||JAI SRI GURUDEV||

SJC INSTITUTE OF TECHNOLOGY

PB No. 20 BB ROAD CHICKBALLAPUR-562101, KARNATAKA INDIA

SELF ASSESSMENT REPORT (Tier-II)

UNDERGRADUATE PROGRAM

IN

MECHANICAL ENGINEERING

To be Submitted to

National Board of Accreditation

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1. VISION, MISSION AND PROGRAM EDUCATIONAL OBJECTIVES (60)

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

Sri Jagadguru Chandrashekaranatha Swamiji Institute of Technology (SJCIT) is a premier Institute imparting technical education since 1986. The Institute is managed by Sri Adichunchanagiri Shikshana Trust® with the divine blessings of Byravaikya Jagadguru Padmabhushan Sri Sri Sri Dr. Balagangadharanatha Maha Swamiji and spiritual guidance of Jagadguru Sri Sri Sri Dr. Nirmalanandanatha Maha Swamiji. The Trust runs more than 517 Institutions all over country. SJCIT is affiliated to Visvesvaraya Technological University (VTU), Belagavi. The Institution is recognized by the All India Council for Technical Education (AICTE), New Delhi and Accredited by NAAC A+.

Vision of the Institute

Preparing Competent Engineering and Management Professionals to Serve the Society

Mission of the Institute

M1: *Providing Students with a Sound Knowledge in Fundamentals of their Branch of Study.*

M2: *Promoting Excellence in Teaching, Training, Research and Consultancy.*

M3: *Exposing Students to Emerging Frontiers in various domains enabling Continuous Learning.*

M4: *Developing Entrepreneurial acumen to venture into Innovative areas.*

M5: *Imparting Value based Professional Education with a sense of Social Responsibility.*

About the Department:

The Department of Mechanical Engineering was established in the year 1986 with UG program. The present intake for this program is 30. The program, B.E in Mechanical Engineering has been accredited by NBA for the period of three years in 2004 – 2007, 2008 – 2011, 2018-2021 and 2021-2025. The department started PG program under VTU in Machine design domain in the year 2002. The Present intake of the PG Program is 09 students. The department has VTU Recognized R&D centre which provides opportunity for the students to carryout M.Sc. research and PhD programs. The department has adequate infrastructure and laboratory facilities with well qualified faculties.

Vision of the Department

Building Technically Competent Mechanical Engineers to Serve the Society

Mission of the Department

M1: *Imparting strong fundamental knowledge in Mechanical Engineering and allied fields.*

M2: *Fostering a culture of collaboration and propagating Industry Institute interactions to enhance advances in latest technologies.*

M3: *Creating State -of -Art facilities benefitting students and faculty to carryout Research, Innovation, and Consultancy.*

M4: *Providing conducive environment for both students and faculty to engage in lifelong learning activities.*

M5: *Inculcating Professional ethics, Leadership qualities and Entrepreneurial skills among students.*

1.2. State the Program Education Objectives (PEOs) (5)

The PEOs for the Mechanical Engineering program describe accomplishments that graduates are expected to achieve within three to five years after graduation.

Graduates would have applied their expertise to contemporary problem solving, be engaged professionally, have continued to learn & adapt, and have contributed to their organizations through leadership & teamwork.

Program Educational Objectives

PEO 1: *Graduates will apply their engineering knowledge and problem solving abilities to lead successful career in various technical Organizations or as Entrepreneurs*

PEO 2: *Graduates will be engaged in life-long learning activities and professional development through continuing education in mechanical engineering stream or in any other allied streams*

PEO 3: *Graduates will exhibit effective communication skills, teamwork abilities, leadership qualities and ethical attitude*

1.3. Indicate Where the Vision, Mission and PEOs are Published and Disseminated among Stakeholders (10)

The Vision, Mission and PEOs of the Mechanical Engineering program are Published and Disseminated among all the Stakeholders. The details are presented in Table B.1.3.

Table B.1.3 Vision, Mission and PEOs statements published and disseminated

Stakeholders	Published at	Dissemination Method
Internal Stakeholder (Management, Principal, HOD, Faculty, Students, Non-Teaching Staff)	▪ Institute website (www.sjcit.ac.in) ▪ Department News Letter ▪ Department Notice boards ▪ Classrooms ▪ Department Laboratories ▪ Department Library ▪ Seminar hall ▪ HOD Chamber ▪ Faculty Cabins ▪ Lab Manuals ▪ Display Boards ▪ Faculty Attendance Register	▪ Orientation Programs ▪ Department Meetings ▪ Workshops ▪ Seminars ▪ Conferences ▪ Faculty Development Programs ▪ Training Programs ▪ E-Mails
External Stakeholder (Parents, Alumni, Employers, Professional Bodies, Industry)	▪ Institute Website www.sjcit.ac.in ▪ News Letter ▪ College Prospectus	▪ Parent-Teachers Meetings ▪ Alumni Interactions ▪ E-Mails

Fig 1.1: Vision & Mission of the Institution

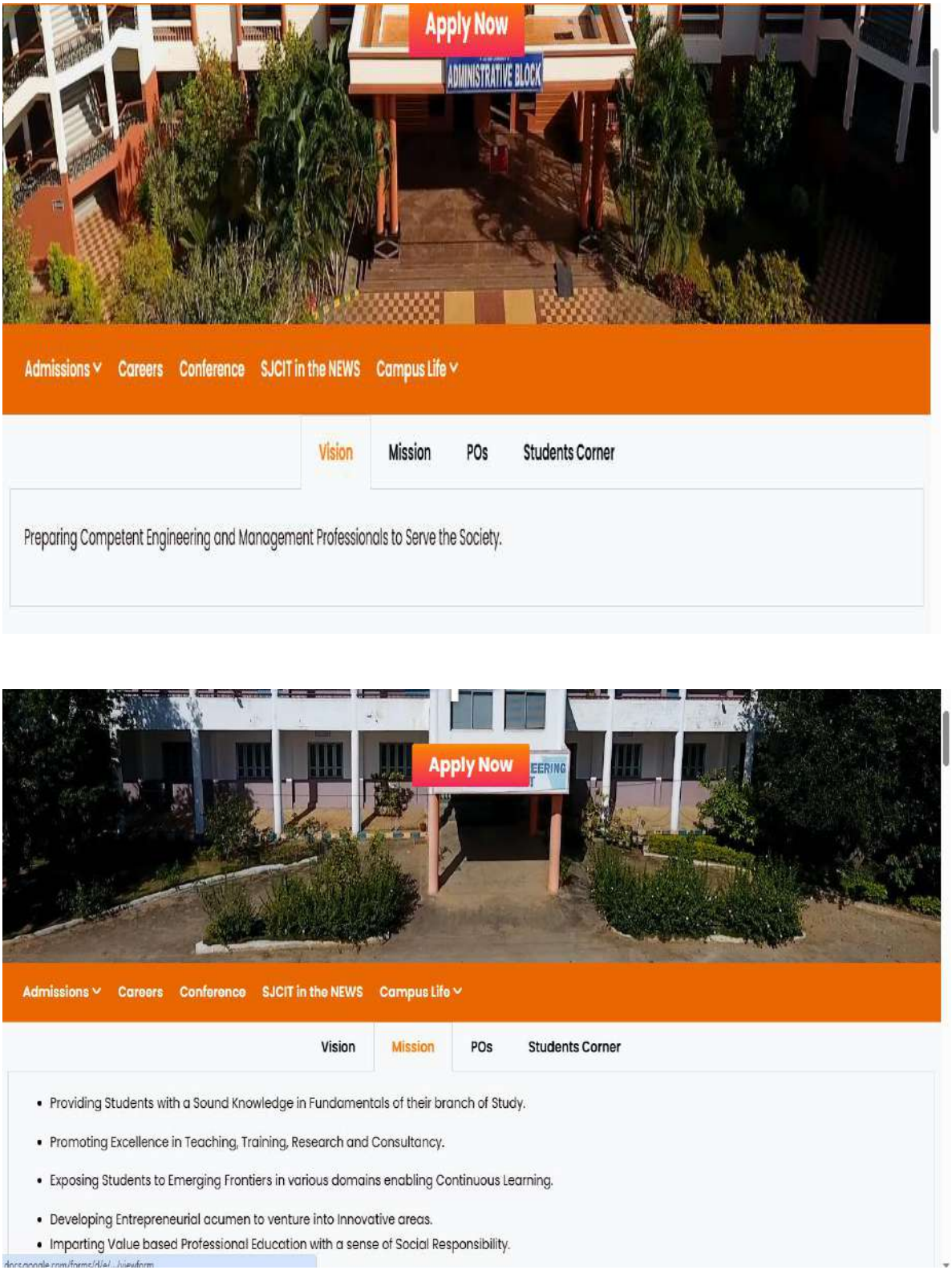
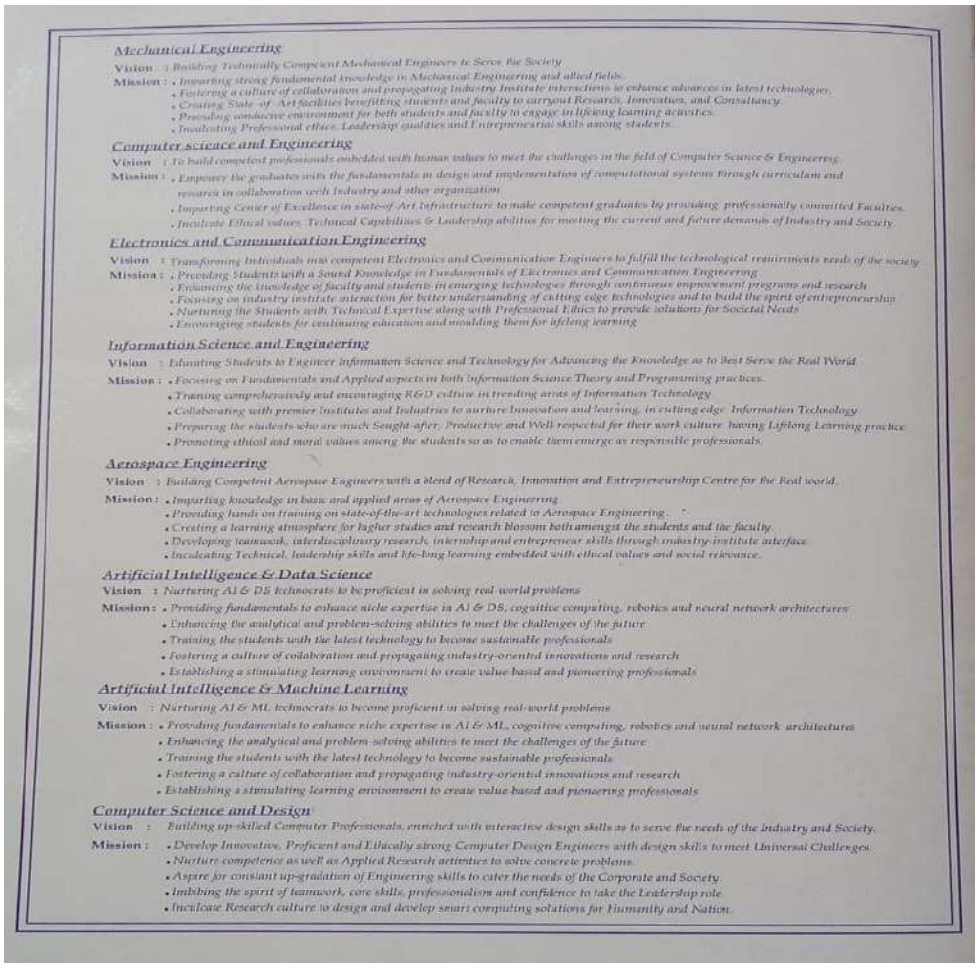


Fig 1.2: Vision, Mission in college website

Fig 1.3: Displayed Boards of Vision & Mission in the Department



Mechanical Engineering

Vision : *Building Technically Competent Mechanical Engineers to Serve the Society*

Mission :
- *Imparting strong fundamental knowledge in Mechanical Engineering and allied fields.*
- *Fostering a culture of collaboration and propagating Industry Institute interactions to enhance advances in latest technologies.*
- *Creating State -of-Art facilities benefiting students and faculty to carryout Research, Innovation, and Consultancy.*
- *Providing conducive environment for both students and faculty to engage in lifelong learning activities.*
- *Inculcating Professional ethics, Leadership qualities and Entrepreneurial skills among students.*

Computer science and Engineering

Vision : *To build competent professionals embedded with human values to meet the challenges in the field of Computer Science & Engineering.*

Mission :
- *Empower the graduates with the fundamentals in design and implementation of computational systems through curriculum and research in collaboration with Industry and other organization.*
- *Imparting Center of Excellence in state-of-Art Infrastructure to make competent graduates by providing professionally committed Faculties.*
- *Inculcate Ethical values, Technical Capabilities & Leadership abilities for meeting the current and future demands of Industry and Society.*

Electronics and Communication Engineering

Vision : *Transforming Individuals into competent Electronics and Communication Engineers to fulfill the technological requirements needs of the society.*

Mission :
- *Providing Students with a Sound Knowledge in Fundamentals of Electronics and Communication Engineering.*
- *Enhancing the knowledge of faculty and students in emerging technologies through continuous empowerment programs and research.*
- *Focusing on industry institute interaction for better understanding of cutting edge technologies and to build the spirit of entrepreneurship.*
- *Nurturing the Students with Technical Expertise along with Professional Ethics to provide solutions for Societal Needs.*
- *Encouraging students for continuing education and moulding them for lifelong learning.*

Information Science and Engineering

Vision : *Educating Students to Engineer Information Science and Technology for Advancing the Knowledge as to Best Serve the Real World.*

Mission :
- *Focusing on Fundamentals and Applied aspects in both Information Science Theory and Programming practices.*
- *Training comprehensively and encouraging R&D culture in trending areas of Information Technology.*
- *Collaborating with premier Institutes and Industries to nurture Innovation and learning, in cutting edge Information Technology.*
- *Preparing the students who are much Sought-after, Productive and Well-respected for their work culture having Lifelong Learning practice.*
- *Promoting ethical and moral values among the students so as to enable them emerge as responsible professionals.*

Aerospace Engineering

Vision : *Building Competent Aerospace Engineers with a blend of Research, Innovation and Entrepreneurship Centre for the Real world.*

Mission :
- *Imparting knowledge in basic and applied areas of Aerospace Engineering.*
- *Providing hands on training on state-of-the-art technologies related to Aerospace Engineering.*
- *Creating a learning atmosphere for higher studies and research blossom both amongst the students and the faculty.*
- *Developing teamwork, interdisciplinary research, internship and entrepreneur skills through industry institute interface.*
- *Inculcating Technical, leadership skills and life-long learning embedded with ethical values and social relevance.*

Artificial Intelligence & Data Science

Vision : *Nurturing AI & DS technocrats to be proficient in solving real-world problems.*

Mission :
- *Providing fundamentals to enhance niche expertise in AI & DS, cognitive computing, robotics and neural network architectures.*
- *Enhancing the analytical and problem-solving abilities to meet the challenges of the future.*
- *Training the students with the latest technology to become sustainable professionals.*
- *Fostering a culture of collaboration and propagating industry-oriented innovations and research.*
- *Establishing a stimulating learning environment to create value-based and pioneering professionals.*

Artificial Intelligence & Machine Learning

Vision : *Nurturing AI & ML technocrats to become proficient in solving real-world problems.*

Mission :
- *Providing fundamentals to enhance niche expertise in AI & ML, cognitive computing, robotics and neural network architectures.*
- *Enhancing the analytical and problem-solving abilities to meet the challenges of the future.*
- *Training the students with the latest technology to become sustainable professionals.*
- *Fostering a culture of collaboration and propagating industry-oriented innovations and research.*
- *Establishing a stimulating learning environment to create value-based and pioneering professionals.*

Computer Science and Design

Vision : *Building up-skilled Computer Professionals, enriched with interactive design skills so as to serve the needs of the industry and Society.*

Mission :
- *Develop Innovative, Proficient and Ethically strong Computer Design Engineers with design skills to meet Universal Challenges.*
- *Nurture competence as well as Applied Research activities to solve concrete problems.*
- *Aspire for constant up-gradation of Engineering skills to cater the needs of the Corporate and Society.*
- *Imbibing the spirit of teamwork, core skills, professionalism and confidence to take the Leadership role.*
- *Inculcate Research culture to design and develop smart computing solutions for Humanity and Nation.*

Fig 1.4: Displayed in Faculty's Attendance Register

1.4. State the process for defining the Vision and Mission of the Department and PEOs of the program (25)

[A] The process for defining the Vision and Mission of the program

Following process has been adopted in framing department Vision and Mission statements:

1. Head of the department along with **Program Assessment Committee (PAC)**, held brain storming sessions with all the faculty members for defining vision & mission statements of the department in line with the vision & mission statements of the Institution. Data from SWOT analysis and benchmarking institutions were considered.
2. Draft vision and mission statements were circulated among stakeholders for their feedback.
3. The suggestions & modifications provided by the stakeholders were analysed in **Department Advisory Board (DAB)** meeting & final vision, mission statements are formulated.
4. Final vision & mission statements were forwarded for the approval by head of the institution.
5. The approved vision, mission statements were published & disseminated to all the stakeholders.

Figure 1.5: Snapshots of PAC & DAB meeting

The process of defining vision and mission statements is illustrated in the following process figure 1.6.

