugam	Slim Satellite: On Board Computer (OBC), Coding and Programming along with Testing Responsibilities, SatNOGS MobileApp for Ground Station-Phase 2	Sponsored Research		Sat NOGS Mobile App for Ground Station- Phase 2	15,00,000	2019-20
Total Amount Sanctioned					Rs. 21,69,667	

5.8.3 Development Activities (15)

5.8.3.1. Product Development

All the Major and Minor Projects developed by the students are guided by the in-house faculty and undergo a meticulous evaluation procedure. Depending upon the quality of the project idea and evaluation on various metrics, the project is then approved for product or Software development.

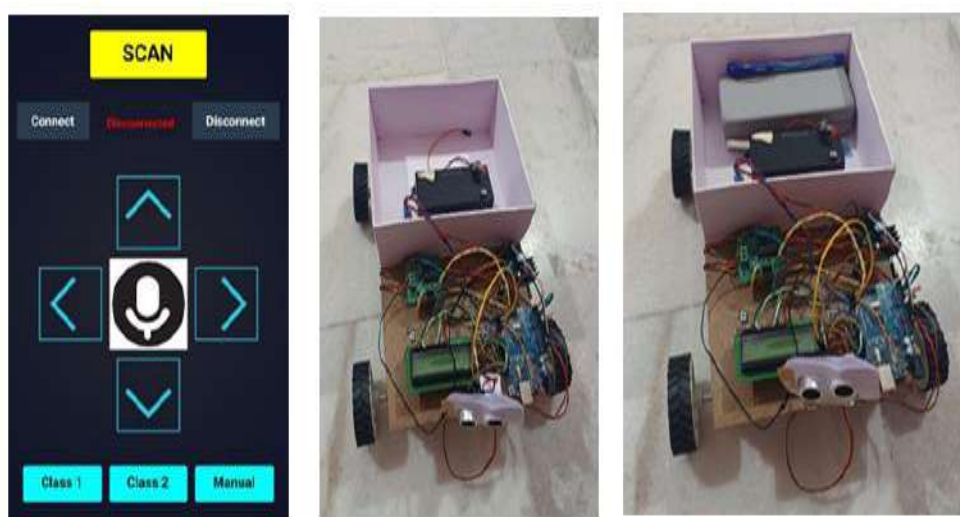
Title of the Project: MR. BOT – AN ARDUINO BASED AUTONOMOUS ROBOT

Guides: Mrs. J Karthiyayini

Student's Members: Ashish C V N N (1NH19IS019), Ayesha Siddiqua A(1NH19IS022),

Chayanika Biswas(1NH19IS034), Hrishikesh Nilesh Bhavsar(1NH19IS059)

Mr. Bot is a mini robot that is developed to perform minor tasks. Mr. Bot can assist human beings in their day-to-day life in various fields such as hospitals, schools and colleges. Mr. Bot has both manual control and automatic control to deliver small objects or convey messages by performing various operations inculcating a lot of features such as detecting the obstacles, live streaming it's path and can also capture and store them, reads characters, it can be controlled by voice and responds accordingly and can be summoned via mobile.



WORKING OF THE ROBOT

- The robot and the mobile application are connected via Bluetooth.
- A track was laid out with certain obstacles and the robot was tested in both manual and automatic mode.
- In manual mode, the robot simply followed the commands provided by the user, while alerting the user via buzzer when encountering any obstacle.
- In automatic mode, the robot has to read the path provided to it, follow the directions provided, when encountered an obstacle, it tries to read the path and find an alternate route.
- Thus, overcoming all the obstacles it reaches the final destination and completes the task.

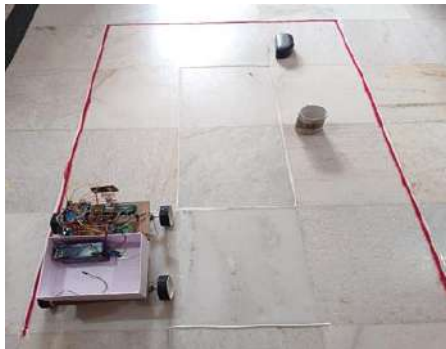


Figure: Robotic Track

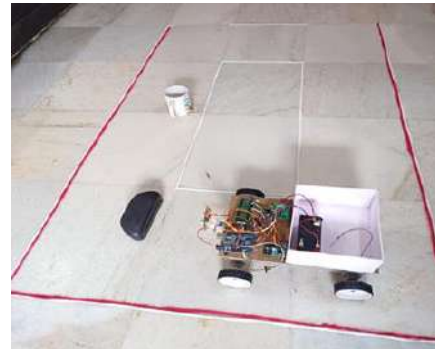


Figure: Obstacle Detection



Figure: Cross the obstacle

OUTPUT : After following all the instructions and overcoming all the barriers, the robot reaches its final destination to deliver the object and/or convey message.



Figure: Robot reached the destination

WORKING OF THE MOBILE APPLICATION

- The mobile application is developed using MIT app inventor.
- Mobile app is used to provide instructions to the robot.

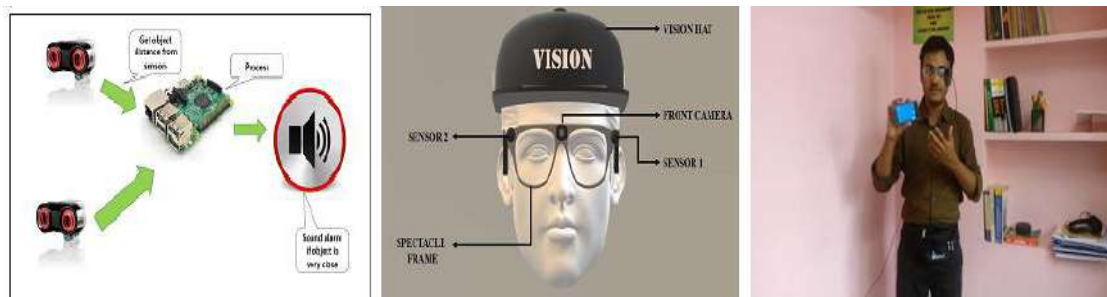


Figure: Mobile application

Title of the Project : “ಚತುರಚಕ್ರ” for Visually Challenged People

Guide: Dr. P. Mangayarakarasi

Student's Members: Sunil K A (1NH16IS112), Muhhamad Shabazkhan (1NH16IS063),
Pramod Sencha (1NH16IS080)



Title of the Project : “ಪಾರ್ಶ್ವವಾಯುವಿಗೆ ಧ್ವನಿ”: Voice for Paralytic Victims

Guides : Dr. R J Anandhi , Ms. Rafega Beham

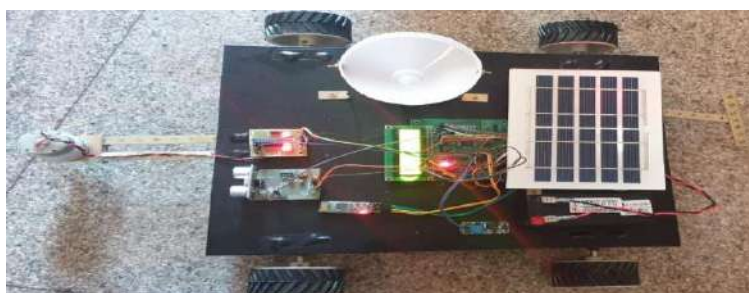
Student's Members : Sakthi Sridevi (1NH17IS401), Asha (1NH17IS402),
Manisha Samal (1NH16IS056)



Grass cutting and Plowing method



Seeding method



Hardware System - Agricultural robot model

5.8.3.2. Research Laboratories

Sl.No.	Name of the Lab	Lab In charge
1	Research Centre Lab	Dr. Sivaramakrishnan



Criteria-5 Faculty Information and Contributions



Lab Name	No. of Systems	S/W & H/W	Utilization	Lab Instructor	Designation	Degree/ Education
Research Center (C508)	12	✓ CPU- Model: Intel i7 3.4 Ghz,1TB HDD, 4 GB RAM"19" View sonic LED Monitor Computer Systems ✓ Software package: Nctuns, G++ Compiler, Anconda v2.3.1, Arduino IDE 2.0	30 Hours	Mr. Suresh P	Lab Instructor	BSc, PGDCA

Ph.D. Scholars Awarded through Research Lab:

Sl. No	Name of the Scholar	Name of the Supervisor	Title
1	Ms. Sowmya H K	Dr. R. J. Anandhi	Session Identification and Optimization Framework for Web Usage Mining
2	Ms. Anisha Rebinath	Dr. Mohan Kumar S	Design And Implementation Using Multiple Kernel Learning Approach for Glaucomatous Image Classification-Cad System
3	Mr. Darpan Kumar	Dr. Mohan Kumar S	Applications of edge computing paradigms in IoT based distributed computing systems for health care solutions using machine learning tools

Ph.D. Scholars Working in Research Lab:

Sl. No.	Name of the Scholar	Name of the Supervisor	Year of Registration	Part Time/Full Time
1.	Mr. Ajay	Dr. Mohan H S	2022	Part Time
2.	Ms. Shwetha T	Dr. Mohan H S	2022	Part Time
3.	Ms. Salangi Nayagi	Dr. Mohan H S	2017	Part Time
4.	Mr. M R Sundara Kumar	Dr. Mohan H S	2017	Part Time
5.	Ms. Sowmya	Dr. R J Anandhi	2016	Part Time
6.	Ms. Florance	Dr. R J Anandhi	2018	Part Time

7.	Ms. Divya K V	Dr. R J Anandhi	2019	Part Time
8.	Ms. Karthiga	Dr. Saravanan	2020	Part Time
9.	Ms. Praveena	Dr. Saravanan	2022	Part Time
10.	Ms. RamaKalyani	Dr. Saravanan	2022	Part Time
11.	Ms. Sindhuja	Dr. Arvind Kapse	2020	Full Time
12.	Ms. Indhu	Dr. Arvind Kapse	2020	Part Time
13.	Ms. Shalini	Dr. Arvind Kapse	2022	Part Time
14.	Ms. Kajal	Dr. Arvind Kapse	2022	Full Time

5.8.3.3. Instructional Materials

Instructional materials are provided to the students and faculty members in various forms such as:

1. Preparation of handouts/lecture notes by faculty members.
2. Books authored by the faculty members.
3. Lab manuals are prepared for different labs for guiding students.
4. Labs and Lecture rooms are equipped with Media projectors for effective lecture delivery.
5. ICT based webinars are arranged for FDP/workshops.
6. Online Courses recorded by the Faculty Members.
7. NHCE Library is a resource center for teaching, learning & research.

- Library holds a hybrid collection of printed as well as electronic resources which include Books, Journals, General Reference Materials, Technical Magazines, Conference Proceedings Newspapers, Bound Volumes and databases, audio-visuals, CDs/DVDs, e-books, e-journals, e-case studies, e-conference proceedings, course materials, previous year's question papers and Project Reports.
- All the e-journals & e-books access is IP based and remote access through (Mapmyaccess), the stakeholders can take benefit of this facility from anywhere in the campus at any time.

Table B 5.8.3 E-Resources details

Digital Library is provided in the Central Library where students can access all kinds of e-journals	<p>E-Journals Links</p> <p><u>Elsevier</u> - https://www.sciencedirect.com/</p> <p><u>Taylor & Francis</u> - http://www.tandfonline.com/</p> <p><u>Springer Nature</u> - http://link.springer.com/</p> <p><u>Emerald</u> - https://www.emeraldinsight.com/</p> <p>ProQuest - https://www.proquest.com/165290</p> <p>E-Conference Proceedings- IEEE https://ieeexplore.ieee.org/Xplore/home.jsp</p> <p>E-Case Studies – Emerald https://www.emerald.com/insight/content/case-studies</p> <p>E-Books Links</p> <p><u>Elsevier</u> - https://www.sciencedirect.com/</p> <p><u>Taylor & Francis</u> - https://www.taylorfrancis.com/</p> <p><u>Springer Nature</u> - http://link.springer.com/</p> <p>Mint Books - https://nhce.mintbook.in/</p> <p>New Age Publishers – https://digital-elib4u-com.vtuconsortium.mapmyaccess.com/</p> <p><u>Packt</u> - https://videeya-in.nhce.mapmyaccess.com/</p> <p>McGraw Hill Education - https://www-expresslibrary-mheducation-com.vtuconsortium.mapmyaccess.com/</p>
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- Currently the library holds over 47836 books, 40 print journals, 7476 e-journals, 27439 e-books, 1585 E-conference proceedings, 1000 E-case studies, 4258 Non-Book Materials, 9 Newspapers, 11 General Magazines, 15 Technical Magazines, and 171 Conference Proceedings.
- The class notes and resource material is also kept in the Digital Repository.
- Digital Library comprises of 53 computers with Internet facility. Wi-Fi accessibility also available.
- Reprography and printing facility is available in the college premises.
- Books are arranged subject wise and department wise and personal attention is given for fulfilling their library related needs.
- Open access facility is available. Library staff motivate the students for open access to aware them about the latest arrivals.
- In addition to the central library, each department has its own Departmental Library to facilitate easy access to the faculty, students and research scholars.