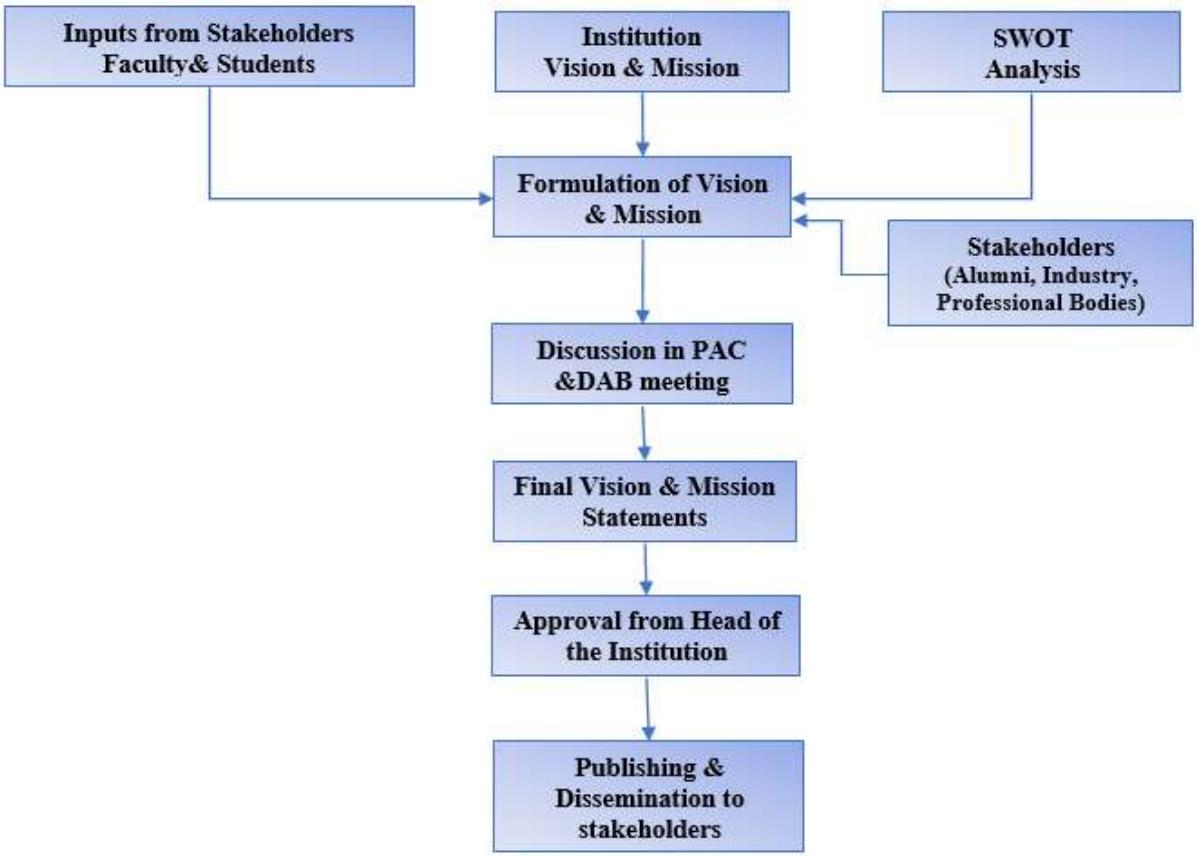


Figure 1.6: Steps for defining the Department Vision and Mission

[B] The process for defining the PEOs of the program

Program Educational Objectives (PEOs) are defined in line with Vision & Mission of the Institution & department. The inputs from various stakeholders were considered while defining PEOs of the program. These are established through a well-defined and recorded consultation process as depicted in **Figure 1.7** involving the Key elements:

- These statements are discussed further among the members of Department Advisory Board (DAB) and Program Assessment Committee (PAC) before finalization.
- Finally, the Vision, Mission and PEOs are approved by the Head of the Institution.

Following process has been adopted in framing department Program Educational Objectives (PEOs):

1. The Head of the department along with Program Assessment Committee, held brain storming sessions with all the faculty members for defining PEOs of the department by

considering the program outcomes, Institution & department vision, mission statements.

2. Draft PEOs statements were circulated among stakeholders for their feedback.
3. The suggestions & modifications provided by the stakeholders were analysed in Department Advisory Board meeting & final PEOs are formulated.
4. Final Program Educational Objectives were forwarded for the approval by Head of the Institution.
5. The approved Program Educational Objectives were published & disseminated to all the stakeholders.

The process of defining Programme Educational Objectives (PEOs) is illustrated in the following process figure 1.7

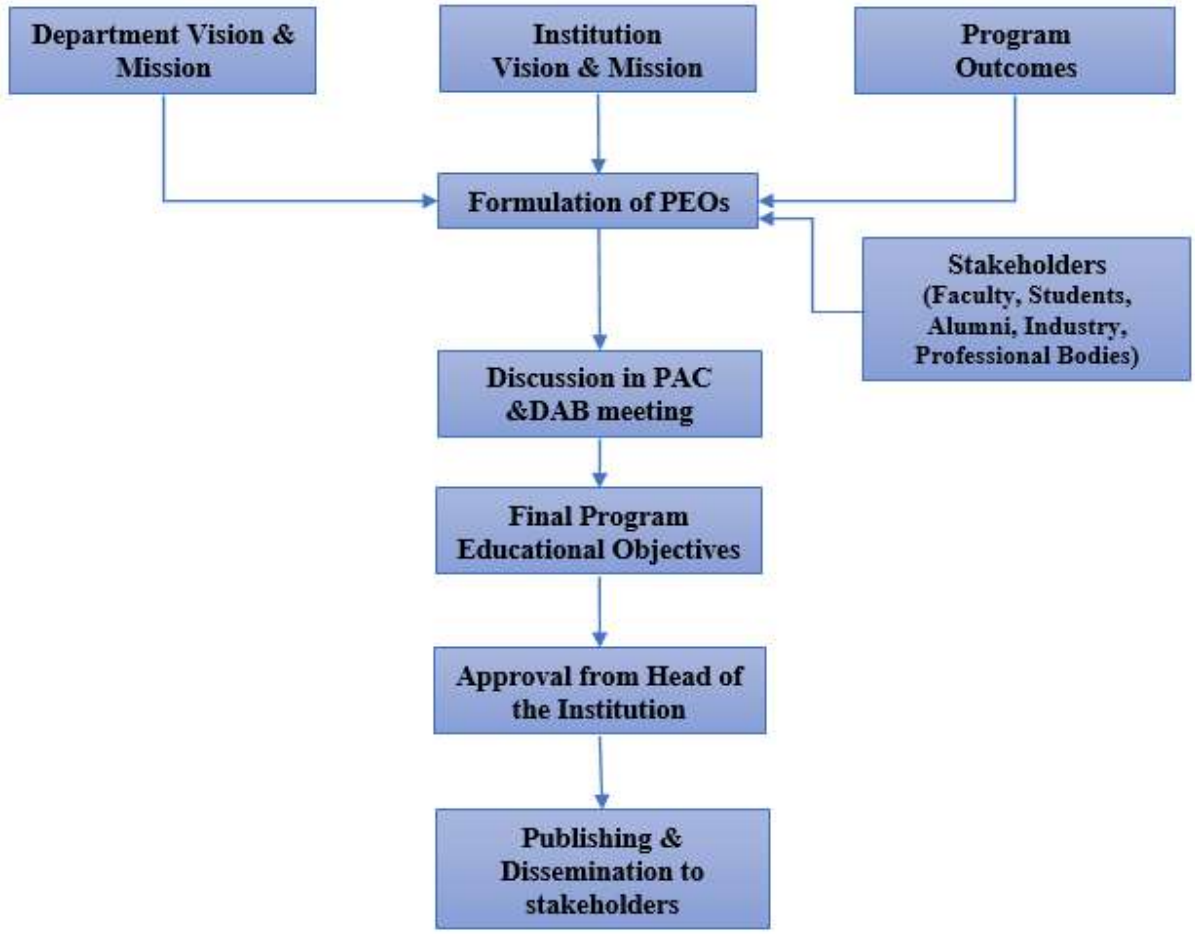


Fig. 1.7: Process followed for defining the Department PEOs

1.5. Establish consistency of PEOs with Mission of the Department (15)

Table B.1.5.1: Mapping of PEOs with Mission of the Department

Mission → / PEO's ↓	**M1:** Imparting strong fundamental knowledge in Mechanical Engineering and allied fields.	**M2:** Fostering a culture of collaboration and propagating Industry Institute interactions to enhance advances in latest technologies.	**M3:** Creating State - of -Art facilities benefitting students and faculty to carryout Research, Innovation, and Consultancy.	**M4:** Providing conducive environment for both students and faculty to engage in lifelong learning activities.	**M5:** Inculcating Professional ethics, Leadership qualities and Entrepreneurial skills among students.
PEO 1: Graduates will apply their engineering knowledge and problem solving abilities to lead successful career in various technical Organizations or as Entrepreneurs	**3**	**2**	**3**	**2**	**3**
PEO2: Graduates will be engaged in life-long learning activities and professional development through continuing education in mechanical engineering stream or in any other allied streams	**3**	**2**	**2**	**3**	**2**
PEO3: Graduates will exhibit effective communication skills, teamwork abilities, leadership qualities and ethical attitude	**2**	**3**	**2**	**2**	**3**

Table B.1.5.2: Justification and rationale of PEOs with Mission of the Department

PEOs	Mission	Levels	Justification
PEO1	M1	3	Strong fundamentals are the backbone of problem-solving in technical roles and equips graduates with the engineering base required to solve problems and build successful careers.
	M2	2	PEO2 maps moderately with M2 as the interactions with industries give them a first-hand know how about the working of automotive industries. Enhance practical exposure, enabling graduates to excel in technical roles.
	M3	3	State-of-the-art facilities support hands-on learning, innovation, and problem-solving abilities relevant to careers and entrepreneurship.
	M4	2	A conducive learning environment (M4) motivates continuous improvement essential for career growth.
	M5	3	PEO1 maps substantially with M5 as it gives opportunities for students to develop the ability to come out with eco-friendly construction techniques and products and support graduates in taking leadership roles or starting ventures.
PEO2	M1	3	A supportive environment is pivotal for encouraging graduates to pursue higher education and lifelong learning.
	M2	2	The program supports industry institute interaction to empower professionalism through interaction with industry people, internships, projects work, and extracurricular activities. Activities through student technical clubs & student chapters of various technical bodies.
	M3	2	Knowledge gained through this program and work experience in IT industries shall enhance the capacity of graduates to provide innovative solutions to real-world problems through software products creation, adopting recent trends in information technology and carrying out interdisciplinary activities in association.
	M4	3	Fundamental knowledge aids adaptability but is not the primary focus.
	M5	2	Exhibit professionalism & team work with social concern.
PEO3	M1	2	Technical knowledge (M1) helps graduates communicate engineering concepts effectively.
	M2	3	Industry interactions inherently develop teamwork and communication and interpersonal skills.
	M3	2	Mentoring helps students to develop leadership, teamwork, and communication abilities.
	M4	2	Industrial exposure helps students to exhibit professionalism with ethical values and to promotes teamwork and collaborative learning.
	M5	3	Directly addresses leadership and ethics and teamwork expected from graduates.

CRITERION 2	Program Curriculum and Teaching-Learning Processes	120

2.1. Program Curriculum (20)

2.1.1. State the process used to identify extent of compliance of the University curriculum for attaining the program outcomes and program specific outcomes as mentioned in Annexure I also mention the identified curricular gaps, if any (10)

The Department of Mechanical Engineering is affiliated to Visvesvaraya Technological University, Belagavi, Karnataka. The entire program curriculum is designed and provided by the university. The curriculum is formulated through Board of Studies (BoS) of VTU comprising a Chairman, Senior Professors of Mechanical engineering discipline and representative members from Industry. Apart from the university syllabus, various curricular and extracurricular activities are carried out at the departmental level for the benefit of students and societal needs.

A. Process used to identify extent of compliance of university curriculum for attaining POs & PSOs

Undergraduate program is affiliated to Visvesvaraya Technological University, Belagavi and the curriculum is prescribed by the university. The schemes followed are:

- The Choice based credit system (CBCS) autonomous scheme for the academic year 2024.
- The Choice based credit system (CBCS) revised scheme for the academic year 2022.
- The Choice based credit system (CBCS) revised scheme for the academic year 2021.
- The Choice based credit system (CBCS) revised scheme for the academic year 2018.
- The Choice based credit system (CBCS) revised scheme for the academic year 2017.
- The CBCS scheme was introduced in the year 2015.

For each course, outcomes are defined by the course coordinator and these are mapped to program outcomes and program specific outcomes. The program specific outcomes are defined by the department.

Generally, Curriculum maintains the balance in the composition of **Basic Science, Humanities, Professional Courses** and their distribution in **Core and Electives** with the specified depth and breadth offerings. If some components to attain COs or POs are not included in the curriculum provided by the VTU, then the department makes additional efforts to impart such knowledge by covering concepts through **Content beyond Syllabus** which is added by proper "**Gap analysis"**

process.

A typical action plan deployed by the Department for effectively operationalizing the given curriculum is detailed below:

Course Allotment: At the end of each semester, Head of the Department (HoD) conducts a departmental meeting to take stock of the next semester's academic requirements. After a thorough discussion, the courses and labs are allotted to the faculty members based on their priority, previous experience, specialization, the individual interest shown and, in some cases, the HoD may map courses to a faculty based on the previous semester's results, student's feedback, staff position or similar demands.

Course Preparation: The faculty prepares lesson plan, notes, question bank, assignment questions, presentation materials, handouts etc., of the allotted courses for the entire syllabus during the vacation. The academic material prepared by the staff is reviewed by HoD, Reviewers and suitable suggestions are provided. After corrective measures, the prepared academic material is made available to the students.

Lab Requirement: The labs are allotted with one Lab In-Charge. The concerned Lab In-Charge goes through the syllabus, takes stock of new requirements, replacements needed, servicing issues, etc. and submits a Material Requisition Form (MRF) to HoD for concerned action plan (calling quotations, purchase etc.,).

Also, the Lab In-Charge prepares and updates the lab manuals. All the staff members allotted to a particular lab is required to be familiar and thorough with the entire experiment set.

Calendar of Events: Based on the VTU calendar of events, college and department calendar of events is prepared. College calendar of events consists of the activities planned for the semester which includes internal test dates, project reviews, total number of working days and holidays. The college calendar of events is prepared and circulated among the faculties and displayed on the notice board. Department calendar of events contains conduction of events like organizing guest lectures, conferences, industrial visits and workshops.

Coverage of Syllabus: The faculty estimates the number of probable classes available for the given academic semester and prepare lesson plan accordingly for coverage of entire syllabus. The entire syllabus is supposed to be covered by each staff with proportionate spreading out for the internals.

IA Question Papers: The department maintains standards in the preparation of IA Question

papers based on the motto that "if students are properly trained and evaluated in the internal tests, they can perform better in the final exams." The questions in the question papers are set as per syllabus by considering Bloom's learning Levels. These question papers are scrutinized for framing of question, the coverage of syllabus, break up of marks and complexity level by the Reviewer and approved by Head of the Department.

Academic Audit: To assess the effectiveness of curricular implementation plan, the IQAC of the Institution reviews the roles and responsibilities, academic preparation, orientation of faculty towards the course, understanding of the curriculum requirements, covering content beyond the syllabus, teaching practices adopted by the faculty for each course, projects guided, SWOC analysis, previous appraisal and percentage of results obtained. Based on this, specific aspects of the action plan to be contemplated are revisited.

- The COs and POs mapping, assessment and attainment process are carried out, the weak areas are pointed out and probable gaps are identified. The CO-PO table thus prepared is reviewed by faculty members to determine which components of PO are either not met or met to a certain level only.
- For developing content beyond syllabus, the feedback from alumni and industry are discussed and analyzed. Also, the internet searching is done to assess the demand of Industries and a review on the syllabus provided by VTU and other universities has been done to identify the gaps.

A.1 Program Outcomes (POs) defined by NBA

Tables B 2.1 Program Outcomes (POs) defined by NBA

PO1	**Engineering Knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis**: Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3	**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.
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.
PO5	**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.
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.
PO7	**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.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the 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 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.

A.2 Program Specific Outcomes (PSOs) of the Department

Table B 2.2 PSOs of Mechanical Engineering Program

PSO1	Graduates will be able to apply engineering skills in design, manufacturing and analysis of mechanical systems.
PSO2	Graduates will be able to utilize modern technical tools to provide solutions for various complex mechanical engineering problems.

A.3 Extent of compliance of the University Curriculum for attaining the Program Outcomes:

Table B 2.3 Extent of compliance of the University Curriculum for attaining the POs & PSOs 2018 Scheme

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Fundamental Courses-Basic Engineering Knowledge														
C102 - Engineering Physics	√	√	-	-	-	-	-	-	-	-	-	-	-	-

C104 - Elements of Civil Engineering and Mechanics	√	√	√	-	√	-	-	-	-	√	-	-	-	-
C105 - Engineering Graphics	√	√	√	-	-	-	-	√	√	-	-	-	-	-
C106 - Engineering Physics lab	√	√	√	-	-	-	-	-	-	-	-	-	-	√
C109- Engineering Chemistry	√	√	-	-	-	-	√	-		-	-	-	-	-
C112- Elements of Mechanical Engineering	√	√	-	-	-	-	√	-	-	-	-	-	-	-
C113- Engineering Chemistry Laboratory	√	√	√	√	√	-	-	-	-	-	√	√	-	√
Fundamental Courses-Knowledge of Mathematics														
C101 - Calculus and Linear Algebra	√	√	√	√	√	-	-	-	-	-	-	-	-	√
C108- Advanced Calculus and Numerical methods	√	√	√	√	-	√	√	-	-	-	-	√	√	√
C201- Transform calculus, Fourier series and Numerical Techniques	√	√	√	√	√	-	-	-	-	-	-	-	-	-
C209- Complex Analysis, Probability and Statistical Methods	√	√	√	√	√	-	-	-	-	-	-	-	√	√
C212- Engineering Statistics & Linear Algebra	√	√	√	√	√	√	√	-	√	√	-	√	√	√
Professional Core Course														
C201 - Mechanics of Materials	√	√	√	√	√	-	-	-	-	-	-	-	-	-
C204 - Basic Thermodynamics	√	√	√	-	-	-	-	-	-	-	-	-	√	-
C211- Applied Thermodynamics	√	√	√	√	-	√	√	-	-	-	-	√	√	-
C303 - Theory of Machines	√	√	√	-	-	-	-	-	√	-	√	√	√	-
C304 – Turbo Machines	√	√	√	√	-	-	-	-	-	-	-	-	-	√
C311 – Finite Element Method	√	√	√	√	√	-	-	-	-	-	-	-	√	√
C312 - Machine Design	√	√	√	√	-	-	-	-	-	-	-	-	√	-
C401 - Control Engineering	√	√	√	√	-	-	-	-	-	-	-	-	√	-
C402 - Computer Aided Design and Manufacturing	√	√	√	-	√	-	-	√	-	√	-	-	-	√
C411- Energy Engineering	√	-	-	-	-	√	√	-	-	-	-	-	-	-
Integrated Professional Core Course														
C202 - Manufacturing Process	√	√	√	√	√	-	-	-	-	-	-	-	-	-
C203 - Material Science and Engineering	√	√	√	-	-	√	-	-	-	-	-	-	√	-
C205 – Metal Casting and Welding	√	-	-	-	-	-	√	-	-	-	-	-	√	-
C212 - Machining Science & Metrology	√	√	√	-	-	-	-	-	-	-	-	-	√	-
C213 - Fluid Mechanics	√	√	√	√	-	√	√	-	-	-	-	√	√	-
C302 - Turbo machines	√	√	√	√	-	-	-	-	-	-	-	-	√	-
C311 - Heat Transfer	√	√	√	-	-	-	-	-	-	-	-	-	√	-
C401 - Finite Element Methods	-	-	√	-	√	-	-	√	-	√	√	√	-	√
C402 - Hydraulics and Pneumatics	√	-	-	-	-	√	-	√	√	-	-	-	-	√

Professional Core Course laboratory														
C205 - Introduction to Modelling and Design for Manufacturing	√	√	-	√	-	√	-	√	√	√	√	√	-	-
C207- Material Testing Lab	√	√	√	√	-	√	-	-	-	-	-	√	√	-
C208 – Foundry, Forging and Welding Lab	√	-	-	-	-	√	√	-	-	-	-	-	√	-
C314 - Mechanical Measurements and Metrology lab	√	-	-	-	-	-	√	-	-	-	-	√	-	-
C304- CNC Programming and 3-D Printing lab	√	-	-	√	√	-	-	-	-	-	-	-	√	-
C306 – Fluid Mechanics Lab	√	-	-	-	√	-	-	-	-	-	-	-	-	√
C307 – Energy Conversion lab	√	-	-	-	√	-	-	-	-	-	-	-	-	√
C316 - Design lab	√	√	√	√	-	-	-	-	-	√	-	-	√	-
Management														
C301 - Industrial Management & Entrepreneurship	√	√	√	-	-	-	-	-	-	-	-	-	√	-
Professional Elective Course														
C315 - Supply chain management & Introduction to SAP	√	√	√	-	-	-	-	-	-	-	-	-	√	-
C313 – Total Quality Management	√	√	√	√	-	-	√	√	√	-	-	√	√	√
C414 - IC Engines	√	√	-	√	√	√	√	-	√	-	-	√	√	√
Open Elective Course														
C354B - Renewable Energy Power plants	√	√	√	√	-	√	-	√	√	√	√	√	√	-
C354C - Introduction to Mechatronics	√	√	√	-	-	-	-	-	-	-	-	√	√	-
C455 - Non-Conventional Energy Resources	√	√	√	√	√	-	-	-	-	-	√	√	√	-
Engineering Science Course														
C206 - Electric and Hybrid Vehicle Technology	√	√	√	-	-	-	-	-	-	-	-	√	√	-
C205 - Non Traditional Machining	√	√	√	-	-	-	-	-	-	-	-	-	√	-
Ability Enhancement Course														
C258 - Spreadsheet for Engineers	√	√	√	-	-	-	-	-	-	-	-	-	√	-
C256 - Introduction to Data Analytics	√	√	√	√	-	-	-	-	-	-	-	-	√	-
C357 - Simulation and Analysis using Ansys workbench	√	√	√	√	√	-	-	-	-	-	-	-	-	√
Internship/ Mini Project /Major Project/Technical Seminar														
C315-MiniProject	√	√	-	-	√	-	-	√		-	√	-	√	√

C407- Project work Phase -1	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C410- Project work Phase -2	√	√	√	√	√	√	√	√	√	√	√	√	√	√
C411- Technical seminar	-	√	√	√	√	-	√	√	√	√	√	√	√	√
C412- Internship	-	√	√	√	√	√	√	√	√	√	√	√	√	√
Number of Courses Mapped	**53**	**49**	**42**	**29**	**22**	**15**	**16**	**12**	**12**	**11**	**11**	**20**	**35**	**21**
Percentage of Courses Mapped	**95**	**88**	**75**	**52**	**39**	**27**	**29**	**22**	**22**	**20**	**20**	**36**	**63**	**38**

A.4 Process to identify the extent of Compliance of University Curriculum

The process used to identify the extent of compliance of university curriculum is through getting feedback on gaps from different stakeholders. It includes,

1. Seeking input from the teachers handling the course.
2. Seeking input from industry experts
3. Collecting feedback from placement cell/ Employers
4. Collecting alumni feedback

The Figure 2.1 & Figure 2.2 shows the process of Curriculum Gap analysis and process for assessment on gap analysis.

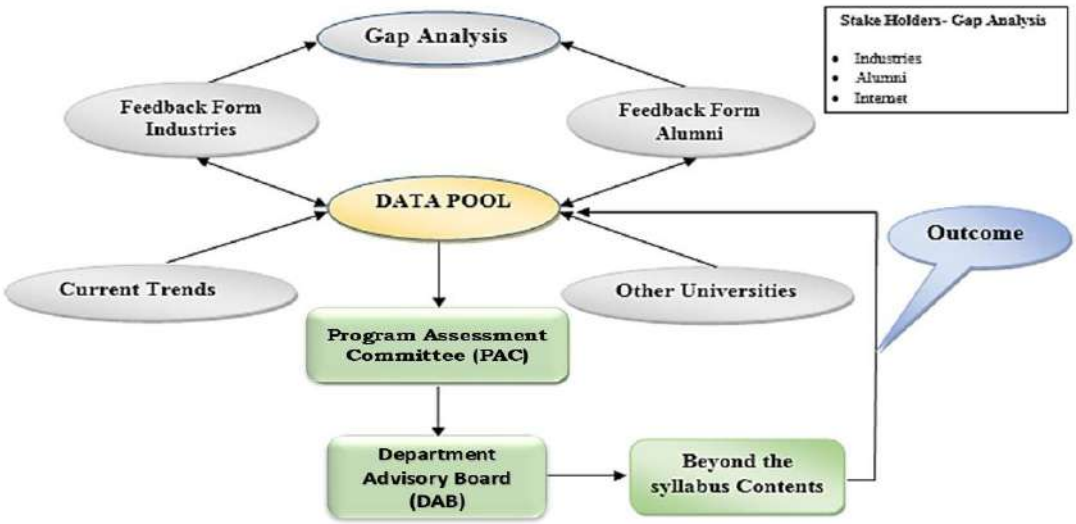


Figure 2.1 Process to identify the Curriculum Gaps

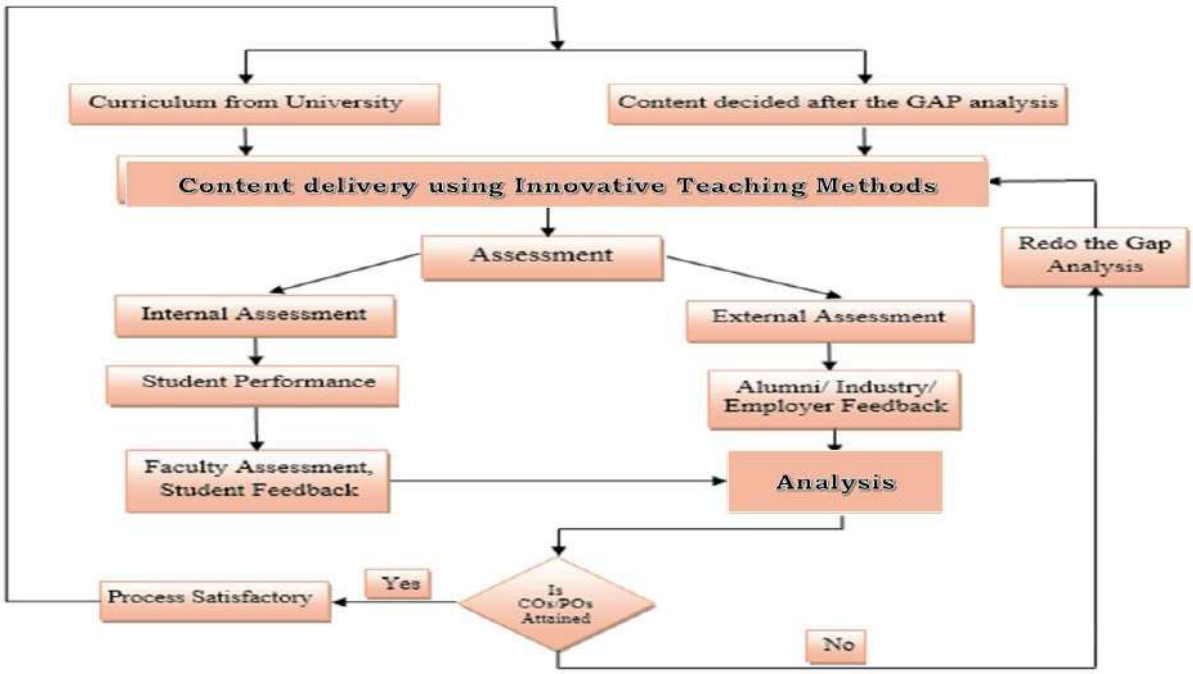


Figure 2.2 Process for Assessment on Gap Analysis

Implementation

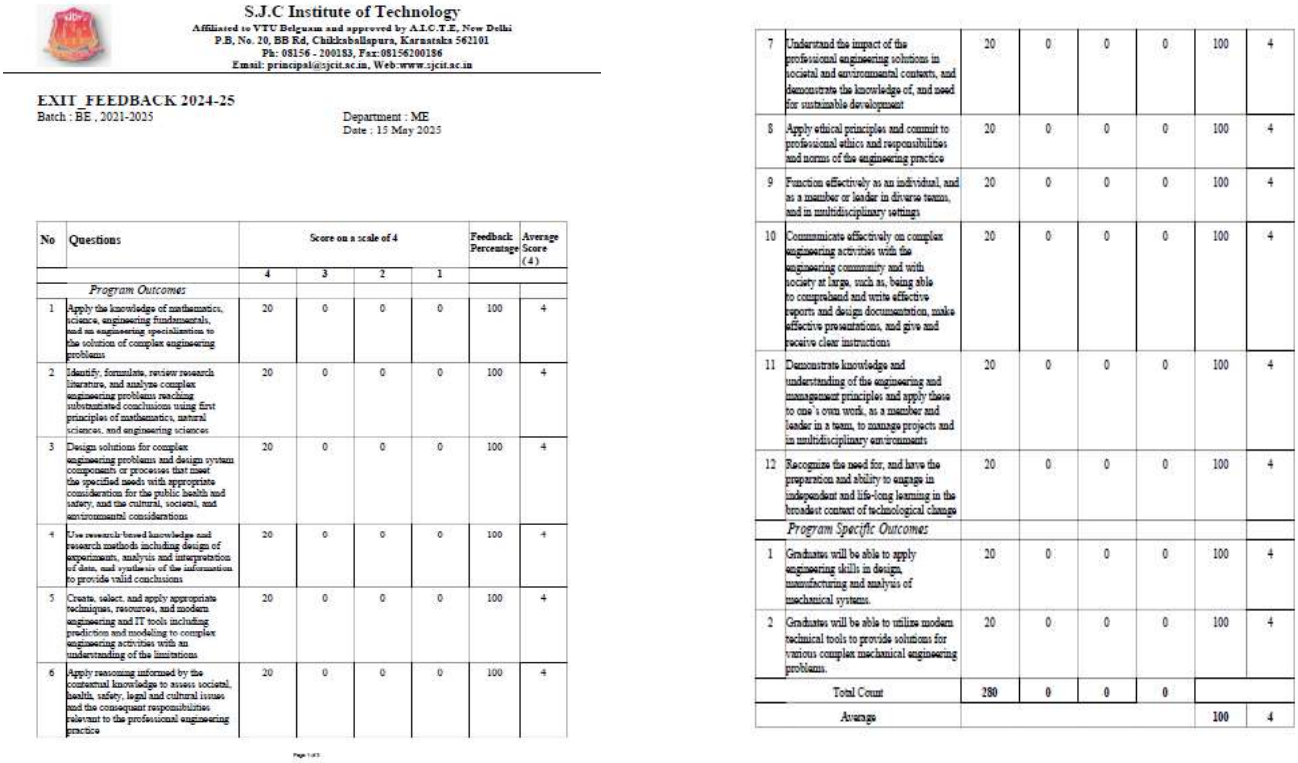
Identified content beyond the syllabus for Theory and Lab if any, is included in lesson plan and covered in classroom by the course delivery faculty. If the topic or area is new, persons from Industry are invited to deliver a talk.

Effectiveness

Effectiveness of this process is analyzed through feedback from the students and their performance in examinations. Also, from the alumni and industry experts.

Feedback from Students

Program Exit Survey, a questionnaire is prepared by the program coordinator and is given to students at end of the program to get feedback on the POs and PSOs. The results are analyzed to see whether the POs and PSOs are substantially or slightly mapped. Figures 2.3 (a) (b) &(c) shows the snapshots of sample students exit survey.



S.J.C Institute of Technology
Affiliated to VTU Belgaum and approved by A.I.C.T.E, New Delhi
P.B, No. 20, BB Rd, Chikkaballapura, Karnataka 562101
Ph: 08156 - 200183, Fax:08156200186
Email: principal@sjcit.ac.in, Web:www.sjcit.ac.in

EXIT_FEEDBACK 2024-25
Batch : BE , 2021-2025 Department : ME
Date : 15 May 2025

No	Questions	Score on a scale of 4				Feedback Percentage	Average Score (4)
		4	3	2	1		
	Program Outcomes						
1	Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems	20	0	0	0	100	4
2	Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences	20	0	0	0	100	4
3	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	20	0	0	0	100	4
4	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	20	0	0	0	100	4
5	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	20	0	0	0	100	4
6	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	20	0	0	0	100	4
7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development	20	0	0	0	100	4
8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	20	0	0	0	100	4
9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	20	0	0	0	100	4
10	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	20	0	0	0	100	4
11	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	20	0	0	0	100	4
12	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	20	0	0	0	100	4
	Program Specific Outcomes						
1	Graduates will be able to apply engineering skills in design, manufacturing and analysis of mechanical systems.	20	0	0	0	100	4
2	Graduates will be able to utilize modern technical tools to provide solutions for various complex mechanical engineering problems.	20	0	0	0	100	4
	Total Count	280	0	0	0		
	Average					100	4

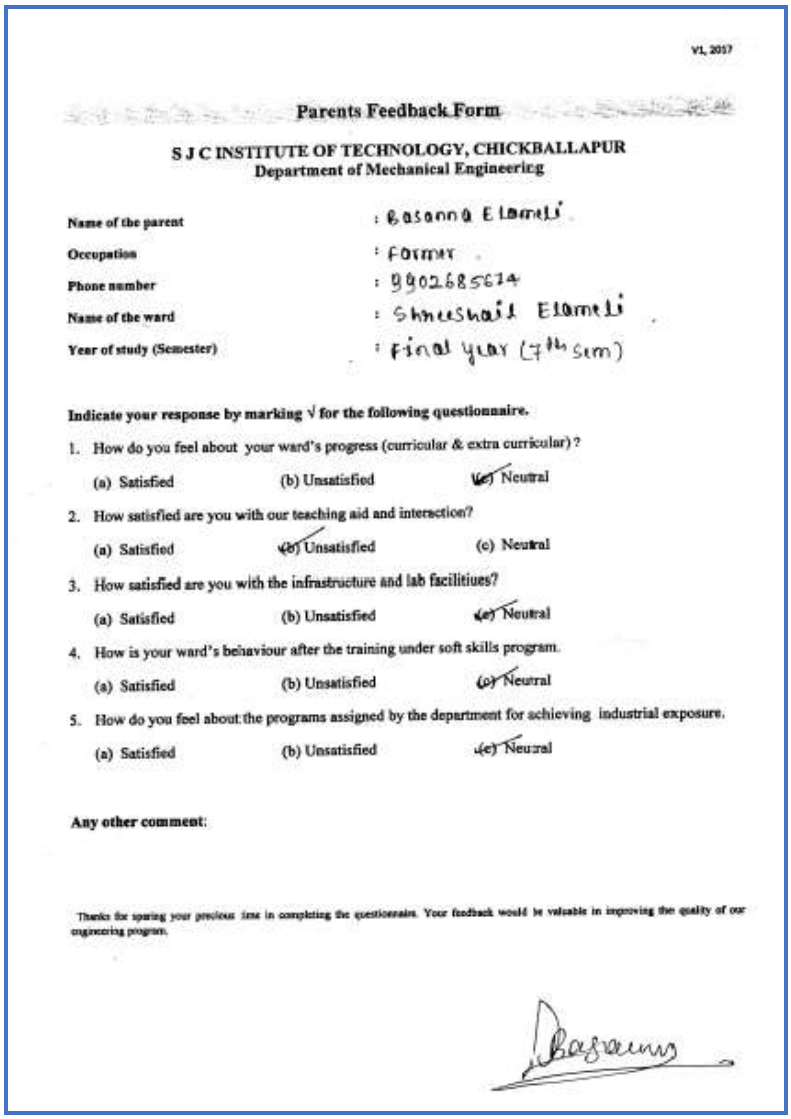
(a) (b)

(c)

Figure 2.3 (a) (b) & (c) Snapshots of sample students Exit Survey

Feedback from Parents - The program coordinator will collect the feedback from the parents about their experience and their ward's opinion on the program. It helps to improve the overall

system. Figure 2.4 show the Snapshots of sample feedback from the parents.



V1, 2017

Parents Feedback Form

S J C INSTITUTE OF TECHNOLOGY, CHICKBALLAPUR
Department of Mechanical Engineering

Name of the parent : Basanna Elameli
Occupation : Farmer
Phone number : 9902685674
Name of the ward : Shreeshail Elameli
Year of study (Semester) : Final year (7th sem)

Indicate your response by marking √ for the following questionnaire.

1. How do you feel about your ward's progress (curricular & extra curricular)?
   (a) Satisfied (b) Unsatisfied (c) Neutral
2. How satisfied are you with our teaching aid and interaction?
   (a) Satisfied (b) Unsatisfied (c) Neutral
3. How satisfied are you with the infrastructure and lab facilities?
   (a) Satisfied (b) Unsatisfied (c) Neutral
4. How is your ward's behaviour after the training under soft skills program.
   (a) Satisfied (b) Unsatisfied (c) Neutral
5. How do you feel about the programs assigned by the department for achieving industrial exposure.
   (a) Satisfied (b) Unsatisfied (c) Neutral

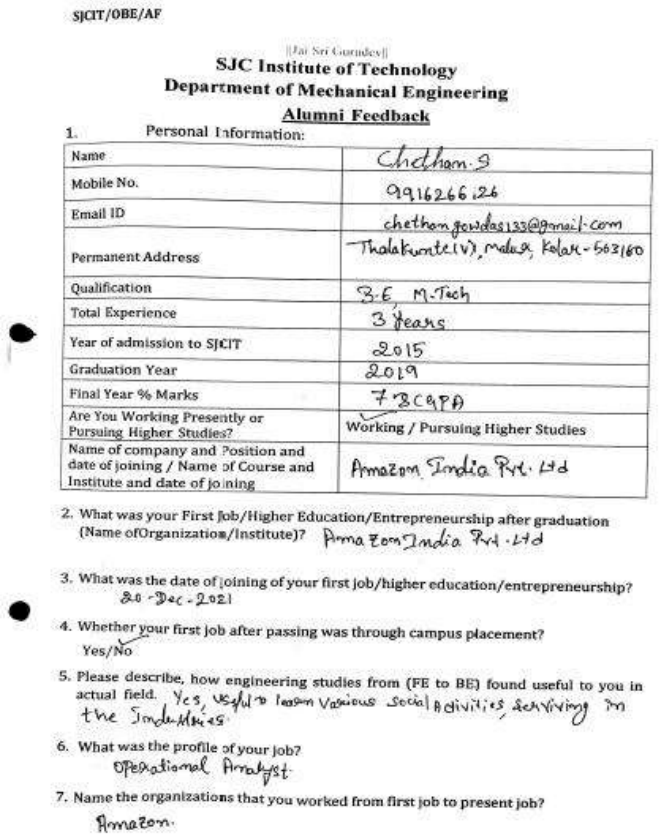
Any other comment:

Thanks for sparing your precious time in completing the questionnaire. Your feedback would be valuable in improving the quality of our engineering program.