Library Services	<ul style="list-style-type: none"> ➤ Institutional Repository ➤ Electronic Resources ➤ E-Portals ➤ Online Course (E-shikshana) ➤ Remote Access of e-resources (Mapmy Access) ➤ NDLI Club Activities ➤ Online Reservation ➤ Circulation Service ➤ Reference Service ➤ Reprographic Service ➤ Document Scanning ➤ Document Printing ➤ OPAC (Online Public Access Catalog) ➤ NPTEL ➤ Overnight Circulation ➤ E-mail Reminder ➤ Online Q & A ➤ Grammar Tool – Lanquill
------------------	--

- Online Lecture
- Organising Book Exhibition
- News Paper Clippings
- Similarity or Plagiarism Checking Service (Drillbit)
- Orientation Program
- Awareness of Reference Manager Tool – “Mendeley Desktop”.
- Social Media alert service

5.8.3.4. Working models /charts /monograms

Lab Instruction Charts are available in all the labs. Some sample Chart pictures are provided below

UNIX Process Management

Process Creation

```

    graph TD
        fork(fork()) -- parent --> wait(wait)
        fork -- child --> exec(exec())
        exec --> exit(exit())
        wait -- resumes --> fork
    
```

Process State Diagram

```

    graph TD
        new((new)) -- admitted --> ready((ready))
        ready -- scheduler dispatch --> running((running))
        running -- I/O or event wait --> waiting((waiting))
        waiting -- I/O or event completion --> ready
        running -- interrupt --> ready
        running -- exit --> terminated((terminated))
    
```

Process Scheduling

```

    graph TD
        CPU((CPU)) --> ready_queue[ready queue]
        ready_queue --> I_O[I/O]
        I_O --> I_O_queue[I/O queue]
        I_O_queue --> I_O_request[I/O request]
        I_O_request --> CPU
        I_O_request --> time_slice[time slice expired]
        time_slice --> ready_queue
        I_O_request --> fork_child[fork a child]
        fork_child --> child_executes[child executes]
        child_executes --> ready_queue
        I_O_request --> interrupt_occurs[interrupt occurs]
        interrupt_occurs --> ready_queue
        I_O_request --> wait_interrupt[wait for an interrupt]
        wait_interrupt --> ready_queue
    
```

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING LM331

B-Trees

B-Tree is a tree data structure that keeps data sorted and allows searches, sequential access, insertions, and deletions in logarithmic time. In B-Tree, "B" stands for "Balance," "Branched," or "Bayer" Trees. Designers of B-Trees: Bayer & McCreight.

Construction of B-Tree of "Order 4" | Keys: C S D T A M

Step 1:

```

    graph TD
        Root[C | D | S | T]
    
```

Step 2: "A" → Causes Split

```

    graph TD
        Root[D | T]
        Root --> L1[A | C | D]
        Root --> R1[S | T]
    
```

Step 3: "M" and "P"

```

    graph TD
        Root[D | T]
        Root --> L1[A | C | D]
        Root --> R1[M | P | S | T]
    
```

Step 4: "E" → Causes Split in Right Most Leaf Node

```

    graph TD
        Root[D | P | T]
        Root --> L1[A | C | D]
        Root --> R1[I | M | P]
        Root --> R2[S | T]
    
```

Properties of B-Tree

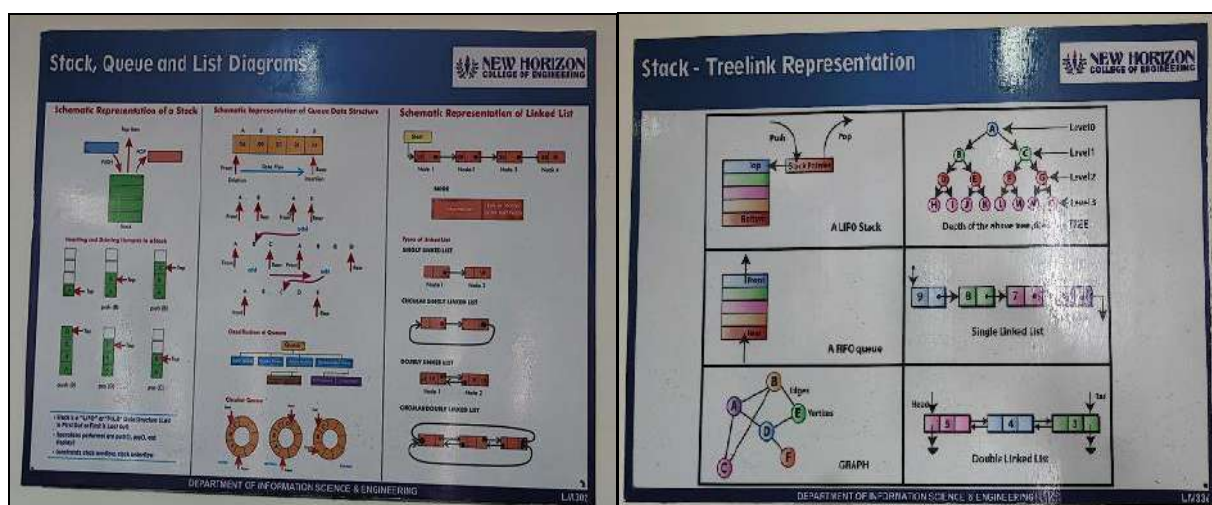
A B-Tree of Order m :

- Every page has a maximum of m descendants
- Every page except for the root and the leaves has at least $\lceil m/2 \rceil$ descendants
- The root has at least two descendants
- All leaves appear on the same level

Worst case - search depth $d \leq \lceil \log_{\lceil m/2 \rceil} (N/2) \rceil$

m - order, N - Number of keys, d - depth of Tree

DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING LM314



5.8.4 Consultancy (from Industry) (20)

(Provide a list with Project Title, Funding Agency, Amount and Duration) Funding

Amount

(Cumulative for each Assessment years):

Amount > 10 Lacs – 20 Marks,

Amount < 10 and > 8 Lacs – 15 Marks,

Amount < 8 and > 6 Lacs – 10 Marks,

Amount < 6 and > 4 Lacs – 5 Marks,

Amount < 4 and > 2 Lacs – 2 Marks,

Amount < 2 Lacs – 0 Mark

Criteria-5 Faculty Information and Contributions



Sl. No	Name of the faculty	Project Title	Project Type Research/Consultancy	Funding Agency	Amount	Duration
1	Dr.R J Anandhi Dr. Saravanan Dr. Arvind Kapse Mr. Gangadhar Immadi	Website Development	Consultancy	ITSC Technologies Pvt. Limited	135000	2021-22
2	Dr. R J Anandhi Dr.Srinivasan L Mrs. Karthiyayini J Mrs. Swathi B Mrs. Bilvika K M	Automated and Smart testing	Consultancy	e-Sutra Chronicles Pvt. Ltd.	168500	2020-21
3	Dr. R J Anandhi Dr.L. Srinivasan Mrs. Swathi B Mr. Gangadhar Immadi Mrs. Bilvika K M	Intelligent Product Testing	Consultancy	edumerge Solutions Pvt. Ltd. Bengaluru	132000	2020-21
4	Dr. K Saravanan Mrs. Divya K V Mrs. Vandana Mr. Gangadhar Immadi	Corporate Training	Consultancy	Ether Global pvt Ltd	70000	2020-21
5	Dr. R J Anandhi Mrs. Karthiyayini J Mrs. Swathi B Mrs. Mounica Mrs. Divya KV	Automated and smart testing	Consultancy	e-sutra chronicles pvt. Ltd	144500	2019-20
6	Dr. R J Anandhi Mr. Srinivasan L Mrs. Swathi B Mrs. Mounica Mrs. Bilvika K M	Product Testing	Consultancy	e-sutra chronicles pvt. Ltd	168500	2019-20
7	Dr. R J Anandhi Dr P Mangayarkarasi Dr. Nagendra Prabhu Mrs.Karthiyayini J Mr. Gangadhar Immadi Mrs. Bilvika K M	Smart testing	Consultancy	SdIlglobe Technologies Pvt Ltd, Bengaluru	167000	2019-20

Criteria-5 Faculty Information and Contributions



8	Dr. R J Anandhi Dr P Mangayarkarasi Mrs. A. Rafega Beham Mr.L. Srinivasan	Corporate training (Cloud computing, IoT)	Consultancy	Ether Global pvt Ltd	70000	2019-20
9	Dr. R J Anandhi Mrs.Karthiyayini J Mrs. Swathi B Mrs.Mounica B Mrs. Rafega Beham A	Intelligent Product Testing	Consultancy	edumerge Solutions Pvt. Ltd. Bengaluru	120000	2019-20

5.9 Faculty Performance Appraisal and Development System (FPADS) (10)

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(PART 'A')

PERFORMANCE APPRAISAL: TEACHING STAFF

In conformity with the job responsibilities (prescribed by AICTE) Assessment period from Jun 2022 To May 2023.

(Personal Particular)

Name: J Karthyayani

Educational Qualifications: PG

Are you a recognized PH.D guide:

Department: Information Science & Engineering

Designation: Sr. Assistant Professor

No. of years served in NHCE till date: 5.10

Total Experience till date: 18.02

Any extraordinary achievement during the assessment period:

(PART 'B')

Academic Duties and responsibilities assigned

	Subject Assigned	No. of Classes Planned	No. of Classes Conducted	Remarks
ODD Semester Theory				

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Criteria-5 Faculty Information and Contributions



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	Laboratory	No. of Experiments Planned	No. of Experiments Conducted	Remarks
ODD Semester Laboratory				

	Subject Assigned	No. of Classes Planned	No. of Classes Conducted	Remarks
EVEN Semester Theory				

	Laboratory	No. of Experiments Planned	No. of Experiments Conducted	Remarks
EVEN Semester Laboratory				

Applicable to Faculties handled Autonomous scheme

	Subjects Assigned	Self Study / Sem / Student	Assignments / Semester	Quiz / Semester
ODD SEMESTER				

	Subjects Assigned	Self Study / Sem / Student	Assignments / Semester	Quiz / Semester
EVEN SEMESTER				

(PART 'C')

A brief pen picture of self, not exceeding in 5 to 6 lines, highlighting the administrative and support activities entrusted

202.62.95.70.8081/HRMSLive/Appraisal/AnnualSelfAppraisal.aspx 2/5

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(PART 'D')

(Appraisal on a 5 point rating scale)

Note: Please put a tick in the appropriate rating

(PART 'E')

Formula Used: (Grand Result % * 5) / 100
 (Result Conversion Scale: 100% - 5, 80% - 4, 60% - 3, 40% - 2, 20% - 1, 0% - 0)

ODD Semester

	Sub 1	Sub 2	Sub 3	Sub 4	Sub 5	Average
Student Feedback:						
Result:						

EVEN Semester

	Sub 1	Sub 2	Sub 3	Sub 4	Sub 5	Average
Student Feedback:						
Result:						

Grand Average

	ODD	EVEN	Grand
Student Feedback:	0.00	0.00	0.00
Result:	0.00	0.00	0.00

Summary

SUMMARY OF PART "D":

Total points awarded to staff: (D1)

(Points Obtained / Maximum Points *5)

Points awarded with % weight age: (D1*)

SUMMARY OF PART "E":

Average of Student Feedback and Result (E1)

% weightage based on grand average: (E1*)

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OVERALL SUMMARY

Annual performance Index (D + E) =

CORRESPONDING RANKING TAKING INTO ACCOUNT THE POINT SCORE AND CONVERTING IT TO TOTAL WEIGHTAGE OF 75%+25%= 100

Final Grade:
4.5 – 5.0 : OUTSTANDING
4.0 – 4.4 : Very good
3.0 – 3.9 : Good
2.0 – 2.9 : Fair
Less than 2: Poor

Documents

Attach Document No file chosen

Attach Document No file chosen

Others

Additional weightage for the following will be considered :

- No. of patents filed (Please furnish details and update in HRMS)
- No. of books published (please furnish details and update in HRMS) per patent
- Contribution in promoting Institute industry, R & D activities and consultancy services (Minimum 02 proposals per academic year for Professor cadre)
- Contribution through project

J. Karthikeyan
 Signature of faculty member
 Date: 04/06/2023

GUIDELINES TO HEADS OF DEPARTMENT FOR FILLING UP PERFORMANCE APPRAISAL FORM IN RESPECT OF TEACHING STAFF

1. Every faculty person will be assessed on items/areas of achievement on the pressure point rating scale. The concept of rating scale are given below:

★ Outstanding : Excellent professional competence, unblemished track record, utmost efficiency & effectiveness, optimum human capacity utilization, punctuality , sincerity and dedication of highest order.

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Criteria-5 Faculty Information and Contributions



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- ★ Very good: Satisfactory professional competence with reasonable efficiency & effectiveness, reasonable extent of human capacity utilization and high order of punctuality, sincerity and dedication.
- ★ Good: Just satisfactory performance with marginal level of efficiency and effectiveness. Medium human capacity utilization, punctuality, sincerity and dedication just adequate to deliver minimum satisfactory performance.
- ★ Fair: Performance much below the level of expectations. Lack of efficiency and effectiveness, zeal and enthusiasm in performing his/her duties. Under utilization of capacity advertently or inadvertently (due to physical, mental disabilities).
- ★ Poor: A deplorable performance devoid of initiative efforts, zeal or enthusiasm. A liability for the organisation with either total lack of capacity, utilization to perform or advertently shirking from responsibilities.

2. PROCEDURE OF COMPUTATION OF GRADING

- ★ 75% weightage of the total points awarded in performance appraisal.
- ★ 25% weightage will be given for points awarded in the faculty evaluation by students both from both semesters.