Figure 2.4 S**ample Feedback form from Parents**

Feedback from the Recruiters/Employers: A questionnaire is prepared by the program coordinator and is given to the recruiters during recruitment process to see whether the program outcomes and program specific outcomes are substantially or slightly.

Feedback from Alumni: A questionnaire is prepared by the program and course coordinator and it is given to the alumni. It will be done once in every year to see whether the POs and PSOs are substantially or slightly mapped. Figures 2.5 show the Snapshots of sample Alumni survey.



SJCIT/OBE/AF

||Jai Sri Gurudev||

SJC Institute of Technology
Department of Mechanical Engineering
Alumni Feedback

1. Personal Information:

Name	Chethan.S
Mobile No.	9916266126
Email ID	chethangowdas133@gmail.com
Permanent Address	Thalakunte(V), Malur, Kolar-563160
Qualification	B.E, M.Tech
Total Experience	3 Years
Year of admission to SJCIT	2015
Graduation Year	2019
Final Year % Marks	73C9PA
Are You Working Presently or Pursuing Higher Studies?	Working / Pursuing Higher Studies
Name of company and Position and date of joining / Name of Course and Institute and date of joining	Amazon India Pvt. Ltd

2. What was your First Job/Higher Education/Entrepreneurship after graduation (Name ofOrganization/Institute)? Amazon India Pvt. Ltd

3. What was the date of joining of your first job/higher education/entrepreneurship?
20-Dec-2021

4. Whether your first job after passing was through campus placement?
Yes/No

5. Please describe, how engineering studies from (FE to BE) found useful to you in actual field. Yes, Useful to learn various social activities, serving in the Industries

6. What was the profile of your job?
Operational Analyst

7. Name the organizations that you worked from first job to present job?
Amazon.

Figure 2.5 Sample Alumni survey Form with Analysis

2.1.2. State the delivery details of the content beyond the syllabus for the attainment of POs and PSOs (10)

A. Delivery details of Content beyond syllabus

The students are trained in the areas of modern tool usage, professional ethics and communication skills. Students gain the idea to work as an individual and in team by doing project work, visiting various industries and by undergoing internships. Students actively participate in NCC, NSS and Swacch Bharath Abhiyan programs, organized in the college to serve the society. Students also participate in various Workshops, seminars, symposiums, etc. Students also actively organize and participate in various events

conducted as part of the Club activity which will enhance their project management skills in multidisciplinary environment. The department also motivates and encourages students to participate in events organized by other Institutes/Colleges. In summary, the following activities are carried out for the students.

- Assignments/Case Studies/ Mini Projects
- Additional Laboratory Experiments
- Training on Soft skills and Value Addition Programs
- Guest Lectures/Technical Talks/Demonstrations
- Workshops/Conferences/Symposium
- Student Chapter/Club Activity
- Industrial Visits and Internships
- Extension Activities- NSS/NCC/Blood Donation/Sports

Mapping of content beyond Syllabus with the POs & PSOs

Table B 2.4 Mapping of Content beyond Syllabus with POs & PSOs

Course with course code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
Pre-placement Training	✓	✓	✓	-	-	✓	✓	-	✓	✓	✓	✓	✓	✓
Training and Soft skills	-	✓	✓	✓	✓	✓	-	✓	-	✓	✓	✓	✓	✓
Practicing/Mini/ Creative project	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓
Guest Lectures/ Technical Talks/ Demonstrations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Workshops	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industrial Visits & Internships	-	✓	✓	✓	-	✓	✓	-	-	✓	✓	✓	✓	-

Table B 2.5 Gaps and the Actions Taken during 2023 – 2024

SL. No	Gap Identified	Action Taken	Date	No of students	Resource Person With Designation	Relevance To POs
1	Basic Technical Knowledge	Technical Talk on **"Advances in Electrifying Automotive Sector"**	22-02-2024	45	**Dr. Ravinchandra K R** Associate Professor Department of Mechanical Engineering BMSIT, Bangalore	PO4,PO5,PO9 ,PO10,PO11, PO12 PSO1,PSO2
2	Basic Technical Knowledge	Alumni Talk on **"Phase Diagrams – Iron-Carbon Diagram"**	06-01-2024	57	**Dr. Nagaraja C Reddy** Associate Professor BIT, Bangalore	PO4,PO5,PO9 ,PO10,PO11, PO12 PSO1,PSO2
3	Knowledge on Designing	Skill Development Program on "**CATIA V5**"	13-07-2023	50	**Mr. Satish Babu** Ex-Employee of HCL, Bengaluru	PO4,PO5,PO9 ,PO10,PO11, PO12 PSO1,PSO2
4	Basic knowledge of Heating, ventilation and Air-conditioning	Technical Talk on **"Refrigeration and Air Conditioning"**	06-06-2023	50	**Mukundan M S** Student Chair of ISHRAE Bangalore Chapter	PO4,PO5,PO9 ,PO10,PO11, PO12 PSO1,PSO2
5	Basic Technical Knowledge	Skill Development Program on "**Ansys Workbench**"	04-06-2023	31	**Mr. Satish Babu** Ex-Employee of HCL, Bengaluru	PO4,PO5,PO9 ,PO10,PO11, PO12 PSO1,PSO2

Table B 2.6 Gaps and the Actions Taken during 2022 – 2023

SL. No	Gap Identified	Action Taken	Date	No of students	Resource Person With Designation	Relevance To POs /PSOs
1	Awareness on Enterpreneurs hip	Special Lecture on **"Entrepreneurship Awareness Program"**	19-04-2023	45	**Naveen M B** Propertier AEROTEK DESIGN Bengaluru	PO4,PO5,PO 9 ,PO10,PO11, PO12 PSO1,PSO2
2	Knowledge on Nano Materials	Technical Talk on **"Nano Materials"**	10-08-2022	50	**Dr. Pranjala Tiwari** Associate Professor ECE, SJCIT	PO4,PO5,PO 9 ,PO10,PO11, PO12 PSO1,P SO2
3	Basic Technical Knowledge	Seminar on **"NEP-2020 (To create Awareness on NEP-2020)"**	15.12.2022 & 16-12-2022	57	**Dr.Thyagaraj N R,** Associate Professor and Head, Department of Mechanical Engineering, NEP Nodal officer, S J C Institute of Technology, Chickballa pur	PO6,PO 7 PSO1
4	Improvement of complex problem solving techniques	Guest lecture on **"About my decade-long travel through the complex path of the thermo fluid science"**	16-12-2022	50	**Dr. Shekar Majumdhar** Professor of Eminence School of Engineering and Technology Centurion University Bhubaneshwar	PO5,PO 9, PO11,P O12 PSO2

Table B 2.7 Gaps and the Actions Taken during 2021 – 2022

SL. No	Gap Identified	Action Taken	Date	No of students	Resource Person With Designation	Relevance To POs /PSOs
1	Technical Knowledge on Analysis	Webinar on **"Solidification and Thermal Analysis of Cast "**	12/03/2022	35	**Dr. S Subramanian,** IIT, Chennai	PO4,PO5,P O9, PO10,PO1 1,PO12 PSO1,PSO 2

2	Basic Knowledge on materials	Webinar on **"Role of solid Mechanics in Product Development "**	19/02/2022	30	**Dr. S. Anil Kumar** Senior Technical Lead, Mercedes Benz R&D, Bengaluru	PO4,PO5,PO9, PO10,PO11,PO12 PSO1,PSO2
3	Knowledge on Robots and its Application	Special Lecture on " **ROBOT Programming Languages**"	22/01/2022	45	**Prof. Rakesh M,** Ph.D Research Scholar Mechanical Department, VVIET, Mysore	PO5,PO10, PO11,PO12 PSO1,POS2
4	Modern Tool Usage	Seminar on **" Current Trends in Industry 4.0 and Job Skills for Tomorrow"(Offline)**	21/12/2021	156	**Mr. Mohan Shamanna** CEO, Indo Skill, Bengaluru	PO5 to PO12 PSO1,PSO2
5	Knowledge on Nano Materials	Webinar on **"Nano Materials and Characterization"**	02/07/ 2021	92	**Dr. Keshva Murthy R,** Prof and Head, Mechanical Department, DSCE, Bengaluru	PO5,PO10, PO11,PO12 PSO1,POS2
6	Applications on Nano Materials	Webinar on **"Introduction to Nano Materials"**	07/06/ 2021	95	**Mr. Althaf Pasha** Research scholar in Physics, Jain University, Bengaluru	PO5,PO10, PO11,PO12 PSO1,POS2
7	Basic Technical Knowledge	Webinar on **"MOCK Interview"**- What does Mechanical Engineering company requires and how to prepare for the same	05/06/ 2021	34	**Mr. Amrutheswar**, Technical Lead, Expleo Grou Group, Formerly Assytem India Private Limited,Bengaluru	PO5,PO10, PO11,PO12 PSO1,POS2

C. On-Campus Skill Development Courses Conducted by External Professional Trainers:

Table B 2.8 On-Campus Skill Development Courses by External Professional Trainers

Skill Development Courses	Trainers
Soft Skills	Artisan Training Center, BOSCH HCL,
Aptitude -Fundamentals	
Aptitude - Advanced	

Internship	REXROTH BOSCH

2.2. Teaching - Learning Processes (100)

2.2.1. Describe Processes followed to improve quality of Teaching & Learning (25)

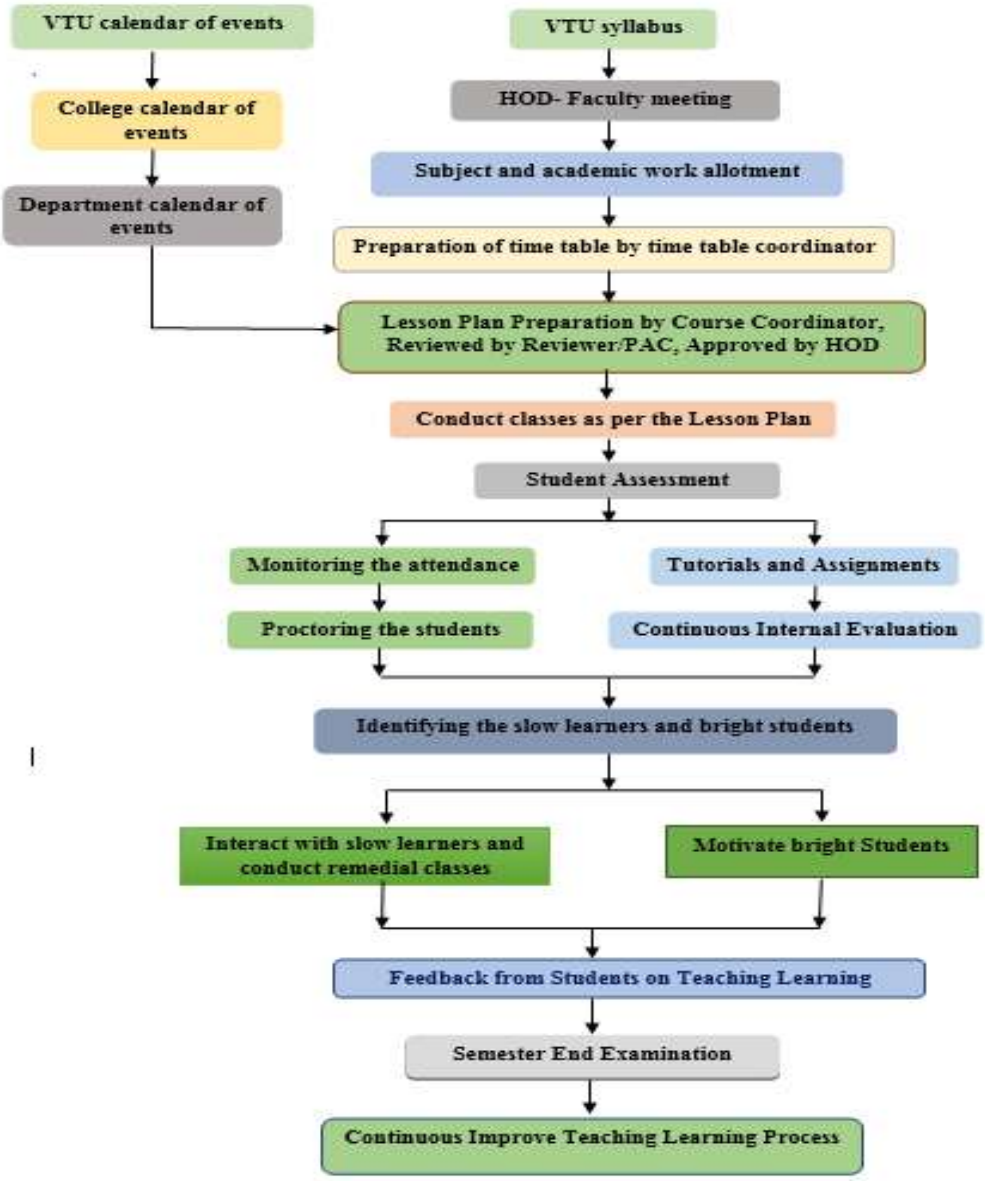


Figure 2.6 Process followed for Teaching and Learning

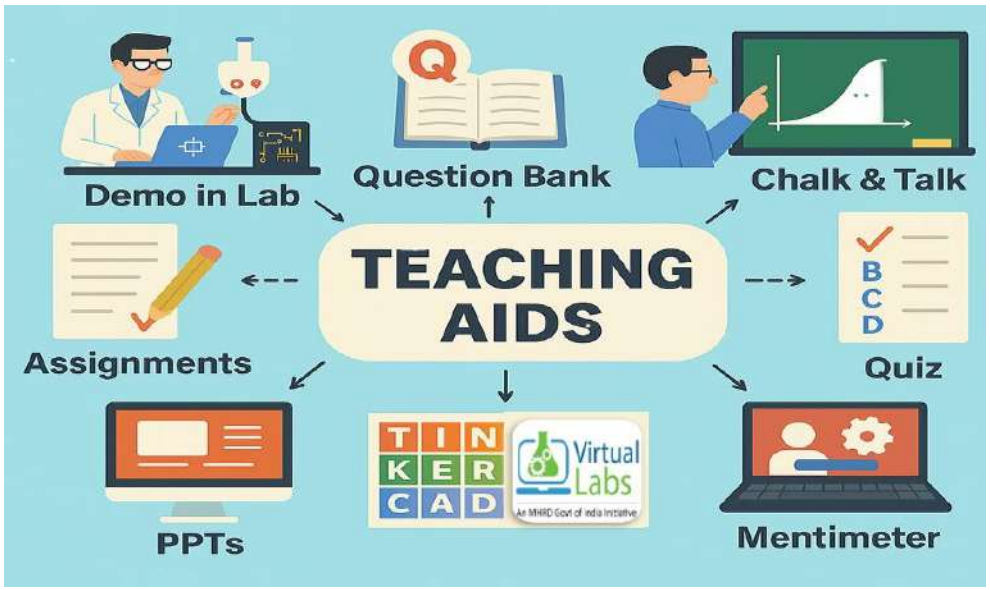


Figure 2.7 Components of Teaching Learning Process

The academic planning begins with university calendar which depicts the semester beginning, last working day, tentative schedule of practical and theory examination.

- Based on the VTU calendar of events, college and department calendar of events are prepared. College calendar of events consists of the activities planned for the semester which includes internal test dates, total number of working days and holidays.
- The college calendar of events is prepared and circulated among the faculties and displayed on the notice board.
- Department calendar of events contains conduction of events like organizing guest lectures, conferences, industrial visits, workshops, etc.
- The Course option form is circulated among the faculty to give their preferences for the subsequent semester course. In the department meeting, allotment of courses is done by the HOD considering experience and preferences given by the faculty members.
- Faculty of the department adopts various Teaching, Learning and Evaluation methods.
- Assignments are given to students to enhance their academic performance.
- The course instructor/Proctor will identify the bright students and slow learners. Department motivates the slow learners to attend additional classes and help them to overcome the difficulties. Encouragement is given to the bright students to attend more workshops and technical talks.

- Remedial classes are conducted for the slow learners based on their previous academic performance.
- Faculties maintain the academic course file.
- Industrial visits and other activities are arranged to reduce the curriculum/course gaps.

The student academic assessment consists of

- For 2024 Autonomous scheme: Continuous Internal Evaluation (50 Marks) and Semester End Examination (50 Marks)
- For 2022 scheme: Continuous Internal Evaluation (50 Marks) and Semester End Examination (50 Marks)
- For 2021 scheme: Continuous Internal Evaluation (50 Marks) and Semester End Examination (50 Marks)
- For 2018 scheme: Continuous Internal Evaluation (40 Marks) and Semester End Examination (60 Marks)
- For 2017 scheme: Continuous Internal Evaluation (40 Marks) and Semester End Examination (60 Marks)
- For 2015 scheme: Continuous Internal Evaluation (20 Marks) and Semester End Examination (80 Marks)

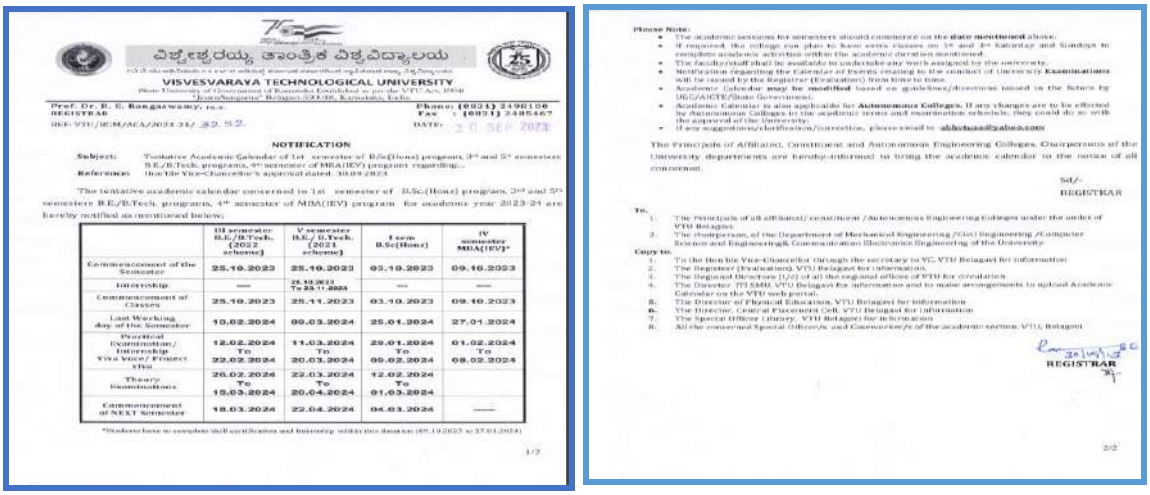
The Continuous Internal Evaluation (CIE) process varies slightly across different academic schemes. Under the 2024 Autonomous Scheme, the CIE consists of two tests, and the average of the two test marks, along with marks from **Activity-Based Assessments** (**ABA),** which include assignments, seminars, quizzes etc. will be considered for awarding the final CIE marks. In contrast, for the 2021 and 2022 schemes, the CIE includes three tests, and the best two test marks, along with marks from assignments, seminars, quizzes etc. are considered for the final CIE evaluation. In all cases, the Semester End Examination question papers are set by VTU, except for the Autonomous Scheme, where the institution prepares the question papers. The final marks are calculated by combining the CIE and Semester End Examination (SEE) marks. The teaching-learning process is guided by the university calendar, which outlines the semester start and end dates, along with the tentative schedule for both practical and theory examinations.

A. Adherence to calendar

VTU academic calendar**:**

Academic calendar of VTU is prepared by the University and sent to the Colleges. University calendar mentions the semester beginning and last working day, tentative schedule of practical

examination and theory examination is also included. The Figure 2.8 Shows the VTU Calendar of Events.



VISVESVARAYA TECHNOLOGICAL UNIVERSITY

NOTIFICATION

Figure 2.8: Sample Copy of VTU Calendar of Events

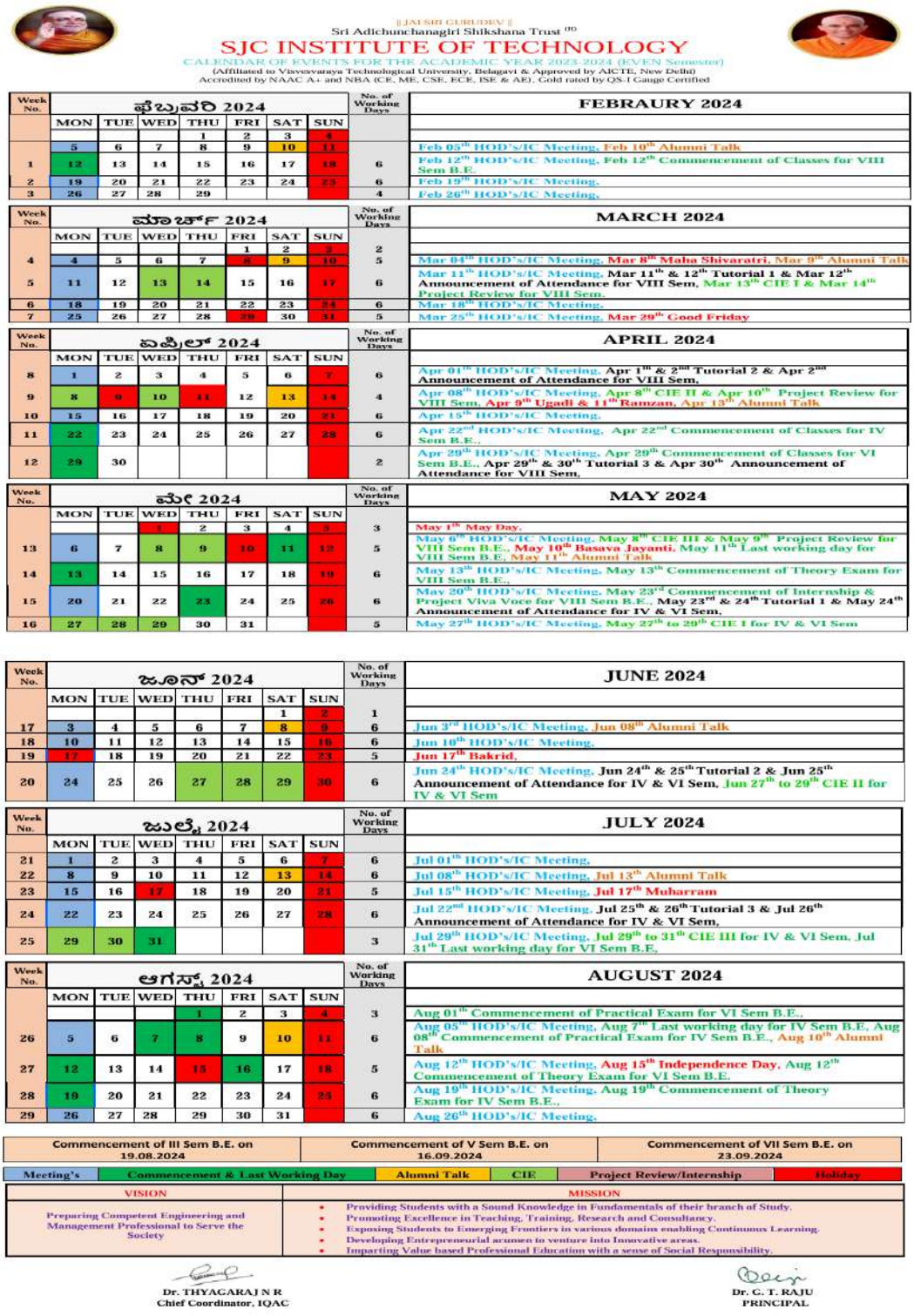
Institutional Calendar:

Institutional calendar is prepared every semester in line with the University academic calendar. It contains the events of the University and the events of the Institute which are useful in overall planning for the semester. The Figure 2.8 shows the college Academic calendar of events.

Features of Academic Calendar:

The Institution Calendar of Events is prominently displayed on all notice boards and distributed to students at the beginning of the semester. The academic calendar prepared defines the schedule for various activities such as:

- Commencement and Closure of Classes
- Orientation Program schedules
- List of Holidays (as announced by Karnataka State)
- Internal Assessment (IA) Test Schedule
- Project Presentation/Open House/Assignment Submission/Seminars/ PersonalityDevelopment Program
- Techno-cultural / Sports events, etc.
- Final Internal Lab Assessment /Test
- Dispatch of Progress Reports to Parents



|| JAI SRI GURUDEV ||
Sri Adichunchanagiri Shikshana Trust (R)

SJC INSTITUTE OF TECHNOLOGY

CALENDAR OF EVENTS FOR THE ACADEMIC YEAR 2023-2024 (EVEN Semester)
(Affiliated to Visvesvaraya Technological University, Belagavi & Approved by AICTE, New Delhi)
Accredited by NAAC A+ and NBA (CE, ME, CSE, ECE, ISE & AE), Gold rated by QS-I Gauge Certified

Week No.	ಫೆಬ್ರವರಿ 2024							No. of Working Days	FEBRAURY 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
				1	2	3	4		
	5	6	7	8	9	10	11		Feb 05th HOD's/IC Meeting, Feb 10th Alumni Talk
1	12	13	14	15	16	17	18	6	Feb 12th HOD's/IC Meeting, Feb 12th Commencement of Classes for VIII Sem B.E.
2	19	20	21	22	23	24	25	6	Feb 19th HOD's/IC Meeting.
3	26	27	28	29				4	Feb 26th HOD's/IC Meeting.

Week No.	ಮಾರ್ಚ್ 2024							No. of Working Days	MARCH 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
					1	2	3	2	
4	4	5	6	7	8	9	10	5	Mar 04th HOD's/IC Meeting, Mar 8th Maha Shivaratri, Mar 9th Alumni Talk
5	11	12	13	14	15	16	17	6	Mar 11th HOD's/IC Meeting, Mar 11th & 12th Tutorial 1 & Mar 12th Announcement of Attendance for VIII Sem, Mar 13th CIE I & Mar 14th Project Review for VIII Sem.
6	18	19	20	21	22	23	24	6	Mar 18th HOD's/IC Meeting.
7	25	26	27	28	29	30	31	5	Mar 25th HOD's/IC Meeting, Mar 29th Good Friday

Week No.	ಏಪ್ರಿಲ್ 2024							No. of Working Days	APRIL 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
8	1	2	3	4	5	6	7	6	Apr 01th HOD's/IC Meeting, Apr 1th & 2nd Tutorial 2 & Apr 2nd Announcement of Attendance for VIII Sem,
9	8	9	10	11	12	13	14	4	Apr 08th HOD's/IC Meeting, Apr 8th CIE II & Apr 10th Project Review for VIII Sem, Apr 9th Ugadi & 11th Ramzan, Apr 13th Alumni Talk
10	15	16	17	18	19	20	21	6	Apr 15th HOD's/IC Meeting.
11	22	23	24	25	26	27	28	6	Apr 22nd HOD's/IC Meeting, Apr 22nd Commencement of Classes for IV Sem B.E.,
12	29	30						2	Apr 29th HOD's/IC Meeting, Apr 29th Commencement of Classes for VI Sem B.E., Apr 29th & 30th Tutorial 3 & Apr 30th Announcement of Attendance for VIII Sem,

Week No.	ಮೇ 2024							No. of Working Days	MAY 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
			1	2	3	4	5	3	May 1th May Day.
13	6	7	8	9	10	11	12	5	May 6th HOD's/IC Meeting, May 8th CIE III & May 9th Project Review for VIII Sem B.E., May 10th Basava Jayanti, May 11th Last working day for VIII Sem B.E, May 11th Alumni Talk
14	13	14	15	16	17	18	19	6	May 13th HOD's/IC Meeting, May 13th Commencement of Theory Exam for VIII Sem B.E.,
15	20	21	22	23	24	25	26	6	May 20th HOD's/IC Meeting, May 23rd Commencement of Internship & Project Viva Voce for VIII Sem B.E., May 23rd & 24th Tutorial 1 & May 24th Announcement of Attendance for IV & VI Sem,
16	27	28	29	30	31			5	May 27th HOD's/IC Meeting, May 27th to 29th CIE I for IV & VI Sem

Week No.	ಜೂನ್ 2024							No. of Working Days	JUNE 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
						1	2	1	
17	3	4	5	6	7	8	9	6	Jun 3rd HOD's/IC Meeting, Jun 08th Alumni Talk
18	10	11	12	13	14	15	16	6	Jun 10th HOD's/IC Meeting.
19	17	18	19	20	21	22	23	5	Jun 17th Bakrid,
20	24	25	26	27	28	29	30	6	Jun 24th HOD's/IC Meeting, Jun 24th & 25th Tutorial 2 & Jun 25th Announcement of Attendance for IV & VI Sem, Jun 27th to 29th CIE II for IV & VI Sem

Week No.	ಜುಲೈ 2024							No. of Working Days	JULY 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
21	1	2	3	4	5	6	7	6	Jul 01th HOD's/IC Meeting,
22	8	9	10	11	12	13	14	6	Jul 08th HOD's/IC Meeting, Jul 13th Alumni Talk
23	15	16	17	18	19	20	21	5	Jul 15th HOD's/IC Meeting, Jul 17th Muharram
24	22	23	24	25	26	27	28	6	Jul 22nd HOD's/IC Meeting, Jul 25th & 26th Tutorial 3 & Jul 26th Announcement of Attendance for IV & VI Sem,
25	29	30	31					3	Jul 29th HOD's/IC Meeting, Jul 29th to 31th CIE III for IV & VI Sem, Jul 31th Last working day for VI Sem B.E,

Week No.	ಆಗಸ್ಟ್ 2024							No. of Working Days	AUGUST 2024
	MON	TUE	WED	THU	FRI	SAT	SUN		
				1	2	3	4	3	Aug 01th Commencement of Practical Exam for VI Sem B.E.,
26	5	6	7	8	9	10	11	6	Aug 05th HOD's/IC Meeting, Aug 7th Last working day for IV Sem B.E, Aug 08th Commencement of Practical Exam for IV Sem B.E., Aug 10th Alumni Talk
27	12	13	14	15	16	17	18	5	Aug 12th HOD's/IC Meeting, Aug 15th Independence Day, Aug 12th Commencement of Theory Exam for VI Sem B.E.
28	19	20	21	22	23	24	25	6	Aug 19th HOD's/IC Meeting, Aug 19th Commencement of Theory Exam for IV Sem B.E.,
29	26	27	28	29	30	31		6	Aug 26th HOD's/IC Meeting,

Commencement of III Sem B.E. on 19.08.2024	Commencement of V Sem B.E. on 16.09.2024	Commencement of VII Sem B.E. on 23.09.2024

Meeting's	Commencement & Last Working Day	Alumni Talk	CIE	Project Review/Internship	Holiday

VISION	MISSION
Preparing Competent Engineering and Management Professional to Serve the Society	• Providing Students with a Sound Knowledge in Fundamentals of their branch of Study. • Promoting Excellence in Teaching, Training, Research and Consultancy. • Exposing Students to Emerging Frontiers in various domains enabling Continuous Learning. • Developing Entrepreneurial acumen to venture into Innovative areas. • Imparting Value based Professional Education with a sense of Social Responsibility.

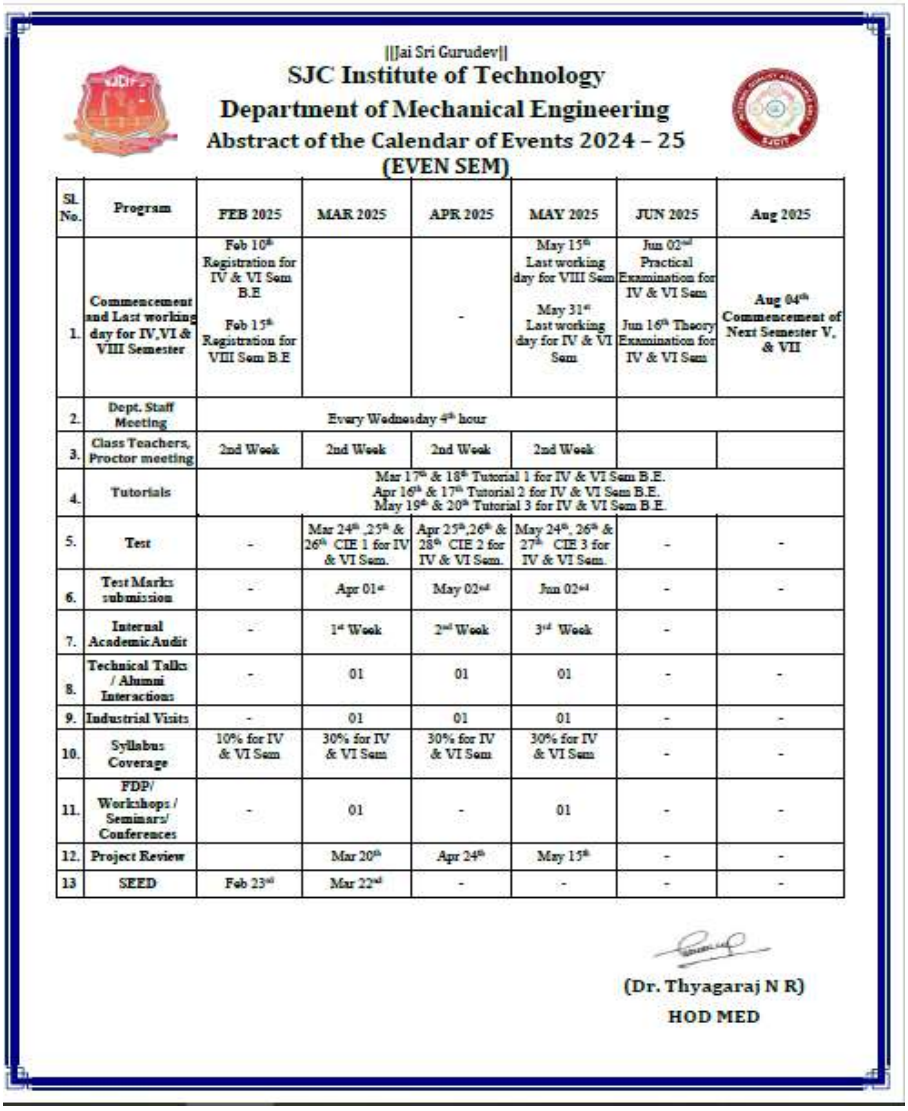
Dr. THYAGARAJ N R
Chief Coordinator, IQAC

Dr. C. T. RAJU
PRINCIPAL

Figure 2.9 Sample Copy of Institution Academic Calendar of Events

Department calendar of events:

Departmental academic calendar of events is prepared by the HOD referring to the college calendar of events. It includes staff meetings, class teacher meetings, Proctor meetings, scheduled dates of seminars, workshops, industrial visits etc. typical calendar is shown in Figure 2.10



||Jai Sri Gurudev||

SJC Institute of Technology

Department of Mechanical Engineering

Abstract of the Calendar of Events 2024 – 25

(EVEN SEM)

Sl. No.	Program	FEB 2025	MAR 2025	APR 2025	MAY 2025	JUN 2025	Aug 2025
1.	Commencement and Last working day for IV,VI & VIII Semester	Feb 10th Registration for IV & VI Sem B.E Feb 15th Registration for VIII Sem B.E		-	May 15th Last working day for VIII Sem May 31st Last working day for IV & VI Sem	Jun 02nd Practical Examination for IV & VI Sem Jun 16th Theory Examination for IV & VI Sem	Aug 04th Commencement of Next Semester V, & VII
2.	Dept. Staff Meeting	Every Wednesday 4th hour					
3.	Class Teachers, Proctor meeting	2nd Week	2nd Week	2nd Week	2nd Week		
4.	Tutorials	Mar 17th & 18th Tutorial 1 for IV & VI Sem B.E. Apr 16th & 17th Tutorial 2 for IV & VI Sem B.E. May 19th & 20th Tutorial 3 for IV & VI Sem B.E.					
5.	Test	-	Mar 24th ,25th & 26th CIE 1 for IV & VI Sem.	Apr 25th,26th & 28th CIE 2 for IV & VI Sem.	May 24th, 26th & 27th CIE 3 for IV & VI Sem.	-	-
6.	Test Marks submission	-	Apr 01st	May 02nd	Jun 02nd	-	-
7.	Internal Academic Audit	-	1st Week	2nd Week	3rd Week	-	
8.	Technical Talks / Alumni Interactions	-	01	01	01	-	-
9.	Industrial Visits	-	01	01	01	-	-
10.	Syllabus Coverage	10% for IV & VI Sem	30% for IV & VI Sem	30% for IV & VI Sem	30% for IV & VI Sem	-	-
11.	FDP/ Workshops / Seminars/ Conferences	-	01	-	01	-	-
12.	Project Review		Mar 20th	Apr 24th	May 15th	-	-
13	SEED	Feb 23rd	Mar 22nd	-	-	-	-

(Dr. Thyagaraj N R)

HOD MED

Figure 2.10 Department Calendar of Events

B. Use of various instructional methods and pedagogical initiatives

Department follows Outcome Based Education (OBE) approach. Faculty use innovative teaching methods to cater the needs of OBE. The Pedagogies followed by the Department is as shown in Figure 2.11 (a), (b) & (c).