3. CORRESPONDING RANKING TAKING INTO ACCOUNT THE POINT SCORE AND CONVERTING IT TO TOTAL WEIGHTAGE OF 75%+25%= 100%

4.5 - 5.0 : OUTSTANDING
4.0 - 4.4 : Very good
3.0 - 3.9 : Good
2.0 - 2.9 : Fair
Less than 2: Poor

4. HOD's are required to fill up the performance appraisal proforma in presence of the concerned teaching staff by asking the staff explain item wise performance and their perceptions about the point grades. The HOD's after taking into account the submissions and expectations of the concerned staff & his own perceptions/ opinion about the capability of the staff, will put a tick on mark particular point scale. In case the ticked grade does not tally with the expectations of the staff, the reasons for variations must be told to staff by HOD in explicit terms.

5. The HODs are to ensure that assessment is based on the performance of the individual throughout the stipulated assessment period and not based on seasonal performance. Further biases all sorts and preferential treatment to selected ones should be avoided to make the appraisal system totally transparent and purposeful.

6. Both the HOD and the staff have to sign in the appraisal proforma at the appropriate place meant for the purpose. The employees should invariably sign even if they have some reservation on the assessment grades given by HOD's on certain items. They can mention the particular items where they have reservations/ disagreement below their signature at the appropriate place mentioned there in. These dissenting items/points or divergences will be discussed by the staff with Principal at appropriate time after seeking interview or if otherwise automatically called by Principal.

7. The decision of the Principal on all dissenting matters will be final & binding on employees. No further query or representations on the subject will be entertained at later stage.

≡ **Approvers Details** v

Employee Code	Name
NH-1294	Mohan
NH-0371	Manjunatha
NH-0001	V.Manjula

202: 62: 95: 70: 8081/HRMSLive/Appraisal/AnnualSelfAppraisal.aspx 5/5

5.10 Visiting/Adjunct/Emeritus Faculty etc. (10):

Adjunct faculty also includes Industry experts. Provide details of participation and contributions in teaching and learning and /or research by visiting/adjunct/Emeritus faculty etc.

- Provision of visiting/adjunct faculty (1)

- Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc. (9) (Minimum 50 hours' interaction in a year will result in 3 marks for that year; 3marks x 3years=9 marks)

The Department of Information Science and Engineering regularly encourages the conduction of lectures by visiting /Adjunct faculty members. These Visiting Faculty are industry experts from various technical domains and the aim of such encouragement is to bridge the industry-Academia gap.

AY: 2022 -23

Sl. No	Visiting Faculty Name	No. of Hours
1	Dr Sivaramakrishnan R Guruvayur	50
2	Ms. Payel Dutta	50

AY: 2021-22

Sl. No	Visiting Faculty Name	No. of Hours
1	Dr Sivaramakrishnan R Guruvayur	50
2	Ms. Payel Dutta	50

AY: 2020-2021

Sl. No	Visiting Faculty Name	No. of Hours
1	Dr Sivaramakrishnan R Guruvayur	50
2	Ms. Payel Dutta	50

**Department of Information
Science & Engineering**

Criterion-6

Facilities & Technical Support

CRITERION 6	FACILITIES & TECHNICAL SUPPORT	80
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6.1 Adequate and well equipped laboratories and technical manpower (40)

The Department of Information Science and Engineering has well established laboratories with necessary hardware and software for enriching the practical knowledge of the students with creative engineering programs / exercises. Over and above the students can develop variety of applications with the support and guidance of the faculty members.

Table 6.1.A.1: List of Adequate and well equipped laboratories and technical manpower

Sl. No	Name of the Laboratory	No of Students per setup (Batch size)	Name of the Important equipment	Weekly Utilization status (all the courses for which the lab is utilized) in Hours	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	LAB 1 (C511)	35	<p><u>Hardware</u> Core i7 Processor, 500GB SSD, 16 GB RAM Core i5 Processor, 1TB Hard Disk, 4GB RAM. Core i3 Processor, 500Gb HDD, 4GB RAM. LCD Projector</p> <p><u>Softwares</u> Fedora-8 MySQL, Eclipse, NCTuns-4.0.</p>	30 Hours	Mr. Prabu Mathiyas	Lab Instructor	B. Tech in Computer Science Engineering

Criterion-6 Facilities & Technical Support



2	LAB 2 (C513)	35	<p><u>Hardwares</u> Core i7 Processor, 500GB SSD,16 GB RAM</p> <p>Core i5 Processor, 1Tb HDD, 4GB RAM.</p> <p>Core i3 Processor, 500GB HDD, 4GB RAM.</p> <p>LCD Projector</p> <p><u>Softwares</u> Fedora-8 GCC compiler, Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat.</p>	30 Hours	Mr. Suresh P	Lab Instructor	B. Sc., PGDCA
3	LAB 3 (C514)	35	<p><u>Hardwares</u> Core i3 Processor, 500GB Hard Disk, 4GB RAM.</p> <p>Core i5 Processor, 1TB Hard Disk, 4GB RAM.</p> <p>Smart TV</p> <p><u>Softwares</u> Ubuntu 18.04, GCC compiler, Vi editor, Anaconda(Spyder), Eclipse, Apache Tomcat.</p>	30 Hours	Mr. Prakash Lalwani	Lab Instructor	B. Sc., MCA

4	LAB 4 (C510)	35	<p><u>Hardware</u> Core i7 Processor, 500GB SSD,16 GB RAM</p> <p>Core i5 Processor, 1TB Hard Disk, 4GB RAM. Core i3 Processor, 500GB Hard Disk, 4GB RAM Smart TV</p> <p><u>Softwares</u> Fedora 8 GCC compiler, Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat, MySQL.</p>	30 Hours	Ms. D. Sindhura	Lab Instructor	B. Sc. Computer
5	LAB 5 (C515)	35	<p><u>Hardware</u> Core i7 Processor, 500GB SSD,16 GB RAM LCD Projector</p> <p><u>Softwares</u> Fedora 8 Android Studio, GCC compiler, Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat, MySQL, Arduino IDE 2.0</p> <p><u>Hardware</u> (DLD & IOT) It's available in the Table 6.1.A.2 Table 6.1.A.3</p>	30 Hours	Mr. Anant Deshpande	Lab Instructor	Diploma in ECE

6	LAB 6 (C411)	35	<p><u>Hardwares</u> Intel Core i3 Processor-8100 CPU@3.60 GHz, 500Gb HDD, 4GB RAM. LCD Projector</p> <p><u>Softwares</u> Fedora-8 MySQL, Eclipse, NCTuns-4.0.</p>	30 Hours	Lakshmi S. Nair	Lab Instructor	B. E.
7	LAB 7 (C413)	35	<p><u>Hardwares</u> Intel Core i3 Processor-3220 CPU@3.30 GHz, 500Gb HDD, 4GB RAM. LCD Projector</p> <p><u>Softwares</u> Fedora-8 MySQL, Eclipse, NCTuns-4.0.</p>	30 Hours	Remya Balasubra manian	Lab Instructor	B. Tech.
8	LAB 8 (C102)	35	<p><u>Hardwares</u> Core i7 Processor- CPU@2.10GHz, 500GB SSD, 16 GB RAM Smart TV</p> <p><u>Softwares</u> Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat, MySQL. NCTuns-4.0</p>	30 Hours	Ms. Pooja K. V.	Lab Instructor	B. Tech.

9	Lab 9 (C508)	12	<p><u>Hardware</u></p> <p>CPU- Model: Intel i7 3.4 Ghz 1TB HDD, 4 GB RAM"19" View sonic LED Monitor Computer Systems</p> <p><u>Softwares</u></p> <p>package: Nctuns, G++ Compiler, Anconda v2.3.1, Arduino IDE 2.0</p>	30 Hours	Mr. Suresh P	Lab Instructor	B. Sc., PGDCA
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DLD Lab

Table 6.1.A.2: List of hardware items in DLD Lab

Sl. No	Name of the item
1	Digital Multimeter, Make:Rishabh, Model:Max10
2	Digital IC Trainer Kit with 16 PIN Zip Socket, 01 of Breadboard, seven segment display, TTL clock and Mono pulse, Seven Segment Display , +5V, +12V Supply & 10 No's of Patch Cards
3	Universal IC tester, Make:Minmax, Model:ADIT-40
4	Spring boards with 36 Springs
5	Patch chords , 4mm

IoT Lab

Table 6.1.A.3: List of hardware items in IoT Lab

Sl. No	Name of the item
1	Raspberry Pi 3 B+ and Original PS of 2.5A+ Case for Raspberry Pi + SD card Samsung 16GB class 10
2	Arduino UNO R3

6.2 Laboratories maintenance and overall ambience (10)

The Department is equipped with sophisticated laboratories and state of art electronic equipment to satisfy the curriculum. Salient features regarding maintenance and ambience of laboratory facilities are as follows

Laboratory Maintenance:

1. Informative notice board containing safety, Do's & Don'ts is properly Maintained.
2. Well trained technical staffs are available for maintenance of computer and software.
3. Maintenance and Servicing of each lab is done every month and a servicing register is maintained.
4. Department is having internet speed of 1000 Mbps for the students and Faculty usage.
5. Department is having 125 kVA, 240 V AC power backup to support power failures.
6. Breakdown register is maintained for all the labs.
7. As per the requirements minor repairs are carried out by the lab instructors.
8. Major repairs are outsourced as per the institutional policy.
9. Student's login / logout register is maintained in all laboratories.
10. Each laboratory maintains a stock register detailing the equipment history within it.
11. Two teaching faculty and a Lab instructor are in-charge of the overall functioning / maintaining of all labs.
12. All the computers are protected with licensed anti-virus software.
13. First aid kit is available in all laboratories.
14. Fire extinguishers are available in all the labs.

Overall Ambience

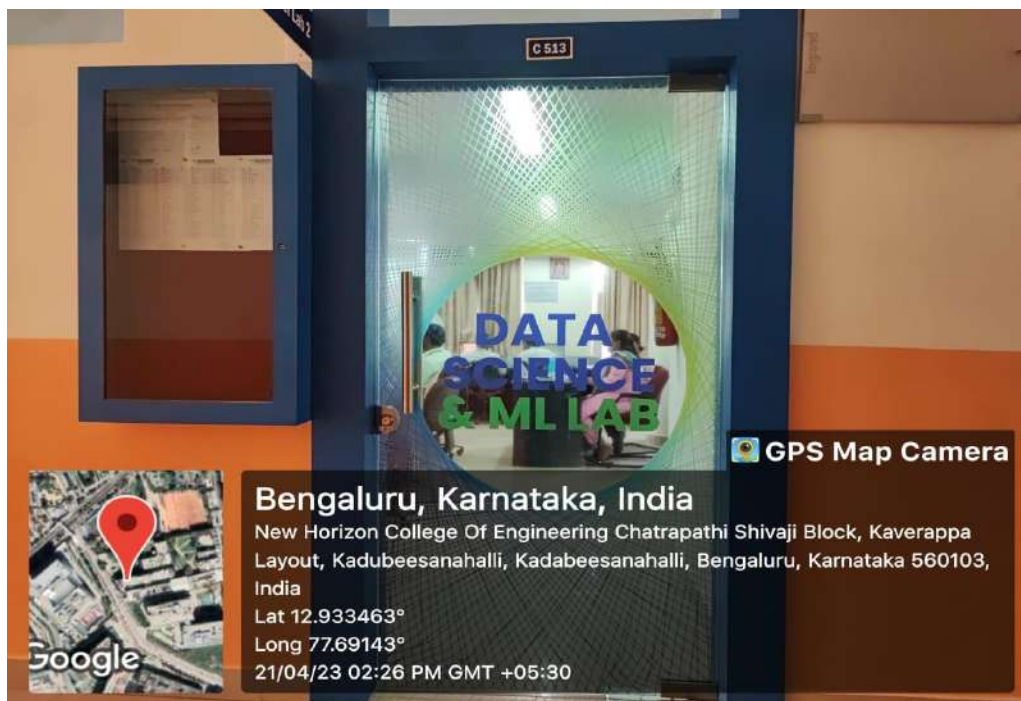
1. Department has full-fledged State of Art laboratories to cater to all UG courses as per curriculum requirements.
2. For every lab sufficient number of windows is available for ventilation and natural light.
3. Lighting system is very effective, along with the natural light in every corner of the rooms.
4. Cup-boards are available in each lab for students to place their belongings.
5. Each Lab is equipped with white/black board, Smart boards to aid the teaching process, computers and internet connections.
6. Laboratories are kept open beyond office hours as per the need.
7. Exclusively, a project lab has been provided for the students to carry out their major project work. This will promote innovation and creativity in students.
8. All laboratories are well furnished.
9. All windows in the Labs are covered by curtains.
10. The buildings are designed by professional architects, who give utmost care in providing academic ambience in all labs.