Classroom Teaching:

The lecture delivery by the faculty is through a set of educational technology/tools such as

- Chalk and Talk - Lecturing is done using green/black board
- Power Point Presentation (PPT)
- Class Room Teaching by Innovative Teaching Learning Methods
- Demonstration in Lab
- Workshops and Expert Talks
- Assignments, Question bank and Quiz

Figure 2.11 (a) Class Room Teaching by Innovative Teaching Learning Method

Figure 2.11 (b) Demonstration in Labs

Figure 2.11 (c) Workshops and Expert Talks

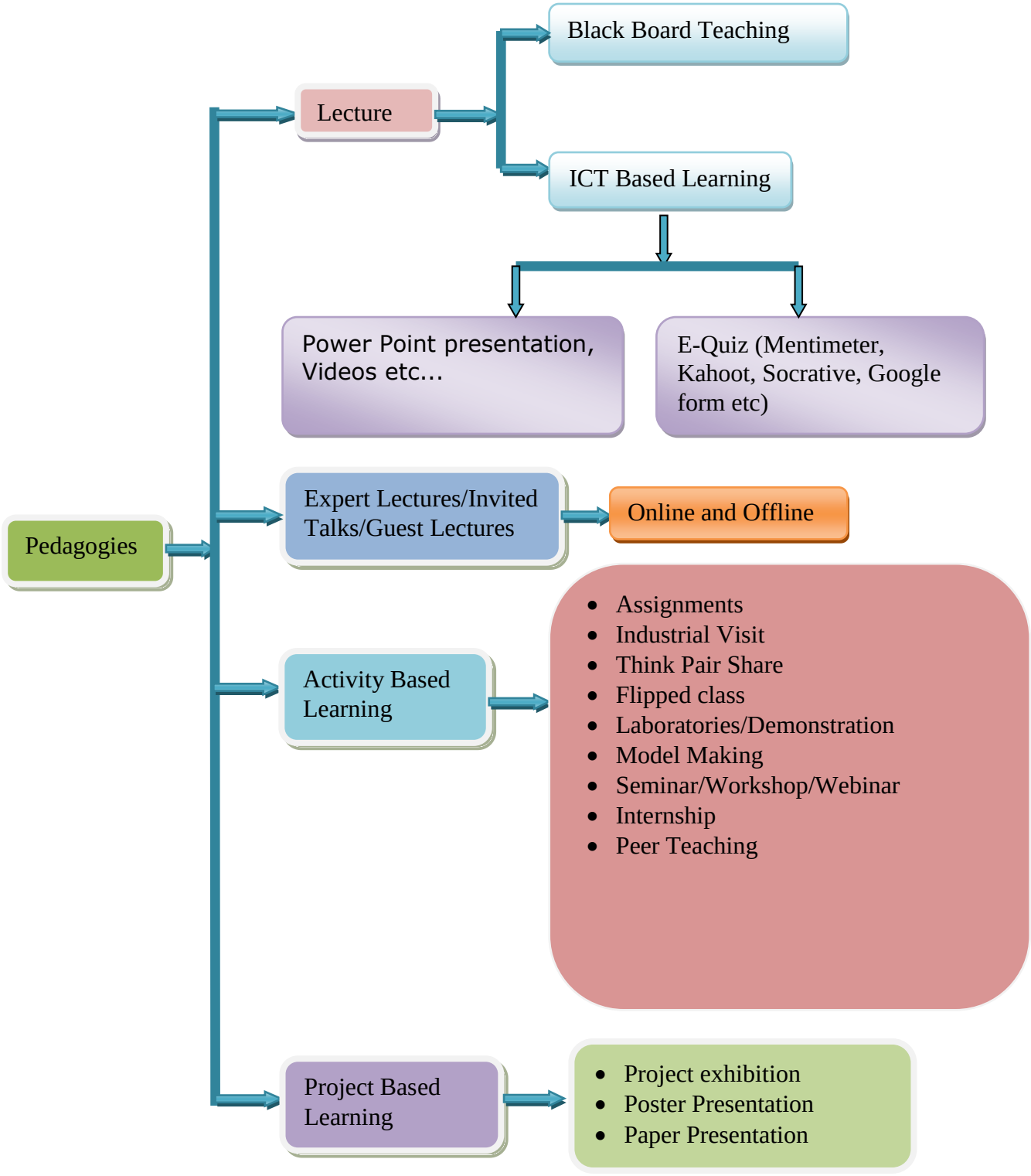


Figure 2.12 Instructional Methods and Pedagogical Initiatives

Table B 2.9 Instructional Methods and Pedagogical Initiatives

Lectures	**Black board teaching** − Classroom lectures are conducted using basic and conventional method of disseminating information to the students as per the curriculum − Revising the topics covered in the previous class through simple questions and answers at the beginning of each class − Faculty members prepare or update lecture notes for allotted Courses by referring various prescribed text books, Question banks of previous examinations, relevant NPTEL courses and other e-resources. − Students are encouraged to think and analyze the engineering problems **Power point Presentations/Videos** − Using attractive electronic presentations (PPT) on selected topics for better understanding − Use of e-learning - resources from National Programme on Technology Enhanced Learning (NPTEL) and VTU etc. Presenting videos which show the recent technologies in Electronics & Communication engineering **Tutorials** − Tutorials help the students in analyzing and solving the engineering problems on the basis of the theory class during lectures. − The tutorial session makes the concepts clear to the students
Expert lectures /Invited talk / Guest Lectures	To provide industrial exposure to the students beyond the class room learning and curriculum, expert Lectures are being organized in the department. The details are provided in Sec. 2.1.2 of the SAR
Activity Based Learning	**Assignments** Assignments make students self-reliant in the process of finding solutions for given problems by understanding theory and practice **Laboratories/Demonstration** − Exposes the students on experimental and practical aspects of theory studied in classrooms − Lab-experiments help students in verifying the theory concepts by interpretation of results − Laboratory experiments are carried out in teams thus helps in developing the spirit of working together as a team in the minds of young students **Model making** Students are encouraged to do models in some courses for the better

	understanding of Concepts and Applications. **Seminar** Students are made to present a seminar during their academic year. In this, the students give a presentation on a particular topic by referring to various books, Journals of National and International repute. **Internship** Students are allowed to take an internship as a part of curriculum to get practical exposure in a real time world during their academic year.
Project Based Learning	Students in groups carry out projects on their topic of interest. After completion of project, they showcase their projects in various platforms like. – Project exhibition – Poster Presentation – Paper Presentation

C. Methodologies to support slow learners and encourage bright students

The methodologies adopted by the department to support slow learners and encourage bright students are illustrated in Figure 2.13

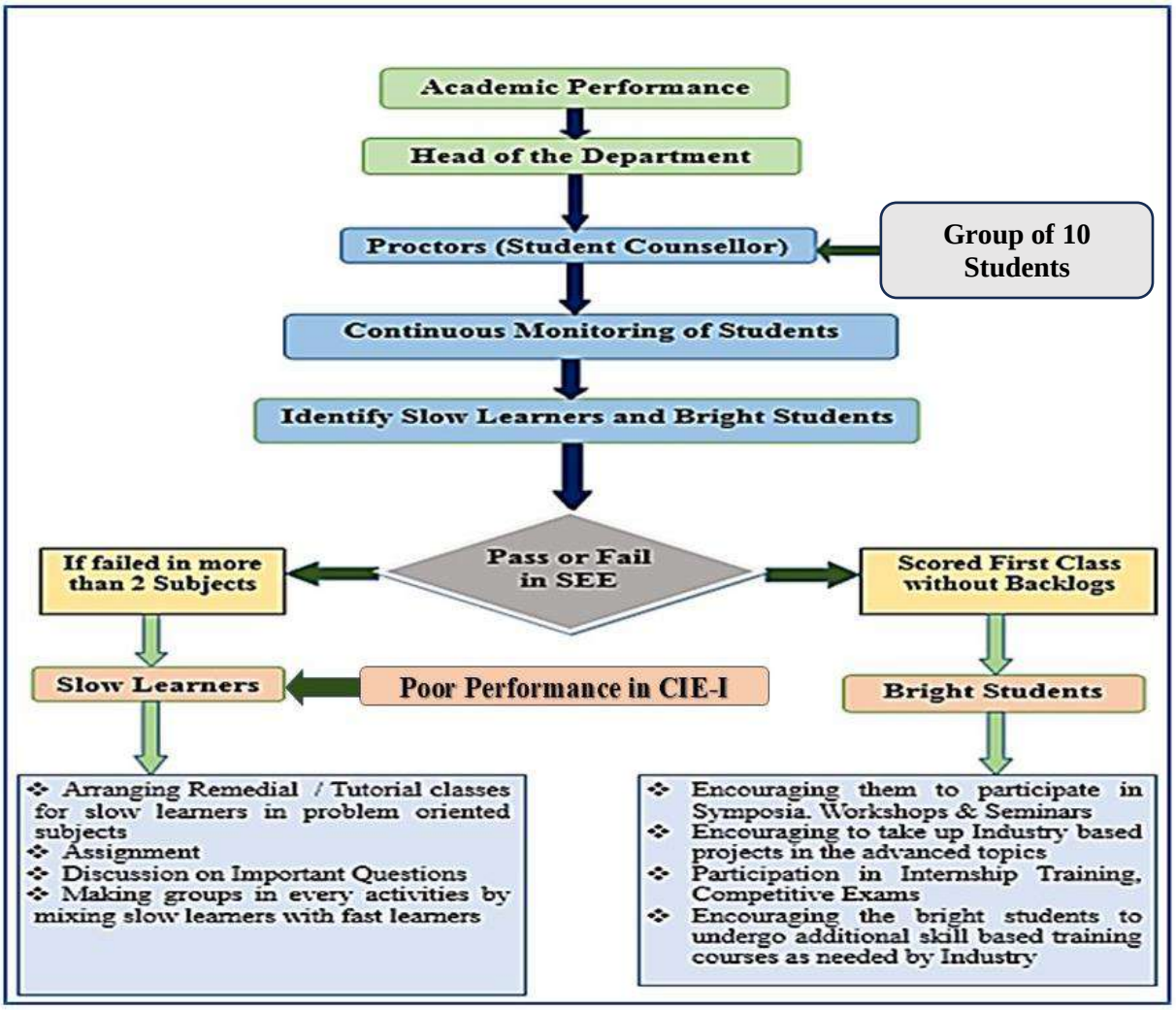
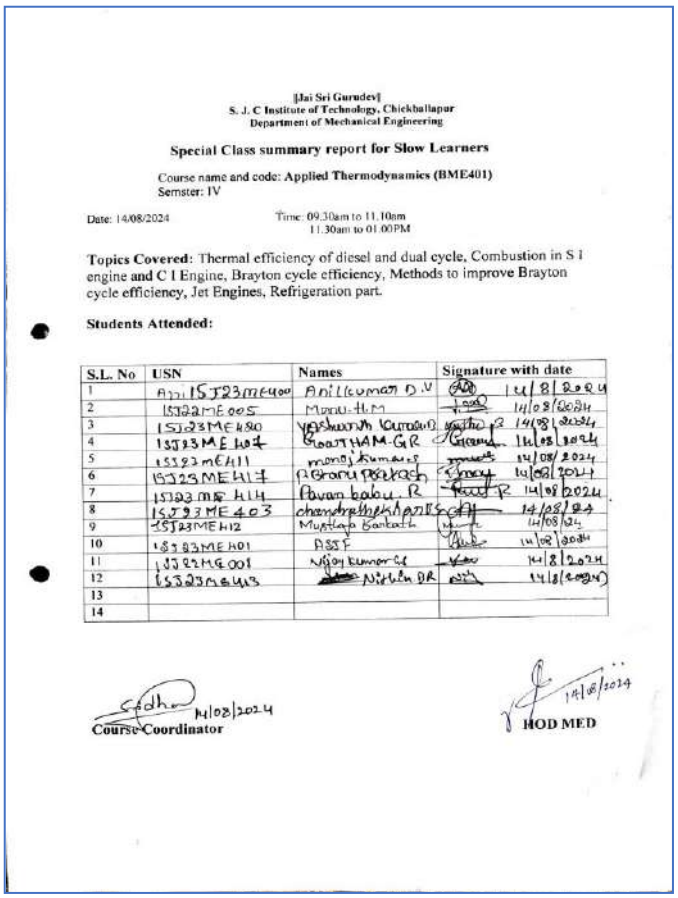


Figure 2.13 Methodologies to Identify Slow Learners and Bright students

Slow Learners

The slow learners are identified through their participation in classroom discussion, academic performance in the CIE and SEE (who fails in more than 2 courses in Semester End Examination).

- Based on the student performance in CIE and SEE, department arranges remedial/tutorial classes for slow learners.
- Parents are informed by the teacher/Proctor regarding the performance of their ward on regular basis through phone calls, SMS and PTM.
- Personal attention to these students is given by proctors and class teachers.
- Making groups in every activity by combining slow learners with fast learners.



[Jai Sri Gurudev]
S. J. C Institute of Technology, Chickballapur
Department of Mechanical Engineering

Special Class summary report for Slow Learners

Course name and code: **Applied Thermodynamics (BME401)**
Semster: IV

Date: 14/08/2024 Time: 09.30am to 11.10am
11.30am to 01.00PM

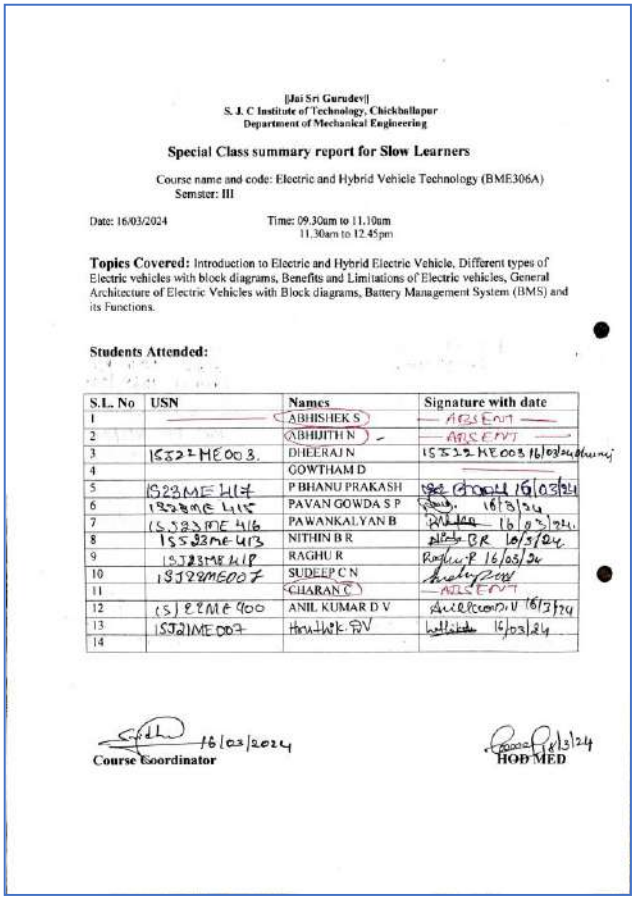
Topics Covered: Thermal efficiency of diesel and dual cycle, Combustion in S I engine and C I Engine, Brayton cycle efficiency, Methods to improve Brayton cycle efficiency, Jet Engines, Refrigeration part.

Students Attended:

S.L. No	USN	Names	Signature with date
1	1SJ23ME400	Anilkumar D.V	14/8/2024
2	1SJ22ME005	Manu H.M	14/08/2024
3	1SJ23ME480	Yashwanth Kumar G	14/08/2024
4	1SJ23ME407	GOWTHAM.GR	14/08/2024
5	1SJ23ME411	manoj kumar.s	14/08/2024
6	1SJ23ME417	Prakash Prakash	14/08/2024
7	1SJ23ME414	Pavan babu. R	14/08/2024
8	1SJ23ME403	chandrashekhar	14/08/24
9	1SJ23ME412	Mujtaba Bankoth	14/08/24
10	1SJ23ME401	ABSENT	14/08/2024
11	1SJ22ME001	Vijay kumar G	14/8/2024
12	1SJ23ME413	Nithin BR	14/8/2024
13			
14			

14/08/2024
Course Coordinator

14/8/2024
HOD MED



[Jai Sri Gurudev]
S. J. C Institute of Technology, Chickballapur
Department of Mechanical Engineering

Special Class summary report for Slow Learners

Course name and code: Electric and Hybrid Vehicle Technology (BME306A)
Semster: III

Date: 16/03/2024 Time: 09.30am to 11.10am
11.30am to 12.45pm

Topics Covered: Introduction to Electric and Hybrid Electric Vehicle, Different types of Electric vehicles with block diagrams, Benefits and Limitations of Electric vehicles, General Architecture of Electric Vehicles with Block diagrams, Battery Management System (BMS) and its Functions.

Students Attended:

S.L. No	USN	Names	Signature with date
1		ABHISHEK S	ABSENT
2		ABHIJITH N	ABSENT
3	1SJ22ME003	DHEERAJ N	1SJ22ME003 16/03/24
4		GOWTHAM D	
5	1SJ23ME417	P BHANU PRAKASH	16/03/24
6	1SJ23ME415	PAVAN GOWDA S P	16/3/24
7	1SJ23ME416	PAWANKALYAN B	16/03/24
8	1SJ23ME413	NITHIN B R	BR 16/3/24
9	1SJ23ME418	RAGHU R	16/03/24
10	1SJ22ME007	SUDEEP C N	
11		CHARAN C	ABSENT
12	1SJ22ME400	ANIL KUMAR D V	16/3/24
13	1SJ21ME007	Harish BV	16/03/24
14			

16/03/2024
Course Coordinator

16/3/24
HOD MED

Fig 2.14 Students showing the improvement in Academics after counseling

Bright Students

The bright students are identified based on their participation in classroom discussion, seminars, questioning ability, performance in the CIE and SEE.

- The top ten students from each semester are recognized by the department and are provided with additional library cards to borrow extra books from the Central Library.
- The students are encouraged to participate in symposia, workshops and Seminars to acquire knowledge on the latest developments
- Students are encouraged to lead the student's association team which organizes various activities viz. paper presentation, poster presentation, seminars/workshops, sports, cultural events etc. This helps them to develop leadership qualities along with knowledge.
- Topper of the batch will be felicitated with gold medal from institution.

Identification Criteria	Actions
Students secured First Class with Distinction (FCD) in their semester exams	1.Encouraging them to take up mini-projects and participate in National/ International/Inter-college events 2. Motivating them to get University ranks
Top 10 students of each class	1. Motivating them to solve more assignments/laboratory problems and previous year University exam question papers. 2. Helping them to get internships 3. Motivate them in preparing and publishing a paper, plan for higher studies with good score in GATE/CAT/GRE/TOEFL etc.,
Students securing ranks at university level	Distribution of Gold medals/Cash prizes

Figure 2.15 Academic Toppers

D. Quality of classroom teaching

Each classroom is spacious and equipped with black board with ICT tools to create a better ambience for effective teaching learning environment. During the lecture, faculty members put efforts to keep students engaged by reviewing and asking questions on previous lecture and interactively deliver the lecture planned for the day. At the end of the lecture, students are encouraged to ask doubts from the content taught. Pedagogies process followed is as shown in Figure 2.13.

Maintenance of Course files:

Every faculty maintains a course file consisting of following documents:

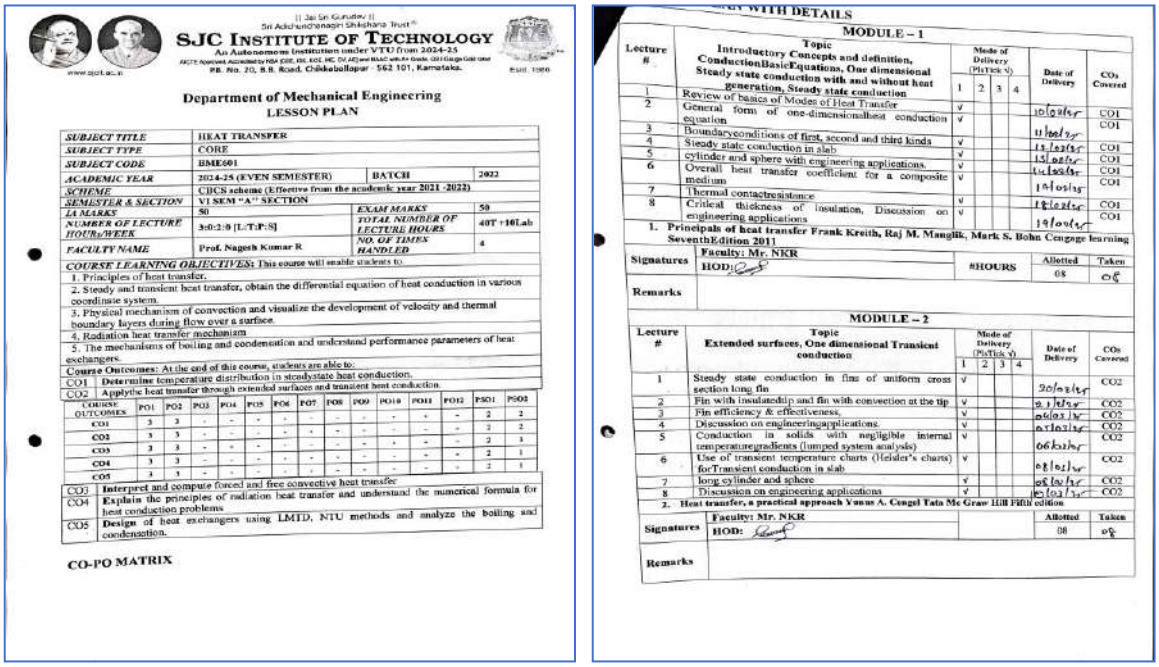
Calendar of events: It includes university, college, and department calendar of events.

Time table: Time table includes the clear schedule of the Courses and labs allotted to the faculty.

Syllabus copy attested by HOD: After the Course allotment, attested syllabus copy will be issued to the concerned faculties.

Previous university question papers: The faculty members will maintain the photocopy of the previous year question papers in their course files.

Lesson plan: Lesson plan is prepared for each lecture hour in the teaching plan by the course coordinator before the commencement of the semester and it is reviewed and approved by the HOD. The lesson plan includes pre-requisites for the course, course objectives and course outcomes. Figures 2.16 shows the sample lesson plan with COs and CO-PO matrix, Module wise content coverage, textbooks, references and other important academic records.



SJC INSTITUTE OF TECHNOLOGY

An Autonomous Institution under VTU From 2024-25

PB. No. 20, B.B. Road, Chikkaballapur - 562 101, Karnataka.

Department of Mechanical Engineering

LESSON PLAN

SUBJECT TITLE	HEAT TRANSFER		
SUBJECT TYPE	CORE		
SUBJECT CODE	BME601		
ACADEMIC YEAR	2024-25 (EVEN SEMESTER)	BATCH	2022
SCHEME	CBCS scheme (Effective from the academic year 2021 -2022)		
SEMESTER & SECTION	VI SEM "A" SECTION		
IA MARKS	50	EXAM MARKS	50
NUMBER OF LECTURE HOURS/WEEK	3:0:2:0 [L:T:P:S]	TOTAL NUMBER OF LECTURE HOURS	40T +10Lab
FACULTY NAME	Prof. Nagesh Kumar R	NO. OF TIMES HANDLED	4

COURSE LEARNING OBJECTIVES: This course will enable students to:

1. Principles of heat transfer.
2. Steady and transient heat transfer, obtain the differential equation of heat conduction in various coordinate system.
3. Physical mechanism of convection and visualize the development of velocity and thermal boundary layers during flow over a surface.
4. Radiation heat transfer mechanism
5. The mechanisms of boiling and condensation and understand performance parameters of heat exchangers.

Course Outcomes: At the end of this course, students are able to:

CO1 Determine temperature distribution in steadystate heat conduction.

CO2 Applythe heat transfer through extended surfaces and transient heat conduction.

COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	-	-	-	-	-	-	-	-	-	-	2	2
CO2	3	3	-	-	-	-	-	-	-	-	-	-	2	2
CO3	3	3	-	-	-	-	-	-	-	-	-	-	2	1
CO4	3	3	-	-	-	-	-	-	-	-	-	-	2	1
CO5	3	3	-	-	-	-	-	-	-	-	-	-	2	1

CO3 Interpret and compute forced and free convective heat transfer

CO4 Explain the principles of radiation heat transfer and understand the numerical formula for heat conduction problems

CO5 Design of heat exchangers using LMTD, NTU methods and analyze the boiling and condensation.

CO-PO MATRIX

...WITH DETAILS

MODULE – 1

Lecture #	Topic	Mode of Delivery (Pls Tick √) 1	2	3	4	Date of Delivery	COs Covered
1	Review of basics of Modes of Heat Transfer	√				10/02/25	CO1
2	General form of one-dimensionalheat conduction equation	√				11/02/25	CO1
3	Boundaryconditions of first, second and third kinds	√				13/02/25	CO1
4	Steady state conduction in plate	√				15/02/25	CO1
5	cylinder and sphere with engineering applications.	√				17/02/25	CO1
6	Overall heat transfer coefficient for a composite medium	√				18/02/25	CO1
7	Thermal contactresistance	√				19/02/25	CO1
8	Critical thickness of insulation, Discussion on engineering applications	√				20/02/25	CO1

1. Principals of heat transfer Frank Kreith, Raj M. Manglik, Mark S. Bohn Cengage learning SeventhEdition 2011

Signatures	Faculty: Mr. NKR / HOD:	#HOURS	Allotted	Taken
Remarks			08	08

MODULE – 2

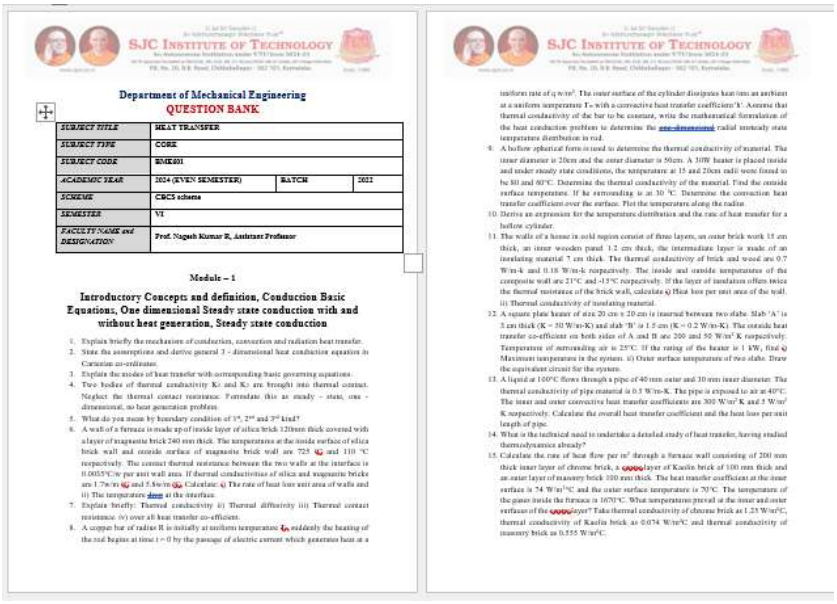
Lecture #	Topic	Mode of Delivery (Pls Tick √) 1	2	3	4	Date of Delivery	COs Covered
1	Steady state conduction in fins of uniform cross section long fin	√				20/02/25	CO2
2	Fin with insulatedtip and fin with convection at the tip	√				21/02/25	CO2
3	Fin efficiency & effectiveness,	√				26/02/25	CO2
4	Discussion on engineeringapplications.	√				27/02/25	CO2
5	Conduction in solids with negligible internal temperaturegradients (lumped system analysis)	√				06/03/25	CO2
6	Use of transient temperature charts (Heisler's charts) forTransient conduction in slab	√				08/03/25	CO2
7	long cylinder and sphere	√				05/03/25	CO2
8	Discussion on engineering applications	√				10/03/25	CO2

2. Heat transfer, a practical approach Yunus A. Cengel Tata Mc Graw Hill Fifth edition

Signatures	Faculty: Mr. NKR / HOD:	Allotted	Taken
Remarks		08	08

Figure 2.16 Sample Lesson plan

Question Bank: Question banks are prepared for every module in the course content based on course objectives and considering the nature of the university question papers. The previous Question papers of University are also maintained in the course files. The question banks are Shared with the students. Figures 2.17 shows sample question banks.



SJC INSTITUTE OF TECHNOLOGY

Department of Mechanical Engineering

QUESTION BANK

SUBJECT TITLE	HEAT TRANSFER		
SUBJECT TYPE	CORE		
SUBJECT CODE	BME601		
ACADEMIC YEAR	2024 (EVEN SEMESTER)	BATCH	2022
SCHEME	CBCS schema		
SEMESTER	VI		
FACULTY NAME and DESIGNATION	Prof. Nagesh Kumar R, Assistant Professor		

Module – 1

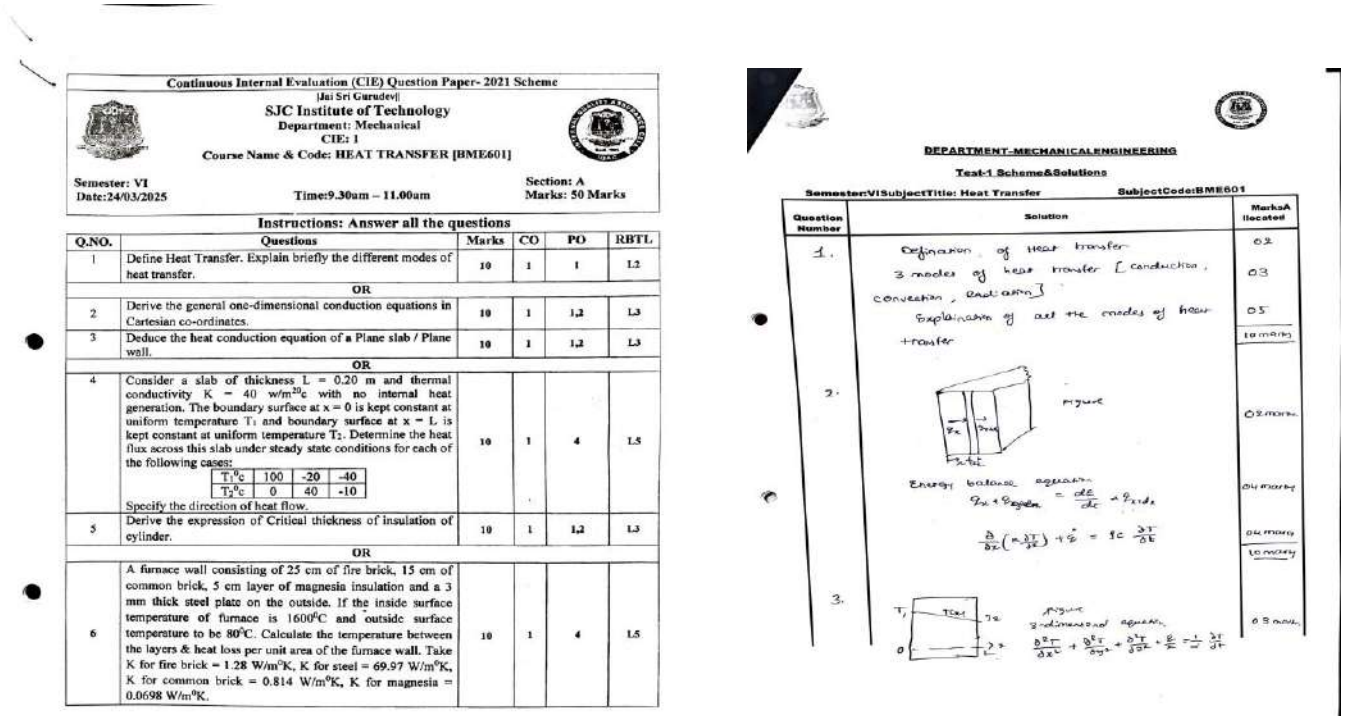
Introductory Concepts and definition, Conduction Basic Equations, One dimensional Steady state conduction with and without heat generation, Steady state conduction

1. Explain briefly the mechanism of conduction, convection and radiation heat transfer.
2. State the assumptions and derive general 3 - dimensional heat conduction equation in Cartesian co-ordinates.
3. Explain the modes of heat transfer with corresponding basic governing equations.
4. Two bodies of thermal conductivity K1 and K2 are brought into thermal contact. Neglect the thermal contact resistance. Formulate this as steady – state, one - dimensional, no heat generation problem.
5. What do you mean by boundary condition of 1st, 2nd and 3rd kind?
6. A wall of a furnace is made up of inside layer of silica brick 120mm thick covered with a layer of magnesite brick 240 mm thick. The temperatures at the inside surface of silica brick wall and outside surface of magnesite brick wall are 725 °C and 110 °C respectively. The contact thermal resistance between the two walls at the interface is 0.0053°C/w per unit wall area. If thermal conductivities of silica and magnesite bricks are 1.7w/m °C and 5.6w/m °C. Calculate: i) The rate of heat loss unit area of walls and ii) The temperature drop at the interface.
7. Explain briefly: Thermal conductivity ii) Thermal diffusivity iii) Thermal contact resistance. iv) over all heat transfer co-efficient.
8. A copper bar of radius R is initially at uniform temperature T_0 suddenly the heating of the rod begins at time t = 0 by the passage of electric current which generates heat at a uniform rate of q w/m³. The outer surface of the cylinder dissipates heat into an ambient at a uniform temperature T∞ with a convective heat transfer coefficient'h'. Assume that thermal conductivity of the bar to be constant, write the mathematical formulation of the heat conduction problem to determine the one-dimensional radial unsteady state temperature distribution in rod.
9. A hollow spherical form is used to determine the thermal conductivity of material. The inner diameter is 20cm and the outer diameter is 50cm. A 30W heater is placed inside and under steady state conditions, the temperature at 15 and 20cm radii were found to be 80 and 60°C. Determine the thermal conductivity of the material. Find the outside surface temperature. If he surrounding is at 30 °C. Determine the convection heat transfer coefficient over the surface. Plot the temperature along the radius.
10. Derive an expression for the temperature distribution and the rate of heat transfer for a hollow cylinder.
11. The walls of a house in cold region consist of three layers, an outer brick work 15 cm thick, an inner wooden panel 1.2 cm thick, the intermediate layer is made of an insulating material 7 cm thick. The thermal conductivity of brick and wood are 0.7 W/m-k and 0.18 W/m-k respectively. The inside and outside temperatures of the composite wall are 21°C and -15°C respectively. If the layer of insulation offers twice the thermal resistance of the brick wall, calculate i) Heat loss per unit area of the wall. ii) Thermal conductivity of insulating material.
12. A square plate heater of size 20 cm x 20 cm is inserted between two slabs. Slab 'A' is 3 cm thick (K = 50 W/m-K) and slab 'B' is 1.5 cm (K = 0.2 W/m-K). The outside heat transfer co-efficient on both sides of A and B are 200 and 50 W/m² K respectively. Temperature of surrounding air is 25°C. If the rating of the heater is 1 kW, find i) Maximum temperature in the system. ii) Outer surface temperature of two slabs. Draw the equivalent circuit for the system.
13. A liquid at 100°C flows through a pipe of 40 mm outer and 30 mm inner diameter. The thermal conductivity of pipe material is 0.5 W/m-K. The pipe is exposed to air at 40°C. The inner and outer convective heat transfer coefficients are 300 W/m² K and 5 W/m² K respectively. Calculate the overall heat transfer coefficient and the heat loss per unit length of pipe.
14. What is the technical need to undertake a detailed study of heat transfer, having studied thermodynamics already?
15. Calculate the rate of heat flow per m² through a furnace wall consisting of 200 mm thick inner layer of chrome brick, a ~~good~~ layer of Kaolin brick of 100 mm thick and an outer layer of masonry brick 100 mm thick. The heat transfer coefficient at the inner surface is 74 W/m²°C, and the outer surface temperature is 70°C. The temperature of the gases inside the furnace is 1670°C. What temperatures prevail at the inner and outer surfaces of the ~~good~~ layer? Take thermal conductivity of chrome brick as 1.23 W/m°C, thermal conductivity of Kaolin brick as 0.074 W/m°C and thermal conductivity of masonry brick as 0.555 W/m°C.