Photos of the Labs

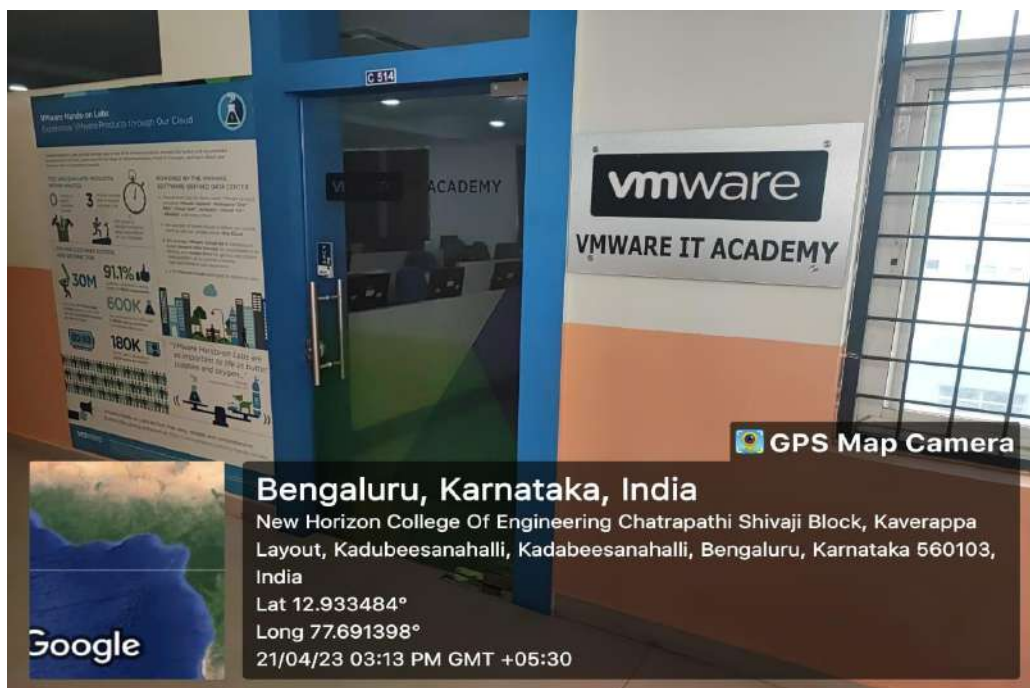
LAB 1 (C511)



LAB 2 (C513)



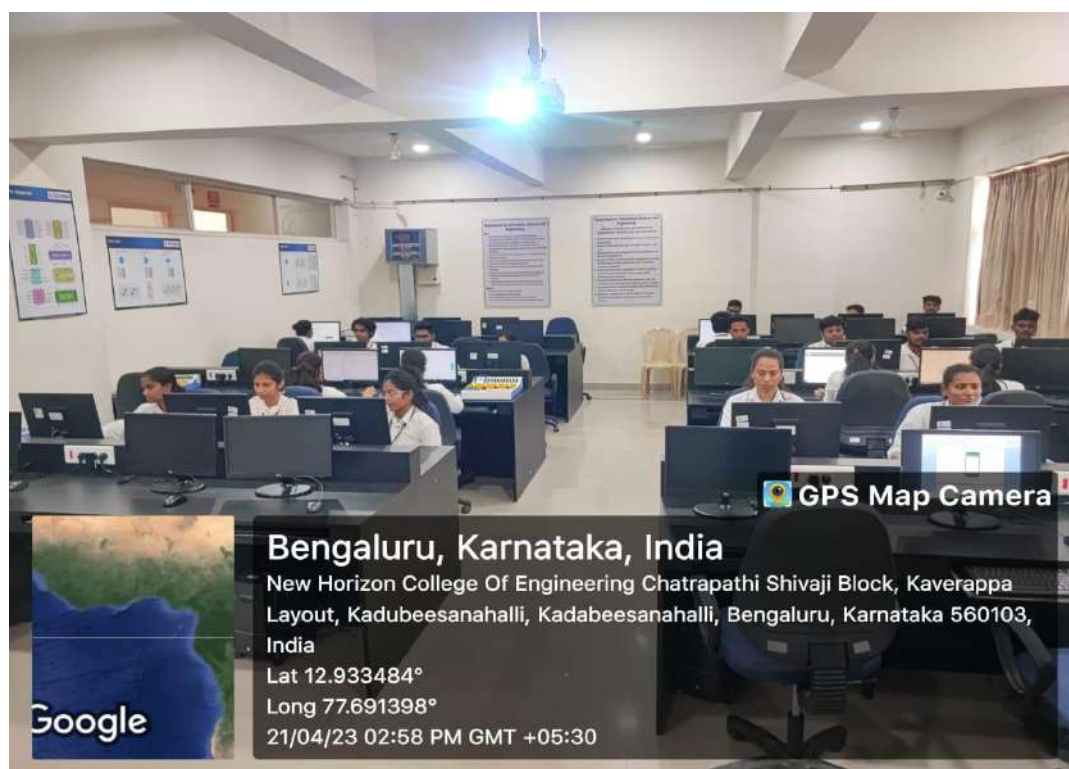
LAB 3 (C514)



LAB 4 (C510)



LAB 5 (C515)



Lab 6 (C411)



Lab 7 (C414)



Lab 8 (C102)



Lab 9 (C508)



6.3 Safety Measures in laboratories (10)

Table 6.3.1: List of Safety Measures for the Labs

Sl. No	Laboratory Name	Safety Measures
1	<p>LAB 1 (C511)</p> <p>LAB 2 (C513)</p> <p>LAB 3 (C514)</p> <p>LAB 4 (C510)</p> <p>LAB 5 (C515)</p> <p>LAB 6 (C411)</p> <p>LAB 7 (C413)</p> <p>LAB 8 (C102)</p> <p>LAB 9 (C508)</p>	<ol style="list-style-type: none"> 1. General rules of Conduct in Laboratories are displayed. 2. First aid box, Fire extinguisher is kept in the laboratory. 3. CCTV camera attached in the lab. 4. Periodical servicing of the lab equipment. 5. Maintain a clean and organized laboratory. 6. Avoiding the use of cell phones. 7. Appropriate storage areas 8. Sign the log-out register before leaving the lab. 9. Computers should be turned off properly before leaving the lab. 10. The student must immediately inform the instructor if there's any defect, error or damage observed at the computer (hardware/software).

- **Facilities and Safety Measures in the Department:-**



Fig. 6.3.1 Fire Extinguisher



Fig. 6.3.2 First-Aid Box



Fig. 6.3.3 Sealed LAN Connector



Fig. 6.3.4 CCTV Camera



Fig. 6.3.5 Miniature Circuit Breaker Switches



Fig. 6.3.6 Air Conditioners in LAB 3 (C514)

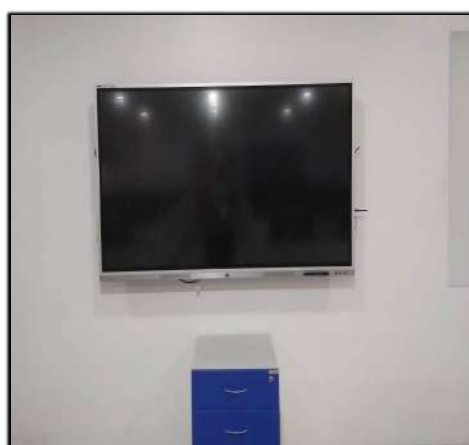


Fig. 6.3.7 Smart Board

6.1 Project Laboratory (20)

1. In ISE department, an exclusive lab with 48 computers is available for project work to be carried out by students of all semesters.
2. Project Laboratory enables UG students to obtain hands-on experience and to realize their project ideas as executable projects.
3. Several successful projects have been carried out by students in this lab.
4. Students use this lab to compete in several Hackathons and have won various awards across India.
5. High speed internet facilities are always available to these systems.
6. This lab is equipped with 125 kVA UPS, 240 V AC power backup to support power failures.
7. Final year project and mini project of all semesters are carried out in this lab.

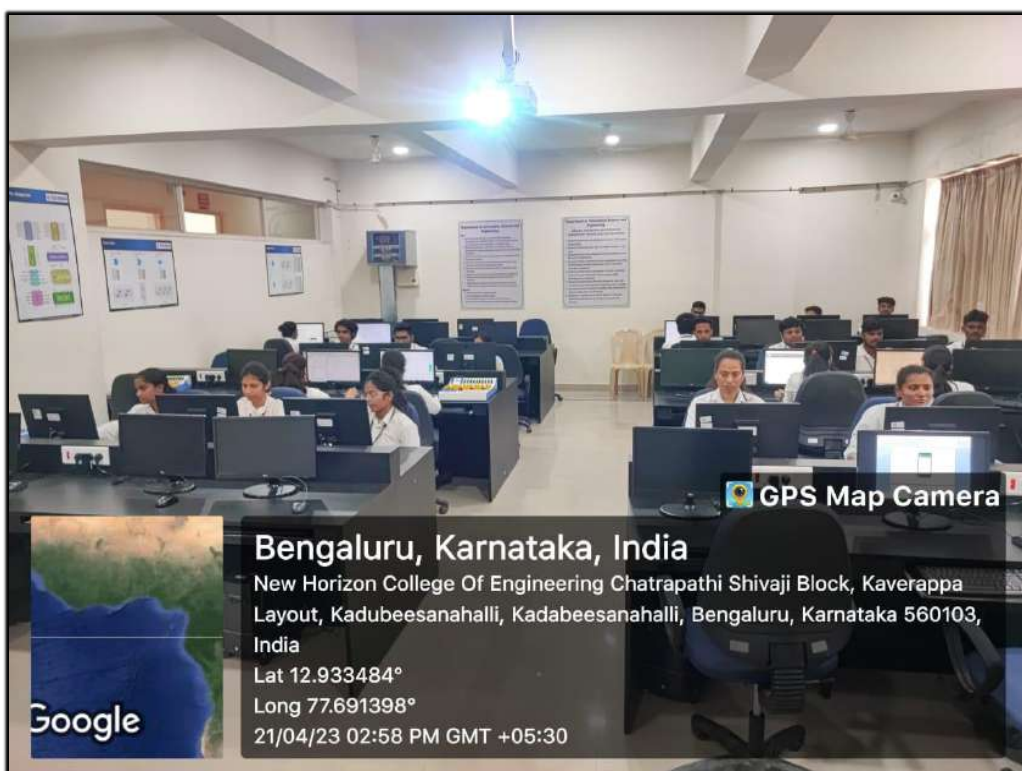
Table 6.3.1: Project Labs

Lab	Facilities	Utilization	Relevance to POs and PSOs
PROJECT LAB-1 (C510)	<p><u>Hardwares</u> Core i7 Processor, 500GB SSD, 16 GB RAM</p> <p>Core i5 Processor, 1TB Hard Disk, 4GB RAM. Core i3 Processor, 500GB Hard Disk, 4GB RAM. Fedora 8</p> <p><u>Softwares</u> GCC compiler, Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat, MySQL.</p>	<ul style="list-style-type: none"> ● UG students ● Faculty members 	PO1-PO12, PSO1, PSO2
PROJECT LAB-2 (C515)	<p><u>Hardwares</u> Core i7 Processor, 500GB SSD, 16 GB RAM</p> <p>LCD Projector</p> <p><u>Softwares</u> Fedora 8, Android Studio, GCC compiler, Vi editor, Anaconda (Spyder), Eclipse, Apache Tomcat, MySQL, Arduino IDE 2.0</p>	<ul style="list-style-type: none"> ● UG students ● Faculty members 	PO1-PO12, PSO1, PSO2

PROJECT LAB-1 (C510)



PROJECT LAB-2 (C515)



- **Software Facilities available in the Project Laboratory**

Table 6.3.2: List of Software in the Project Labs

Name of Software	Description
Apache Tomcat 10.1.8	It's an open-source implementation of the Java Servlet, JavaServer Pages, Java Expression Language, and Java WebSocket technologies.
NetBeans 17	It can be installed on all the operating systems that Java runs on and can be used for other programming languages as well.
Eclipse 4.27	It is one of the most famous Java IDEs based on the desktop, and it supports a variety of programming languages such as C/C++, JavaScript, and PHP.
GCC 12.3	It compiles C, C++ code, links it with any library dependencies, converts that code to assembly, and then prepares executable files.
Android Studio 2021.1.1	It is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems.
Anaconda version 2.3.1	Anaconda is a distribution of the Python and R programming languages for scientific computing, that aims to simplify package management and deployment. The distribution includes data-science packages suitable for Windows, Linux
Arduino IDE 2.0	It connects to the Arduino boards to upload programs and communicate with them.
MySQL 8.0. 32	It is an open-source Relational Database Management System.
Neo4j 5.7.0	Graph Database Management System
Redis 6.0	NoSQL Database Management System
SQLite 3.42.0	Relational Database Management System for Mobile Application Development

- **Hardware Facilities available in the Project Laboratory**

Table 6.3.3: List of Hardwares in the Project Labs

Sl.	Name of the item
1	Digital Multimeter, Make:Rishabh, Model: Max10
2	Digital IC Trainer Kit with 16 PIN Zip Socket, 01 of Breadboard, seven segment display, TTL clock and Mono pulse, Seven Segment Display , +5V, +-12V Supply & 10 No's of Patch Cards
3	Universal IC tester, Make: Minmax, Model:ADIT-40
4	Spring boards with 36 Springs
5	Patch chords , 4mm
6	Raspberry Pi 3 B+ and Original PS of 2.5A+ Case for Raspberry Pi + SD card Samsung 16GB class 10
7	Arduino UNO R3

- **Software Project Models Demonstration:-**

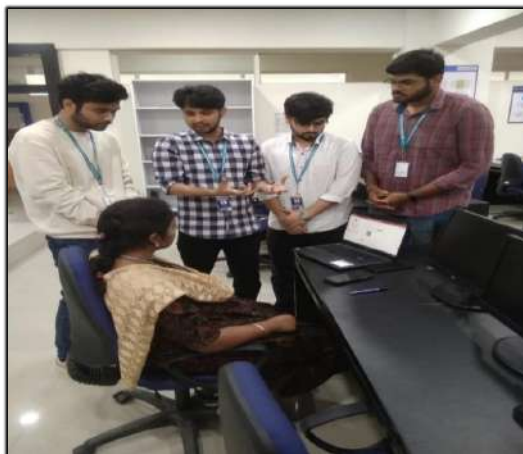


Fig. 6.4.1 Solvr - Academic Solution Search



Fig. 6.4.2 Prediction of Autism Spectrum Disorder



Fig. 6.4.3 Flood detection and alert



Fig. 6.4.4 Flood detection and alert

- **Hardware Project Models Demonstration:-**

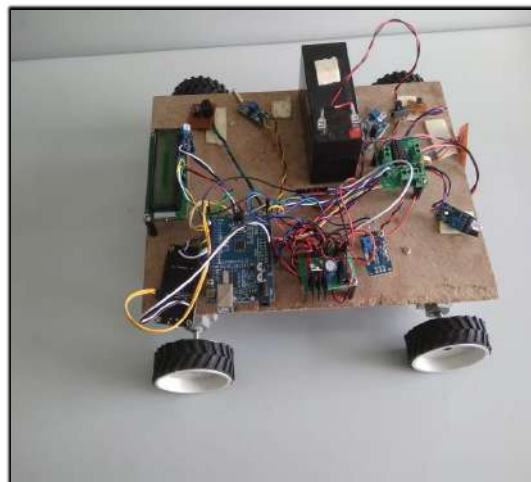


Fig. 6.4.5 Accident Detection and Emergency Service Using IOT

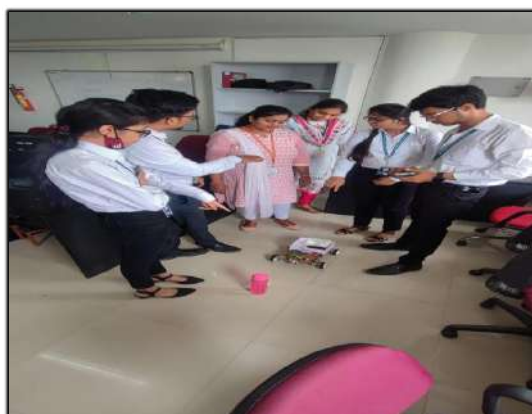


Fig. 6.4.6 Mr. Bot



Fig. 6.4.7 Accident alert in Modern traffic system



Fig. 6.4.8 Smart Unlock

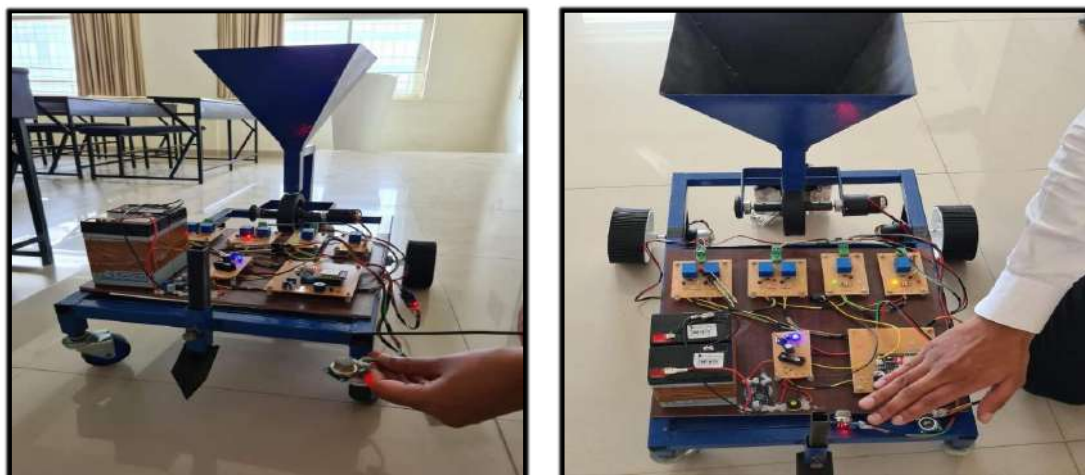


Fig. 6.4.9 IoT-based system for Precision Agriculture



Fig. 6.4.10 IoT Based Smart Toy for an Education System

**Department of Information
Science & Engineering**

Criterion - 7

Continuous Improvement

CRITERION 7	CONTINUOUS IMPROVEMENT	75
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7.1 Actions taken based on the results of evaluation of each of the POs & PSOs (30)

Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels. Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years.

For continuous improvement in Outcome Based Education, the process followed is

- 1. Identify whether the targets of POs and PSOs are achieved under the existing curriculum, teaching & learning methods, and assessment methods & evaluation process.**
- 2. Specify the reasons in case the target is not achieved for a PO or PSO.**
- 3. Recommend the actions and corrective measures to achieve or improve the attainment in next assessment year.**

POs Attainment Levels and Actions for improvement – CAY (2021-22)

POs	Target Level	Attainment Level	Observation
PO1: Engineering knowledge: Apply the knowledge of Engineering Mathematics, Basic Sciences, Engineering Fundamentals, and Engineering Specialization to the solution of complex Information Science and Engineering problems.			
PO1	2.60	2.754	Target is achieved. The following actions were taken to enhance the target level.
Action 1: Students will be asked viva questions relating to the basic concepts to refresh their fundamentals in laboratory sessions.			
Action 2: Additional classes will be conducted beyond the regular classes for the courses which have less attainment.			
Action 3: Co-curricular activities will be scheduled in the area of information security, cyber security and AI & ML.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex			

engineering problems of Information Science and Engineering reaching substantiated conclusions using first principles of Engineering Mathematics and Engineering Sciences.			
PO2	2.60	2.712	<ul style="list-style-type: none"> • Target is achieved. The following actions were taken to enhance the target level.
<p>Action 1: Additional classes will be conducted beyond the regular classes for the courses which have less attainment.</p> <p>Action 2: To conduct Expert lectures, Seminars and Guest lectures to help students in identifying & analysing the real time problems.</p>			
PO3: Design/development of solutions: Design solutions for complex Information Science Problems and design system components or processes of Information Science and Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations..			
PO3	2.60	2.724	<ul style="list-style-type: none"> • Target is achieved. The following actions were taken to enhance the target level.
<p>Action 1: Societal and environmental design problems will be given as self-study to students in professional elective courses.</p> <p>Action 2: To Conduct Expert lectures, workshops and hands on training sessions to understand the process of designing and analysing real life software problems.</p> <p>Action 3: Students will be encouraged to participate in external inter college technical competitions, coding contests and hackathons.</p>			
PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in Information Science and Engineering.			
PO4	2.60	2.572	<ul style="list-style-type: none"> • Target level has not been achieved .It is observed that most of the project abstract and literature survey are addressing the research based approach awareness among the student should be improved. • The following actions and measures were taken to improve the attainment level in next assessment year.

Action 1: National/ international conferences will be scheduled to promote research culture among students.

Action 2: Students will be informed to refer IEEE journal papers /Scopus to enhance their research knowledge, analysis and interpretation of data.

Action 3: Students will be motivated to attend inter/intra college seminars, workshops, symposium, Paper/Poster presentations, to do projects in latest trending areas and demonstrate in State/National level project competitions.

Action 4: Academic workshops will be conducted to apply more knowledge in terms of conduction of experiments and analysis of results at required level.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations in Information Science and Engineering.

PO5	2.60	2.74	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
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Action 1: Students will be exposed to various modern tools like android studio, Jupyter, Eclipse, Netbean, Pycharm.NS2.

Action 2: To Conduct expert talk on topics like “Automation testing tools and application” in order to reinforce their knowledge about Appium Testing Tool for mobile app testing as part of the modern tools usage.

Action 3: Students will be motivated to register for webinars/seminars conducted by third party agencies regarding modern tool usage.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in Information Science and Engineering.

PO6	2.60	2.7	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
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Action 1: Students have to be exposed to various professional engineering practices followed in the industries through industrial visits.

Action 2: Continue association with professional bodies like ISTE and ISTE will arrange expert talks to create more awareness among the students about professional engineering

practice.

Action 3: To understand the safety concerns and social aspects, students shall visit industry to expand their practical knowledge with the effect of improved practices in engineering.

Action 4: Students will be encouraged to carry out inter domain projects so that they would realize the importance of a project involving society, safety, health, and the legalities.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in Information Science and Engineering in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO7	2.60	2.548	<ul style="list-style-type: none"> Target level has not been achieved. The issues of global and environmental awareness among the student should be improved. The following actions were taken to improve the attainment level in next assessment year.
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Action 1: Students will be encouraged to indulge in mini projects/projects where societal and environmental issues can be addressed.

Action 2: Students will be strictly instructed to switch off all electrical Equipment / Resources when not in use for all the laboratories.

Action 3: Best Practices like Rain water harvesting, Sewage treatment plants, proper waste management procedure are employed at our college.

Action 4: Students will be encouraged to indulge in projects, in which global and environmental issues are improved, with respect to consumption of energy and utilization of renewable energy resources.

Action 5: Arranging awareness camps on societal and environmental issues under NSS and other clubs activities.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO8	2.60	2.748	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
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Action 1: Students will be encouraged to get their mini project, major project and internship reports for plagiarism check to ensure proper practice of professional ethics.

Action 2: Guest lectures will be organized on Career readiness program, corporate lectures and motivational talks.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO9	2.60	2.662	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
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Action 1: Students will be encouraged to participate in various co-curricular and extra-curricular activities in other colleges/sports activities/cultural activities.

Action 2: Students will be encouraged to participate in Inter Collegiate Cultural Fest (SARGAM).

Action 3: Students will be encouraged to participate in external inter college technical competitions, coding contests and hackathons.

Action 4: Department encourages formation of student clubs, participation in technical events/Business ideas/ app development.

PO10: Communication: Communicate effectively on complex Information Science engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO10	2.60	2.706	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
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Action 1: Students will be given training to write effective reports and make effective presentations on projects undertaken.

Action 2: Students will be encouraged to participate in class room presentations and national/international conferences/seminars/symposia/Hackathon/ Codeathon.

Action 3: To enhance the employability skills of the students, training programmes will be conducted on the topics: how to face the interview, career development, higher studies, and entrepreneurship development.

Action 4: Guest Lectures will be organized on personality development/Life skills/public speaking of the students.

<p>PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</p>			
PO11	2.60	2.694	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
<p>Action 1: Students will be encouraged to prepare project proposals with the guidance of faculty for government funding agencies.</p> <p>Action 2: Students will be motivated to handle financial management during mini project, major project and club activities.</p>			
<p>PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change..</p>			
PO12	2.60	2.584	<ul style="list-style-type: none"> Target level has not been achieved .The pre final year and final year courses of the program are demonstrating the resource for contemporary issues and lifelong learning should be improved. The following actions were taken to improve the attainment level in next assessment year
<p>Action 1: The recent technology like Cyber security, Machine Learning, Artificial intelligence, VMware, SAP, HP vertica, Blockchain, 5G Wireless Communication will be introduced to the students.</p> <p>Action 2: Students will be motivated to take up NPTEL Certification on JAVA, IOT, Machine Learning, Python, Design and Analysis of Algorithm, Database Management Systems related subjects.</p> <p>Action 3: Students will be motivated to take up Industry oriented certification like CCNA, DevOps, Python.</p> <p>Action 4: Students will be motivated to register for GRE/TOEFL/GATE and other competitive examinations.</p> <p>Action 5: The students are involved in the activities of alumni association and will be encouraged to take membership of Association at the time of passing out.</p> <p>Action 6: Students will be motivated to go for Industrial visits and do internship program to facilitate them to engage in independent and life-long learning.</p>			

Criterion-7 Continuous Improvement



PSOs Attainment Levels and Actions for improvement – CAY (2021-22)

PSOs	Target Level	Attainment Level	Observation
<p>PSO1: The ability to understand, analyse and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics and networking for efficient design of computer-based systems of varying complexity.</p>			
PSO1	2.60	2.746	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
<p>Action 1: Students will be motivated to take up the real life problems during their project work so that they can design, analyse and find solution which gives exposure to latest technologies.</p> <p>Action 2: Students will be given design oriented activities in emerging fields of Information Science engineering.</p> <p>Action 3: Students will be encouraged to take up MOOC courses as part of Co-curricular activities.</p> <p>Action 4: Students will be encouraged to publish research papers in various national and international journals/conferences.</p>			
<p>PSO2: The ability to apply standard practices and strategies in software project development using innovative ideas and open ended programming environment with skills in teams and professional ethics to deliver a quality product for business success.</p>			
PSO2	2.60	2.766	<ul style="list-style-type: none"> Target is achieved. The following actions were taken to enhance the target level.
<p>Action 1: Hands on workshop will be conducted from industry experts on latest hardware and software for getting real time exposure.</p> <p>Action 2: Expert Talks will be conducted on program specific courses.</p> <p>Action 3: Students will be motivated to take up industry related project to get understanding of advanced industry software tools and usage.</p> <p>Action4: Department will be encouraging the students to participate in intra college/ inter college / state level/ national level / International level activities and events.</p>			

7.2 Academic Audit and actions taken thereof during the period of Assessment (15)

(Academic Audit system/process and its implementation in relation to Continuous Improvement)

7.2.A Academic Audit Process

PDCA process is followed by the department of Information Science and Engineering and is as explained below:

PLAN: Lesson Plan, Academic Calendar, Course Syllabus, Workshop, Guest lectures, Club Activities, CO-PO mapping are planned by course coordinator, Verified by module coordinator and program coordinator.

DO: Innovative teaching, Assignment, Quiz, Self-study, Internal assessment, SEE exam are conducted by individual subject faculties.

CHECK: Course files, Department files, OBE report, result analysis are audited by department audit committee, Assignment and Quiz are verified on monthly basis by the department faculty coordinator and verified by the PAC Committee.

ACT: Action on teaching methods, Revision of CO/PO and Curriculum were done by departmental advisory board (DAB) and IQAC which completes PDCA process Information Science and Engineering department in New Horizon College of Engineering

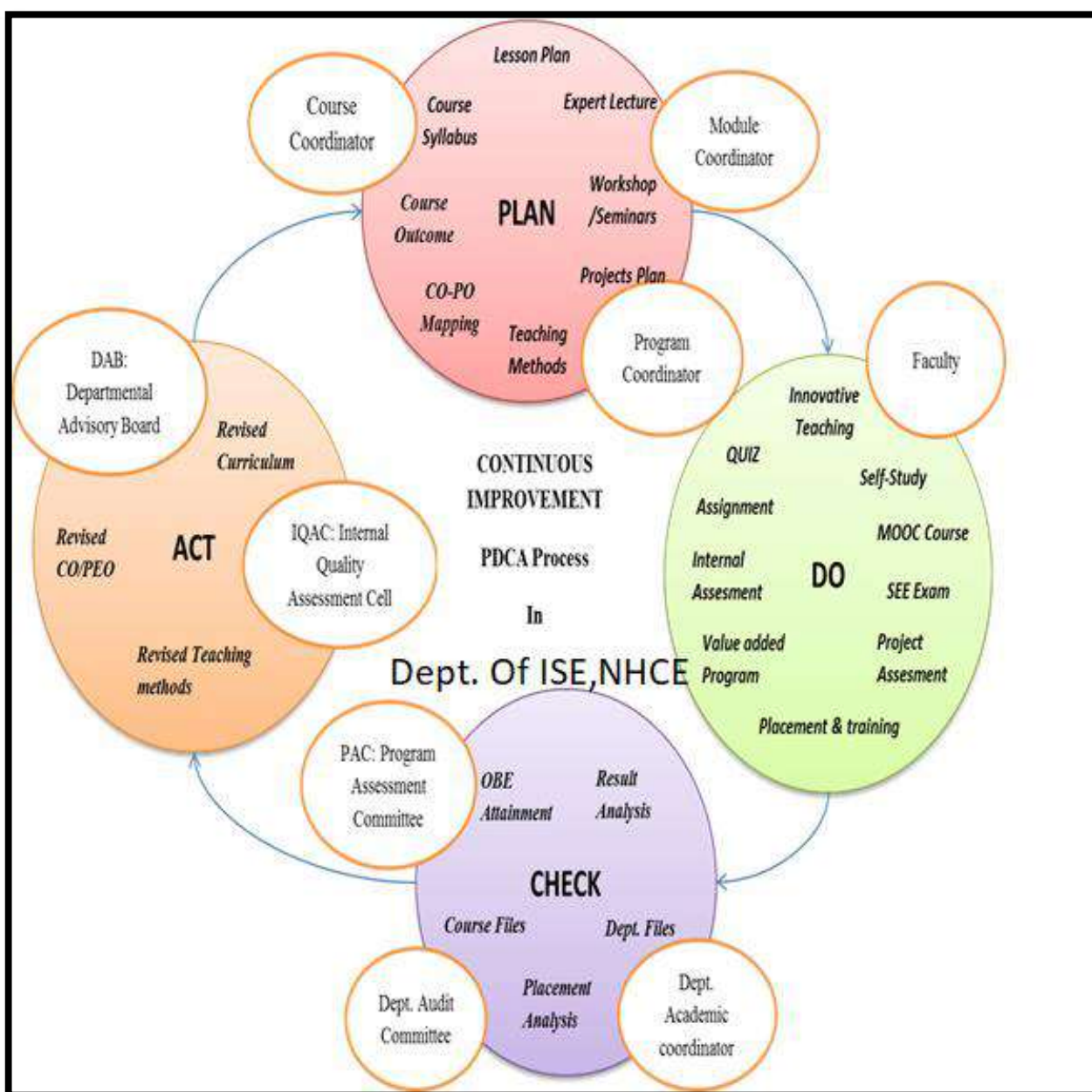


Fig 7.2.A.1 PDCA Process followed in ISE Department

The Academic audits are conducted as per ISO standards and evaluated. The process consists of internal audits and external audits. Audits are conducted for faculties, Laboratories, and departmental activities. Academic audit process flow chart with assessment committee and parameter is shown in the fig 7.2.A.2

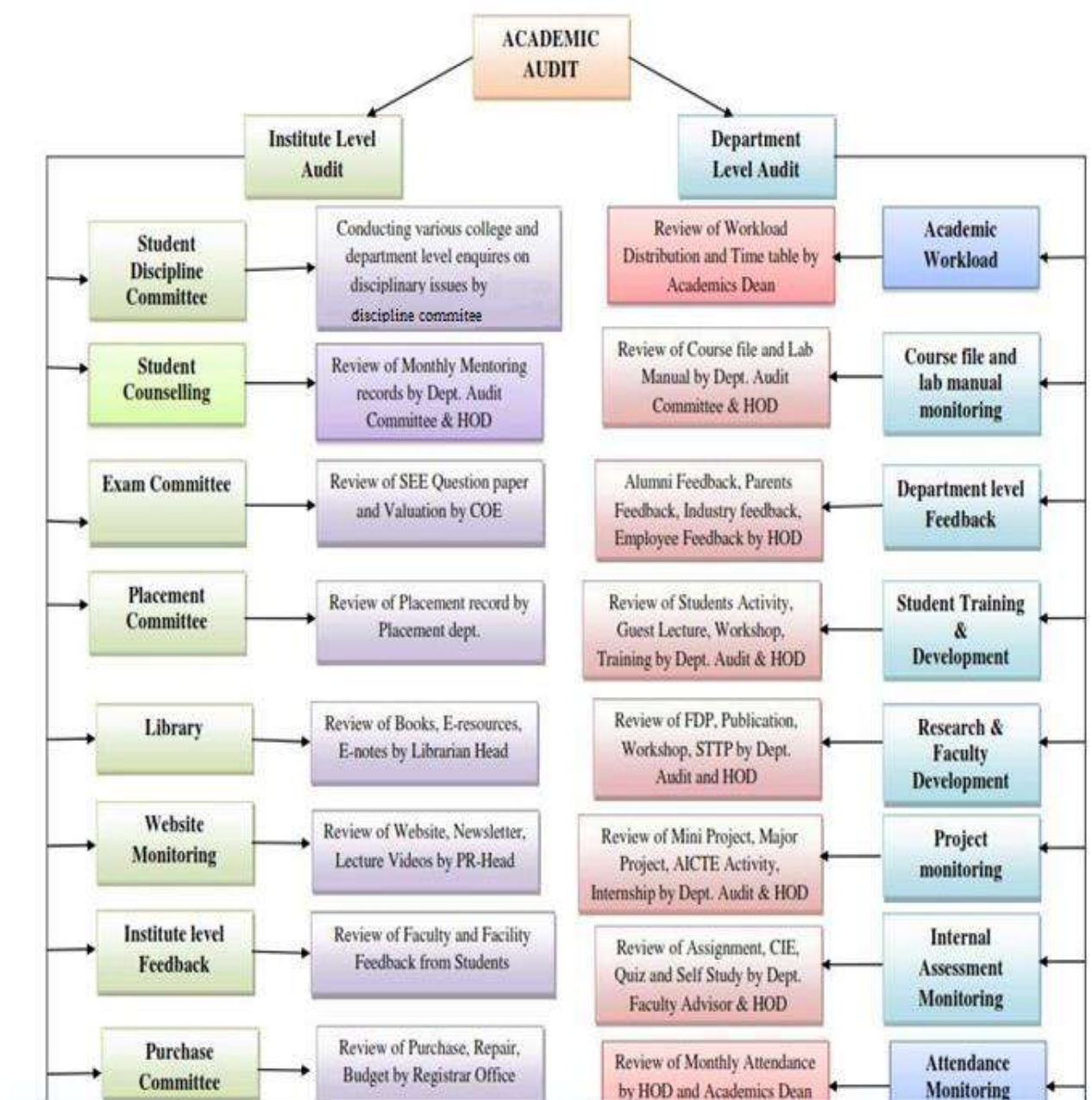


Fig 7.2.A.2 Audit Committee and Assessment Parameter Flow chart

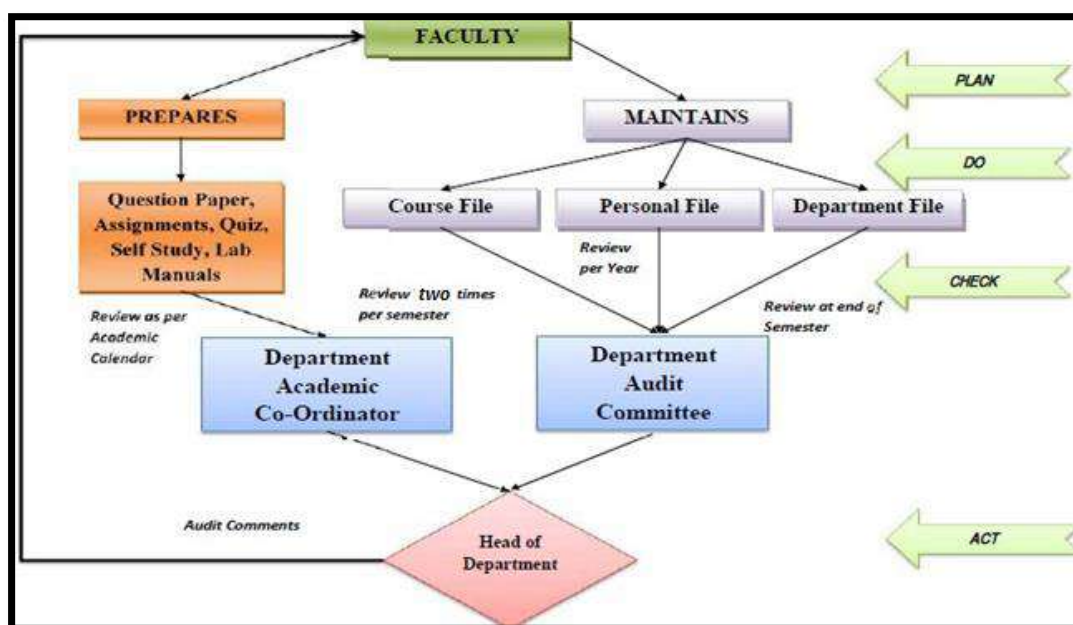


Fig 7.2.A.3 Department Audit Process flow chart

Table 7.2.A.1 Academic Audit assessment and Implementation

Sl. No	Assessment Criteria	Frequency	Conduct Mechanism and Action Plan	Implementation and Effectiveness
Department Level Audit				
1	Academic Curriculum Monitoring	Once in Year	<ol style="list-style-type: none"> 1. Verifying Scheme and Syllabus (Hardcopy) since inception. 2. Verifying the course outcome, program outcome and Program specific outcome by Board of Studies. 3. Collecting the feedback about the course outcome and program outcome from different stakeholders. 4. Revising the curriculum, course outcome, program outcome and teaching methods by Department advisory board(DAB) and verification by Institute quality assurance cell(IQAC). 5. Submitting the minute of meeting report to the dean academics. 	Verification of revised curriculum/CO- PO by Dean (Academics)

Criterion-7 Continuous Improvement



2	Academic Workload Monitoring	Once in Semester	<ol style="list-style-type: none"> 1. Verifying subject preference of faculties as per the domain area. 2. Verifying academic workload and portfolios for the current year. 3. Verifying Calendar of Events, departmental time table, lab time table, Individual time table, open elective time table, coaching class time table per semester. 4. Collecting total workload of individual faculty by the department. 5. Submitting of workload report by HOD to the dean(academics). 	Verification of work load reports and time table by Dean(Academics)
3	Attendance monitoring	Monthly Once	<ol style="list-style-type: none"> 1. Verification of Master Attendance in Automation (Contineo Software) once in month. 2. Collecting Long Absentee List from Class Teachers. 3. Verification of Shortage of Attendance and Issue of warning to students. 4. Collecting Monthly Cumulative Attendance Report from individual subject faculty. 5. Reviewing of shortage of attendance with HOD & Dean (Academics). 6. Submitting of report to the Dean (Academics) by department faculty advisor 7. Obtaining feedback on Course outcome attainment using automation. (Contineo Software). 8. Result analysis of internal exams on regular basis. 	Verification of Attendance reports by office of Dean (Academics), and HOD

Criterion-7 Continuous Improvement



4	Internal Assessment Monitoring	As per Academic Calendar	<ol style="list-style-type: none"> 1. Assessing of Question Paper Format with Correct CO mapping as per syllabus and RBT level. 2. Assessing Assignment, Quiz and Self Study by department Faculty Advisor. 3. Documenting invigilators list, schedule and timetable. 4. Verification of Invigilator Availability in the Examination Hall by IA Coordinator. 5. Collecting Absentee report and recording actions taken. 6. Submitting of report to the Faculty Advisor in the prescribed format. 7. Monitoring Retest as per Schedule and Timings. 8. Verification of assessment, Quiz and self-study marks entry in automation. 9. Preparing consolidated marks statements. 10. Verifying CO-PO attainment by the individual subject. 11. Listing of failures along with the corrective and actions taken report by subject faculty. 12. Submitting of report to the Dean academics in the prescribed format. 	Verification of reports by office of Dean (Academics) and HOD
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Criterion-7 Continuous Improvement



5	Course file and lab manual monitoring	Monthly once	<p>1. particulars:</p> <ol style="list-style-type: none"> i. Calendar of Events ii. Subject Allotment iii. Time Table iv. Syllabus v. Lesson Plan vi. Attendance Register vii. Assignment Questions viii. Internal Question Paper and Scheme of Evaluation ix. Internal Test Marks x. IA- Result Analysis & CAPA Report xi. Previous Year Question Papers xii. Special Class Records (if conducted) xiii. Teacher- Appraisal Feedback xiv. Exam Related Work <p>2. Verification of lab manuals with additional experiments by department Audit Committee. (Open ended.)</p> <p>3. Submission of audit finding report to the HOD in the prescribed format.</p>	Verification of reports by office of Dean (Academics) and HOD
6	Project monitoring	As per Academic Schedule	<ol style="list-style-type: none"> 1. Verification of All Mini and Major Project Titles and Batches of Students. 2. Verification of all Internship and External Projects and their accompanying, progress reports. 3. Monitoring Student Guide Contact hours. 4. Submitting of report to the project coordinator and HOD in the prescribed format. 5. Encouraging and helping students to convert their project into quality technical articles. 6. Publishing and helping students to convert their project into quality technical articles. 	Verification of reports by office of Dean (Academics) and HOD
7	Training & development	Monthly once	<ol style="list-style-type: none"> 1. Identifying of training and development needs of students. 2. Training pre-final year students through Internships. 3. Organizing Professional Tours. 4. Offering Guidance for Higher Studies in India or Abroad. 5. Organizing Guest lecture, workshops/ seminars 	Verification by HOD and Dean(R&D)

Criterion-7 Continuous Improvement



			<p>on Technical Skills, Emotional Intelligence, Soft Skills etc.</p> <p>6. Encouraging students to join and participate in Students Club activity and Professional society activity.</p> <p>7. Encouraging the student to participate in societal activities to be responsible citizen.</p>	
8	Research & Faculty development	Semester wise	<ol style="list-style-type: none"> 1. Encouraging faculty and students to pursue their research plans by submitting research proposals to various agencies and scientific laboratories. 2. Allocating funds budgeted by the college for support of research and professional development. 3. Assuring proper accountability in the use of grants. 4. Ensuring the proper functioning of Labs. 5. Encouraging faculty to submit research article to reputed journals. 6. Encouraging and motivating faculty to apply their research ideas to Indian Patent. 7. Motivating teaching faculty to publish technical books. 	Verification by HOD & Dean(R&D)
Institute Level Audit				
1	Student Discipline Committee (Institute Level)	Monthly once	<ol style="list-style-type: none"> 1. Ensuring maintenance of good student discipline and providing proper amenities for student wellbeing on the campus. 2. Conducting various college and department level enquires on disciplinary issues. 3. Proper functioning of anti- ragging cell. Creating awareness among students about the negative effects / disciplinary actions of ragging on the campus. 	Verification of reports by office of Dean (Student Affairs) and HOD
2	Student Mentoring/ Counselling	Monthly once	<ol style="list-style-type: none"> 1. Striving to work in a coordinated manner as an efficient team. 2. Holding of regular meetings with the students 	Verification of reports by Dean (Student Affairs),

Criterion-7 Continuous Improvement



			<p>to discuss all relevant issues concerning student welfare for there all round development.</p> <p>3. Regular meeting of students with department counselor to discuss any specific issue faced by the students.</p>	Head Counsellor & HOD
3	Feedback	End of semester	<ol style="list-style-type: none"> 1. Obtaining online faculty feedback and facilities feedback at the end of the semester from the students. 2. Obtaining employee, alumni feedback and exit surveys whenever necessary. 3. Reviewing of feedback with the concerned Heads 4. Counseling the faculty to strengthen their performance. 5. Preparing a consolidated department wise report. 6. Submitting of report to the HOD in the prescribed format. 	Verification by HOD & Dean (Academics)
4	Exam Committee	As per the academic calendar	<ol style="list-style-type: none"> 1. Documenting and submitting of the following to the faculty adviser: <ol style="list-style-type: none"> a. Examination notices received from Dean (Academics) b. Circulars for students regarding Exam Fee Collection, the last date of fee collection, modalities of payments of fine c. Examination Time table, Invigilation duty chart, seating plans for the students d. Result analysis e. Disciplinary issues and corrective actions 2. Scrutinize the SEE question papers and scheme of valuation, Number of paper set by external and internal examiners by the Board of Examiners. 3. Maintaining of all records pertaining to 	Verification by HOD & Controller of Examination (COE)

Criterion-7 Continuous Improvement



			<p>Examinations by the Examination Cell.</p> <ol style="list-style-type: none"> Addressing of grievances of administration, faculty, staff and students on all examination related issues. Reporting any issues and suggestions to Controller of Examination (COE) in the prescribed format. 	
5	Purchase Committee	Once in a Year	<ol style="list-style-type: none"> Recommending any new lab facilities setup to enhance the quality of the labs Reviewing the budget proposals for purchase of lab components, lab software, PC, printers and other lab equipment's. Updating the In-Out register, device calibration records, Lab components repair records Submitting the report to the office of registrar in the prescribed format 	Verification of reports by HOD and office of registrar, IQAC
6	Library	Once in a Year	<ol style="list-style-type: none"> Recommending any furniture, assistive devices, or other materials that would enhance the quality of the library. Recommending guidelines to HODs for purchasing instructional materials and journals Reviewing budget proposals for books, journals, materials and equipment needed to further the library's educational endeavors. Updating the books inventory, damaged books inventory and lost books inventory file. Submitting of report to the office of library in the prescribed format. 	Verification of reports by Head-Librarian
7	Placement Committee	As Required	<ol style="list-style-type: none"> Updating student placement record file. Ensuring steps to conduct mock interviews and personality tests for the final year students. Conducting various Career Fairs. Submitting detailed Campus Placements Activity Report for the current academic Year. 	Data is available with T&P cell

Criterion-7 Continuous Improvement



			5. Conducting various soft skills, aptitude skills and language training sessions.	
8	Website Monitoring	As Required	<ol style="list-style-type: none"> 1. Ensuring department event posters and details are updated in college website 2. Updating the college website after completion of the event. 3. Recommending any updates about the department in the college website. 	Data is available with PR Department

7.2.B Internal Audit Committee

Department Audit Committee			
Sl. No	Year	Semester	Audit Committee Members
1	2021-22	Even Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs.Swathi B, Mrs. J Karthiyayini
2	2021-22	Odd Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs. Swathi B, Ms. J Karthiyayini
3	2020-21	Even Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs. Swathi B, Ms. J Karthiyayini
4	2020-21	Odd Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs. Swathi B, Ms. J Karthiyayini
5	2019-20	Even Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs. Swathi B, Ms. J Karthiyayini
6	2019-20	Odd Semester	Dr.Anandhi R J, Dr. K Saravanan, Dr.Arvind S Kapse, Mrs. Swathi B, Ms. J Karthiyayini

Institute Audit Committee		
Sl. No	Year	Auditors
1	2021-22	Dr. Revathi V, HOD-Physics Dr Uma Reddy, HOD-AIML, Dr. Aravinda, Professor, Dept of ECE
2	2020-21	Dr. Amarjith, Dean Academics Dr. Revathi V, HOD-Physics Dr Uma Reddy, HOD-AIML, Dr. Aravinda, Professor, Dept of ECE
3	2019-20	Dr. Prashanth CSR, Dean Academics Ms. Hima Bindhu, Educational prog. analyst, NHQASDC Dr. Anandavardhan, Professor and HOD, BioTech Dr. Niranjana, Professor and HOD, Civil Dr. Anitha S Rai, HOD, Library & Information center, Convener

7.2.C External Audit process

The External audit is conducted by Visveswaraya Technological University once in a year. University appoints a group of experts from various institutions wherein financial details and administrative details are verified at institute level. Course files, lab Manuals, department files and result analysis are verified at the respective department. The external audit committee prepares report based on the observation and institute submit the compliance report to the university. External audit process flow chart is shown in the fig 7.2.4

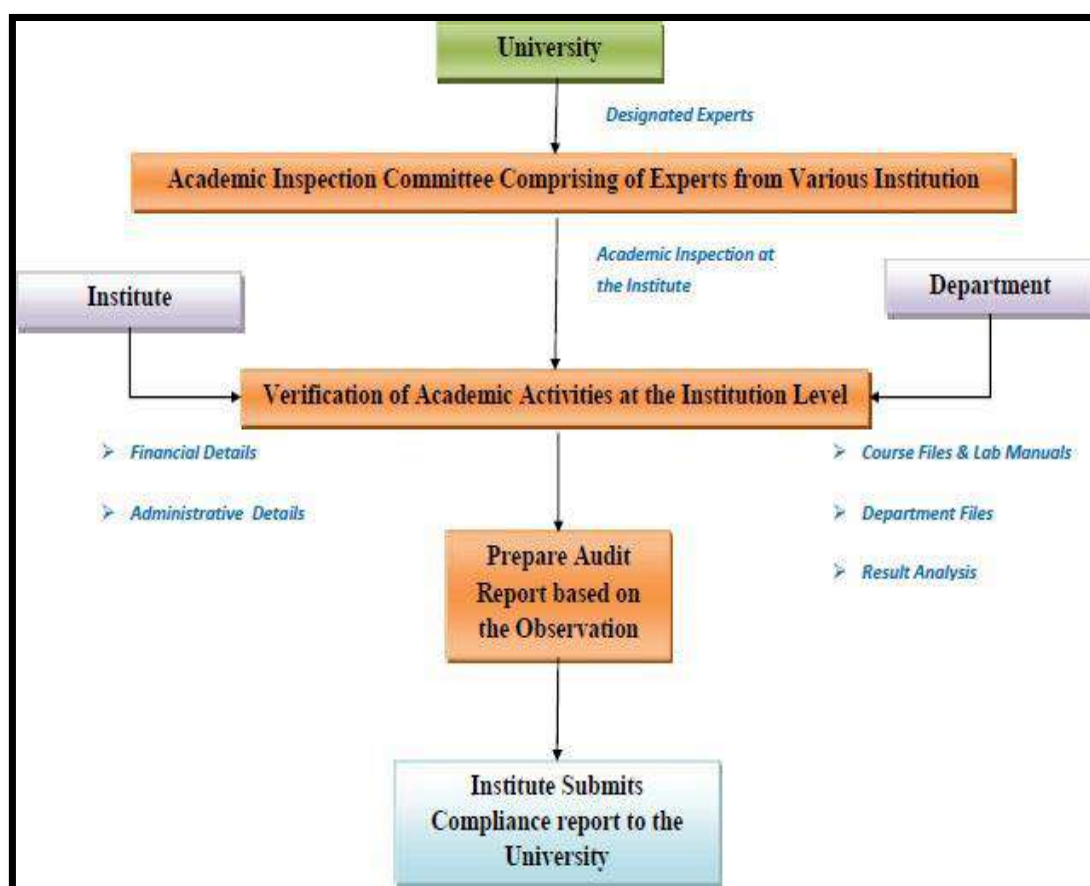


Fig 7.2.C.1 External Audit Process flow chart

Table 7.2.C.1 Audit Findings sample compliance report and Action taken

Sl. No.	ACADEMICS	Remarks	Action Taken
1	Individual Workload [NHCE/IWL/015]	New template to be followed	Ensured that the new template is circulated and followed by the faculty.
2	Guest lecture and Expert lecture (Details, Feedback, Analysis)	Attendance has to be maintained and available	Participants List is been attached with the events conducted.

Criterion-7 Continuous Improvement



3	Industrial visit details and Impact Analysis	Impact Analysis has to be done	Impact Analysis is done as part of Criteria-7(NBA), ensure a copy in the respective files.
4	Student Internships and Impact Analysis	Impact Analysis - mapping with PO	
5	Mini-projects, Major Projects documentation and Mapping of type of Projects	Mapping shall be done - project , Product	Projects are categorized based on domains, Need to Analyse the implementation of projects for the Current Academic year projects and categorize to Product based.
6	Centre-of-excellence (MoU, Syllabus, Utilization, Certification if any)	Requested to have certification copy	Faculty's Open Badge certificates have been added in the file.
Sl. No.	ADMINISTRATION	Remarks	Action Taken
1	Study-abroad program	Due to corona - No data for past two years	Students have not enrolled for the Study abroad program in the current Academic year.
Sl. No.	RESEARCH	Remarks	Action Taken
1	Research proposals submitted and Research grants received	2 separate lists - submitted & sanctioned can be made	Informed the R&D coordinator, Updated with the necessary information
2	Product development	Product development is to be showcased	Analyzed the implementation of projects, and ensured the same is maintained.
3	Faculty awards obtained	Awards / Recognitions can be the file name	Currently the Awards are Nil. Will be Updated as received.

7.3 Improvement in Placement, Higher Studies and Entrepreneurship (10)

Assessment is based on the improvement in:

Placement: number, quality placement, core industry, pay packages etc.

Higher studies: performance in GATE, GRE, GMAT, CAT etc., and admissions in premier Institutions

Entrepreneurs

7.3.A Placement details:

Table 7.3.A.1 Placement data for the year 2016-20

Sl. No	Name of Company	No. of students Placed	Salary Per Annum per students in Rupees
1	Altran	1	350000
2	Accenture	1	364613
3	Capgemini	15	725000
4	Catnip	2	310000
5	Cerner	10	620000
6	CGI	3	350000
7	Covance	2	339000
8	Epsilon	1	680000
9	Eurofins	2	700000
10	Extramarks	1	310000
11	HP	1	750000
12	Hughes Systems	1	350000
13	IBM	7	460000
14	IBS	2	336000
15	Infosys Ltd	6	370000
16	ITC infotech	8	350000
17	L&T	4	402000
18	LOWES	3	620000
19	Microgenesis	1	310000
20	Musigma	1	700000
21	NTTData	6	350000
22	Nineleaps	6	450000
23	Neoway	1	275000

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24	Perfios	1	320000
25	Simeio Solution	2	368000
26	Speridian	1	380000
27	Temairazu Inc	1	2200000
28	Tech Mahindra	1	380000
29	Surya-soft	1	500000
30	Visionet	1	680000
31	Vmware	1	1100000
32	Udan	1	300000
33	Wipro Limited	17	370000
		Average salary package	517261
		Total Students Placed	112
		Percentage of student Placed	92.70%

Table 7.3.A.2 Placement data for the year 2017-21

Sl. No	Name of Company	No. of students Placed	Salary Per Annum per students in Rupees
1	Capgemini	25	680000
2	CERNER CORPORATION	5	600000
3	Cognizant	8	450000
4	ESKO	3	650000
5	EXL Service	7	300000
6	Infogain	10	375000
7	INFOSYS	7	350000
8	INTEL	1	4,20,000
9	L&T Technology Services	10	400000
10	LOWE'S India	10	1914000
11	LTI (Larsen & Toubro Infotech)	4	500000
12	Mindtree	12	330000
13	Mobisy Technologies Ltd	1	600000
14	National Payment Corporation of India	1	620000
15	PhonePe	1	300000
16	Service Line Solutions Pvt Ltd	2	400000
17	Surya Software	1	600000

18	TCS	1	300000
19	Tudip Technologies Pvt Ltd	10	350000
		Average salary package	5,33,631
		Total Students Placed	119
		Percentage of student Placed	94%

Table 7.3.A.3 Placement data for the batch 2018-2022

Sl. No	Name of Company	No. of students Placed	Salary Per Annum per students in Rupees
1	Cognizant	6	700000
2	Comviva	4	375000
3	Byjus	2	600000
4	Capgemini	46	750000
5	EXL Service	5	400000
6	ESKO	2	650000
7	CGI	2	425000
8	Brillio	1	750000
9	HUGHES SYSTIQUE CORPORATION (HSC)	3	653000
10	DXC Technology	11	400000
11	Ernst & Young	5	425000
12	Wipro Ltd	4	350000
13	Musigma	2	300000
14	Galaxe Solutions	1	350000
15	LOWE'S India	5	1934000
16	Publicis Sapient	1	650000
17	MyCaptain	1	450000
18	Accenture	3	650000
19	TCS	2	360000
20	Wissen Infotech	1	425000
21	LTI (Larsen & Toubro Infotech)	2	800000
22	Starland Company Ltd (Japan)	1	1800000
23	IQVIA	1	700000
24	Hiver	2	900000
25	CERNER CORPORATION	3	740000
26	Legato Health Technologies	3	450000
27	I Exceed technology solutions	1	400000

Criterion-7 Continuous Improvement



28	Tudip Technologies Pvt Ltd	1	350000
29	Automation Anywhere	1	852000
30	Zensar	1	400000
31	Cognisure	1	360000
32	ArisGlobal Ltd	1	450000
33	Dell Technologies	1	700000
34	Happiest Minds Technologies Pvt. Ltd	2	420000
35	Digit General Insurance	1	450000
36	Visionet System Inc	1	380000
37	IBM	3	450000
38	EPSILON	2	500000
		Average salary package	597342
		Total Students Placed	135
		Percentage of student Placed	95.80%

Comparative Analysis of Placement data

Year	Z= No of Student Placed + Selected for Higher Studies + Opted Entrepreneurship	N= No. of Student Appeared in final year Examination	Placement Ratio (Z/N)	% of students placed
2021-22	135 + 3 + 0 =138	145	0.951	95.1%
2020-21	119+ 7 + 0 =126	134	0.940	94%
2019-20	112 + 3 + 0 =115	124	0.927	92.7%
Average Placement Ratio			0.94	
Percentage			94%	

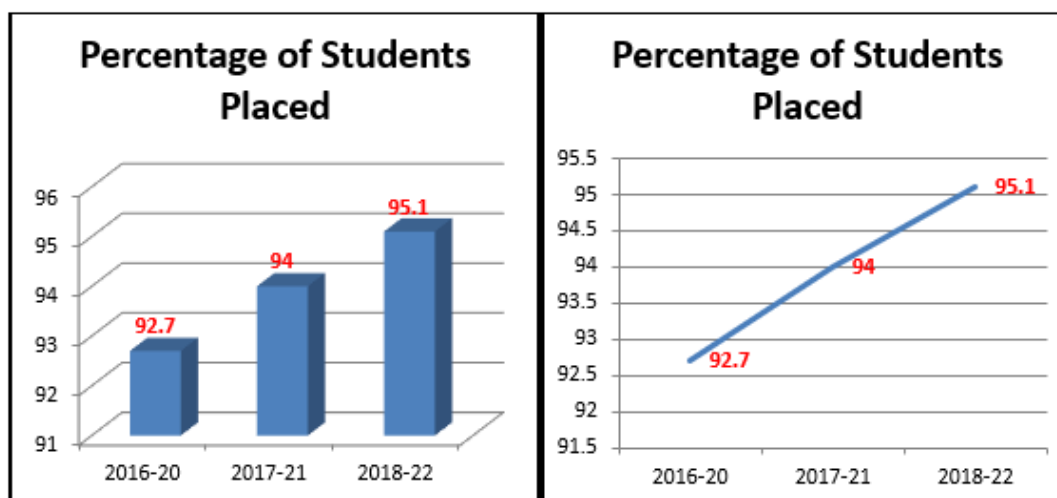


Fig.7.3.A.1 Placement Improvement considering 2016-20 as base year

Table 7.3.A.4 Placement comparative analysis report

Comparative Analysis of Placement data				
Year	Total number of Eligible students	Total number of students placed	% of students placed	Improvement in %
2018-22	145	135+3	95.1%	1.1%
2017-21	134	119+7	94%	1.3%
2016-20	124	112+3	92.7%	-
Year	Total number of Eligible students	Highest Pay Package received by student (in Rupees)	Lowest Pay Package received by student (in Rupees)	Average pay package received by students (in Rupees)
2018-22	145	19,34,000	3,00,000	5,97,342

2017-21	134	19,14,000	3,00,000	5,33,631
2016-20	124	22,00,000	3,10,000	5,17,261

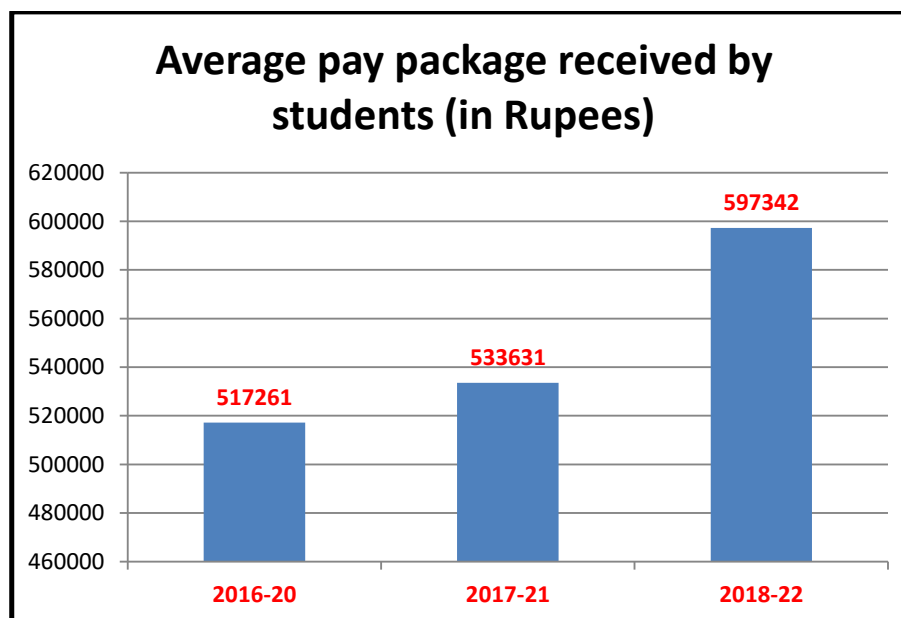
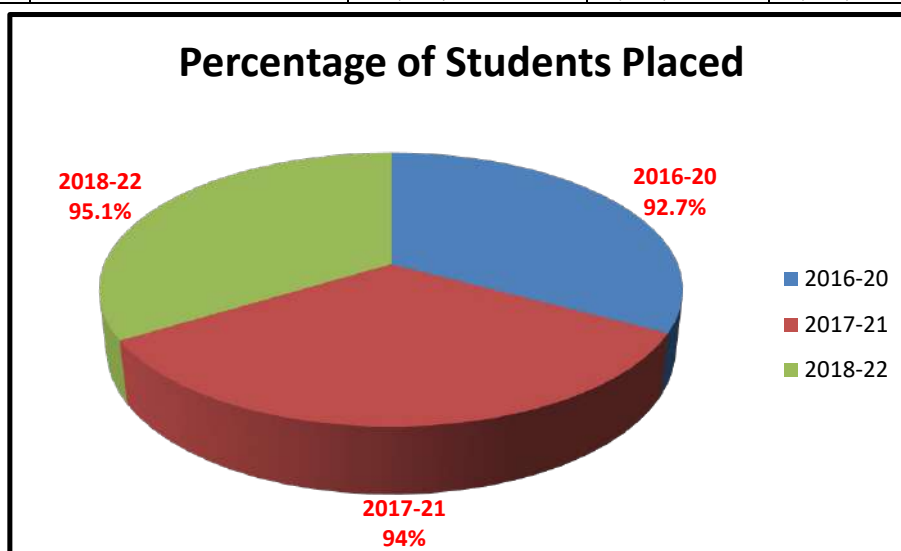


Fig.7.3.A.2 Comparative Analysis of Placement data for three assessment years

7.3.B Higher studies details:

Table 7.3.B.1 Higher studies enrolment details for 2016-20

Sl. No	Name of the program	Name of Exam	Number of students cleared
1	MS	GRE	2
2	MBA	GMAT/CAT	1
Total number of students joined for higher studies: 3			

Table 7.3.B.2 Higher studies enrolment details for 2017-21

Sl. No	Name of the program	Name of Exam	Number of students cleared
1	MS	GRE	7
Total number of students joined for higher studies: 7			

Table 7.3.B.3 Higher studies enrolment details for 2018-22

Sl. No	Name of the program	Name of Exam	Number of students cleared
1	MS	GRE	3
Total number of students joined for higher studies: 3			

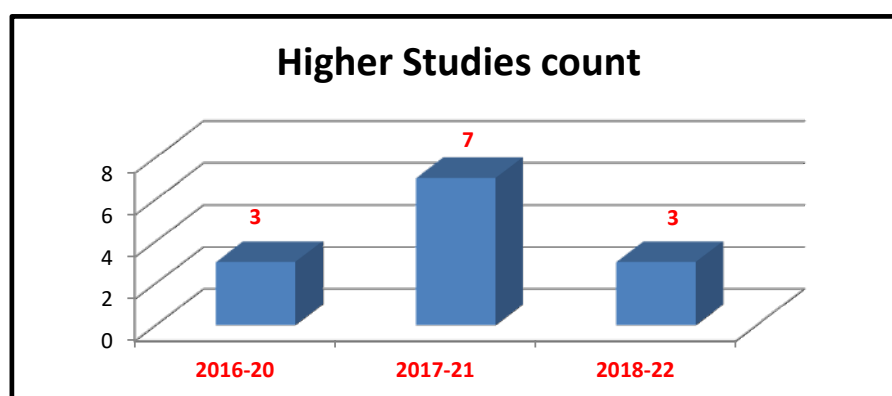


Fig.7.3.B.1 Comparative analysis of Higher Studies

7.4 Improvement in the quality of students admitted to the program(20)

The quality of students is measured based on improvement in terms of ranks in qualifying state level/national level entrance tests, percentage marks in physics, Chemistry and Mathematics in 12th standard and percentage of marks of lateral entry students.

Table 7.4.1: Admission details of 2022-23, 2021-22 and 2020-21

Item		2022-23	2021-22	2020-21
National Level Entrance Examination (Name of the Entrance Examination)	No. of Students admitted	0	0	0
	Opening Score/Rank	0	0	0
	Closing Score/Rank	0	0	0
Karnataka-Common Entrance Test-CET + Super Numeric quota	No. of Students admitted	62	69	71
	Opening Score/Rank	9477	6668	10442
	Closing Score/Rank	16464	21812	14547
Lateral entry details	No. of Students admitted	17	18	15
	Opening Score/Rank	1474	3740	5375
	Closing Score/Rank	9478	16078	14288
Average CBSE/Any other Board Result of admitted students (Physics, Chemistry & Maths)		95.77	87.26	92.90

Declaration

- I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institutes shall fully abide by them.
- It is submitted that information provided in this Self-Assessment Report is factually correct.
- I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA. In case, any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

Head of the Institute Name : MANJUNATHA

Designation : PRINCIPAL



Signature :



Seal of The Institution :

Principal

New Horizon College of Engineering
Ring Road, Bellandur Post
Bangalore - 560 103

Place : BANGALURU

Date : 10-06-2023 14:54:1

Annexure I

(A) PROGRAM OUTCOME (POs)

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

(B) PROGRAM SPECIFIC OUTCOME (PSOs)

Program should specify 2-4 program specific outcomes.

PSO1 The ability to understand, analyse and develop computer programs in the areas related to Algorithms, System Software, Web Design, Big Data Analytics, Machine Learning, Internet of Things, Data Science and Networking for efficient design of computer based systems of varying complexity.

PSO2 The ability to apply standard practices and strategies in software project development using innovative ideas and open ended programming environment with skills in teams and professional ethics to deliver a quality product for business success.