Figure 2.17 Sample Question Bank

Tutorial: Tutorial contains module wise questions which will be discussed before the Internal Assessment.

Internal question papers with scheme: Test question papers with scheme prepared by the course coordinator, reviewed by the reviewer and approved by HOD.



Continuous Internal Evaluation (CIE) Question Paper- 2021 Scheme

|Jai Sri Gurudev|

SJC Institute of Technology

Department: Mechanical

CIE: 1

Course Name & Code: HEAT TRANSFER [BME601]

Semester: VI | Section: A

Date:24/03/2025 | Time:9.30am – 11.00am | Marks: 50 Marks

Instructions: Answer all the questions

Q.NO.	Questions	Marks	CO	PO	RBTL
1	Define Heat Transfer. Explain briefly the different modes of heat transfer.	10	1	1	L2
	OR				
2	Derive the general one-dimensional conduction equations in Cartesian co-ordinates.	10	1	1,2	L3
3	Deduce the heat conduction equation of a Plane slab / Plane wall.	10	1	1,2	L3
	OR				
4	Consider a slab of thickness L = 0.20 m and thermal conductivity K = 40 w/m^{20}c with no internal heat generation. The boundary surface at x = 0 is kept constant at uniform temperature T_1 and boundary surface at x = L is kept constant at uniform temperature T_2. Determine the heat flux across this slab under steady state conditions for each of the following cases: (T_1°c: 100, -20, -40; T_2°c: 0, 40, -10) Specify the direction of heat flow.	10	1	4	L5
5	Derive the expression of Critical thickness of insulation of cylinder.	10	1	1,2	L3
	OR				
6	A furnace wall consisting of 25 cm of fire brick, 15 cm of common brick, 5 cm layer of magnesia insulation and a 3 mm thick steel plate on the outside. If the inside surface temperature of furnace is 1600°C and outside surface temperature to be 80°C. Calculate the temperature between the layers & heat loss per unit area of the furnace wall. Take K for fire brick = 1.28 W/m°K, K for steel = 69.97 W/m°K, K for common brick = 0.814 W/m°K, K for magnesia = 0.0698 W/m°K.	10	1	4	L5

DEPARTMENT-MECHANICALENGINEERING

Test-1 Scheme&Solutions

Semester:VISubjectTitle: Heat Transfer SubjectCode:BME601

Question Number	Solution	Marks Allocated
1.	Defination of Heat transfer 3 modes of heat transfer [conduction, convection, radiation] Explanation of all the modes of heat transfer	02 03 05 10 marks
2.	figure	02 marks
	Energy balance equation $q_x + q_{gen} = \frac{dE}{dt} + q_{x+dx}$	04 marks
	$\frac{\partial}{\partial x}\left(k\frac{\partial T}{\partial x}\right) + \dot{q} = \rho c \frac{\partial T}{\partial t}$	04 marks
		10 marks
3.	figure 3-dimensional equation $\frac{\partial^2 T}{\partial x^2} + \frac{\partial^2 T}{\partial y^2} + \frac{\partial^2 T}{\partial z^2} + \frac{\dot{q}}{k} = \frac{1}{\alpha}\frac{\partial T}{\partial t}$	03 marks

(a) **(b)**

Figure 2.18 (a) & (b) Sample Question paper and scheme of evaluation

E. Conduction of Experiments

- All laboratories are equipped with necessary infrastructure to facilitate effective conduction of the experiments in the laboratory.
- Lab In charges of respective Labs will prepare the manuals, material requirements, conduction of experiments and cycle of experiments before commencement of semester
- In Laboratory session the faculty explains the procedure, theory, calculations and applications of the experiment

- The students will write the necessary details in the observation book and then conduct the experiment, tabulate the readings, calculate and evaluate the results
- The calculated results are represented in the form of graphs and documented in the record book by the students, later it is evaluated by concerned faculty
- The Experiments are evaluated by the faculties according to lab rubrics

The experiments are conducted in each laboratory as per the flow charts shown in Figure 2.19

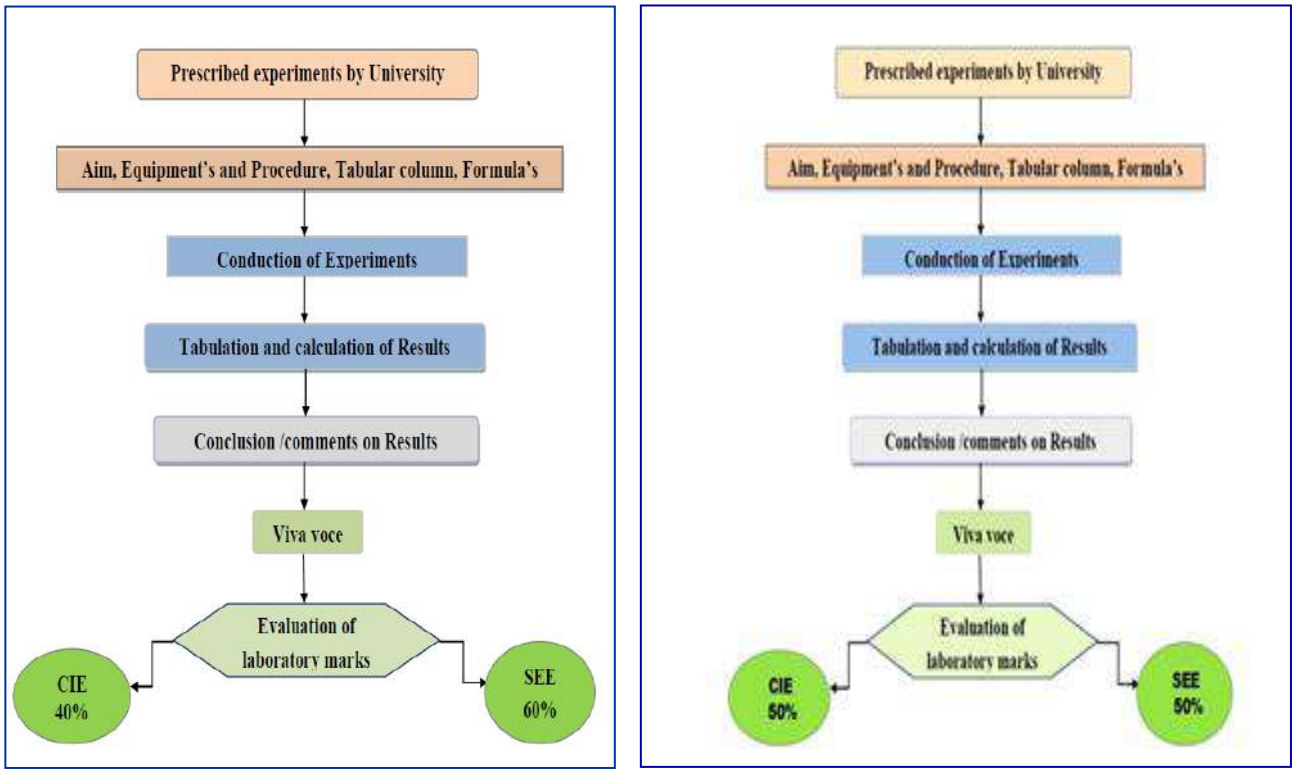


Figure 2.19 Laboratory Evaluation [(2018 Scheme) & (2021, 2022, 2024 (Autonomous) (Schemes)]

F. Continuous Assessment in laboratory

Continuous assessment system is also implemented for assessment of laboratory work. The evaluation is done based on submission of laboratory observations, records, conduction, viva and punctuality of the student. Internal test is conducted at the end of semester and evaluated as per Laboratory Rubrics.

Laboratory Rubrics

Table B 2.10 Continuous Assessment in laboratory rubrics

Rubric	Methodology / Process Steps	2018 Scheme	2021, 2022 & 2024 (Autonomous) Schemes
a	Observation, Write up and Punctuality	**5**	**5**
b	Conduction of experiment and Output	**8**	**10**
c	Viva – Voce (Questions & Answers on relevant Experiment /Topic)	**4**	**5**
d	Record write-up	**8**	**10**
IA	Internal Test	**15**	**20**
	Total Marks	**40**	**50**

- Continuous evaluation is done by the faculty in every lab session based on the lab rubrics. The average marks of all the session will be considered for awarding final internal assessment.
- All the students must write the procedure and calculation of the experiment in the observation book.
- Students should get signature for their observation books from the concerned faculty after conduction of experiment.
- All the students must write the record and submit in the immediate next class along with observation book for evaluation.
- The faculty member allocates the marks for each experiment as per the rubrics mentioned above.

G. Student feedback on teaching learning process and actions taken

At the mid of the semester, students will give online feedback appraising the teaching faculty.

- Lecture classes are monitored by senior Professors and Head of the Department. They give constructive comments to improve the teaching- learning process. This motivates them to improve their skills and abilities

- Training / orientation programs are conducted by professional experts to improve the skills of the faculty members.

2.2.2. Quality of internal semester Question papers, Assignments and Evaluation (20)

Internal Assessment marks are set as per the University regulations for theory, laboratory courses, seminar, internship and project. The internal assessment marks for theory courses is based on average marks of two tests for 2015 Scheme syllabus and average marks of three tests for 2017 and 2018 Scheme syllabus as prescribed by University. The internal assessment is conducted as per the calendar of events. The Program Coordinator along with test coordinator is responsible for the conduction of the test. The time table for the same is announced in notice board one week prior to the commencement of the test.

The question paper is prepared as per prescribed syllabus considering revised blooms taxonomy (RBT) at different levels to test the knowledge level of students and to meet the requirements of course outcome and program outcomes. The department has a review committee, comprising senior faculty members (i.e. Reviewer) to check the quality of the question paper.

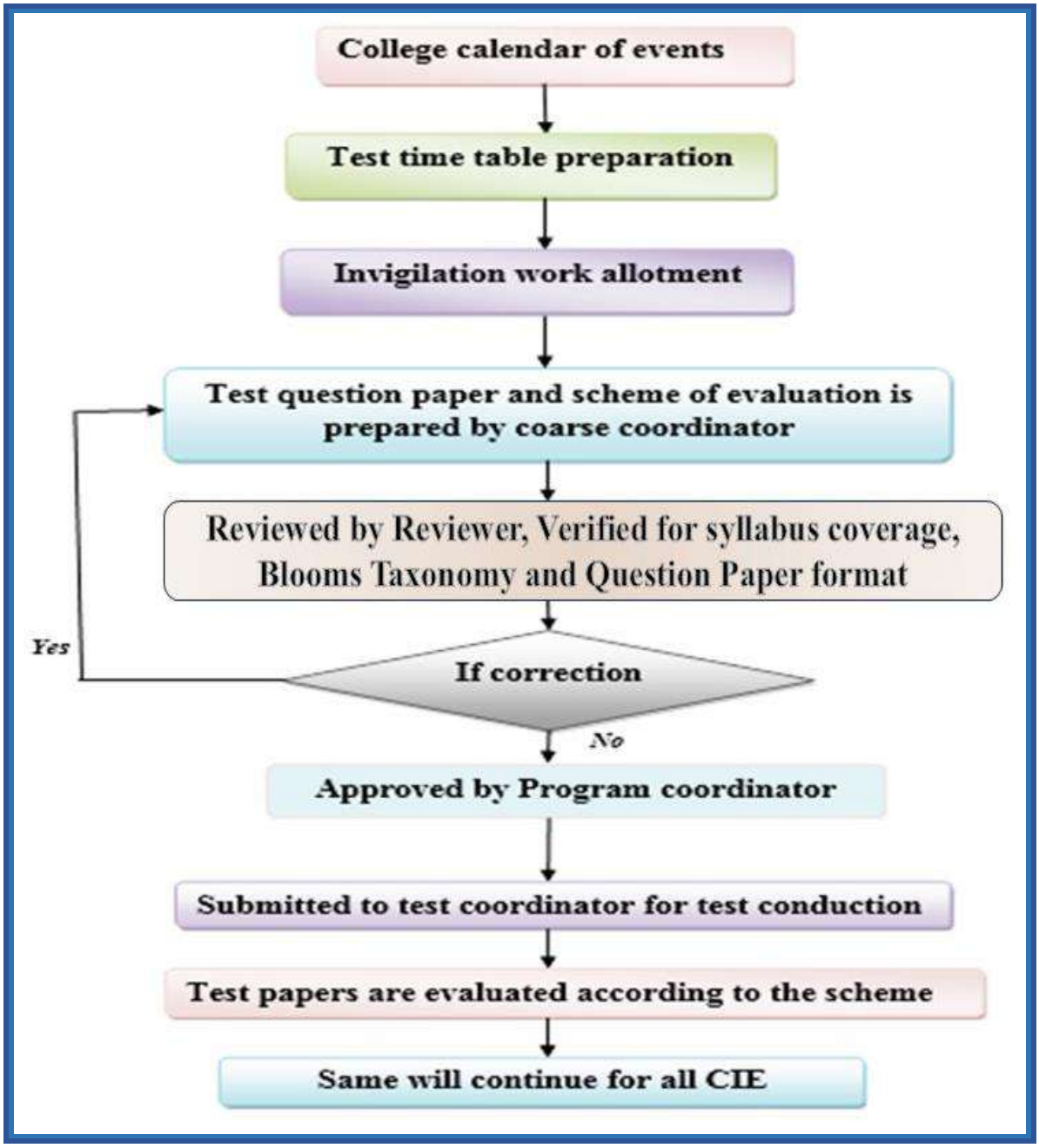


Figure 2.20 Process for conduction of Internal Assessment

A. Process for internal Semester Question paper setting and evaluation and effective process implementation

- The time table for the Internal Assessment is announced in the notice board, shared in class groups one week prior to the commencement of the test.

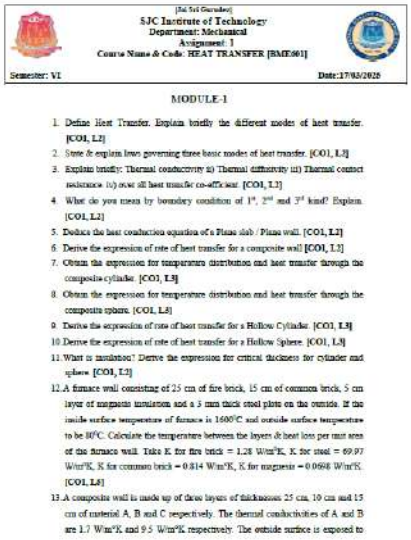
- Department provides answer booklets which is almost in the form of VTU booklet for writing the internal assessment and will be stored by the Department for the period of five years.
- The students write the test in their allotted seats as per their USNs in the test hall, under the supervision of an invigilator.
- The department conducts three internal assessments as per the institute academic calendar.
- The prepared question paper and scheme of evaluation are reviewed by Reviewer and approved by HOD. If they are not meeting the standard, the same will be referred for modification to the respective course coordinator.
- Approved question papers are submitted to the test coordinator for internal test conduction.
- Evaluation is carried out by the course coordinator according to scheme of evaluation. The CO-PO attainment calculation will be done after every CIE
- The CIE marks of students are finalized as per the University guidelines.

B. Process to ensure questions from course outcomes/learning levels

- The course co-coordinator ensures that the internal assessment questions are framed based on various RBT levels and are mapped to the COs
- The course coordinator decides the number of questions and marks allotted for each question
- The course coordinator submits the question paper to the scrutinizing committee and the committee checks the quality and RBT level and CO compliance and suggests any changes, if required.

C. Quality of Assignment and its relevance to COs

- The course coordinator announces assignment topic, submission dates and the same are communicated in the class
- Assignment questions are set as per blooms level to test the understanding knowledge level of each course
- Assignments are evaluated and feedback is given to the students to improve their learning and appreciate their efforts
- Class seminars are given to the students to improve their communication skills
- Quiz is conducted in online mode by the respective course faculty
- The mini-project is assigned to enhance students' technical skills, teamwork, problem-solving abilities, and practical application of concepts.
- Students are assigned an online certification to strengthen subject knowledge, encourage self-paced learning, and enhance technical skills through industry-relevant content.



[An ISO Certified]
SJC Institute of Technology
Department: Mechanical
Assignment: 1
Course Name & Code: HEAT TRANSFER [BME501]
Semester: VI Date:17/03/2020

MODULE-1

1. Define Heat Transfer. Explain briefly the different modes of heat transfer. [CO1, L2]
2. State & explain laws governing three basic modes of heat transfer. [CO1, L2]
3. Explain briefly: Thermal conductivity ii) Thermal diffusivity iii) Thermal contact resistance iv) overall heat transfer co-efficient. [CO1, L2]
4. What do you mean by boundary condition of 1st, 2nd and 3rd kind? Explain. [CO1, L2]
5. Deduce the heat conduction equation of a Plane slab / Plane wall. [CO1, L2]
6. Derive the expression of rate of heat transfer for a composite wall [CO1, L2]
7. Obtain the expression for temperature distribution and heat transfer through the composite cylinder. [CO3, L3]
8. Obtain the expression for temperature distribution and heat transfer through the composite sphere. [CO1, L3]
9. Derive the expression of rate of heat transfer for a Hollow Cylinder. [CO1, L3]
10. Derive the expression of rate of heat transfer for a Hollow Sphere. [CO1, L3]
11. What is insulation? Derive the expression for critical thickness for cylinder and sphere [CO1, L2]
12. A furnace wall consisting of 25 cm of fire brick, 15 cm of common brick, 5 cm layer of magnesia insulation and a 3 mm thick steel plate on the outside. If the inside surface temperature of furnace is 1600°C and outside surface temperature to be 80°C. Calculate the temperature between the layers & heat loss per unit area of the furnace wall. Take K for fire brick = 1.28 W/m°K, K for steel = 69.97 W/m°K, K for common brick = 0.814 W/m°K, K for magnesia = 0.098 W/m°K. [CO1, L3]
13. A composite wall is made up of three layers of thicknesses 25 cm, 10 cm and 15 cm of material A, B and C respectively. The thermal conductivities of A and B are 1.7 W/m°K and 9.5 W/m°K respectively. The outside surface is exposed to

Figure 2.21 Sample copy of Assignment

2.2.3. Quality of Student Projects (25)

The students carry out their project work in the final year as per University guidelines. The Department follows standard procedures to ensure that students do a quality project. The students

select a project in line with their area of interest. Students are encouraged to do project works related to Environment, Industry and Society. The department has systematic procedure to monitor the project work continuously from beginning to end of the project. Students are encouraged to publish paper in journals and conferences at the end of the project. The figure 2.22 shows flow chart for project completion process.

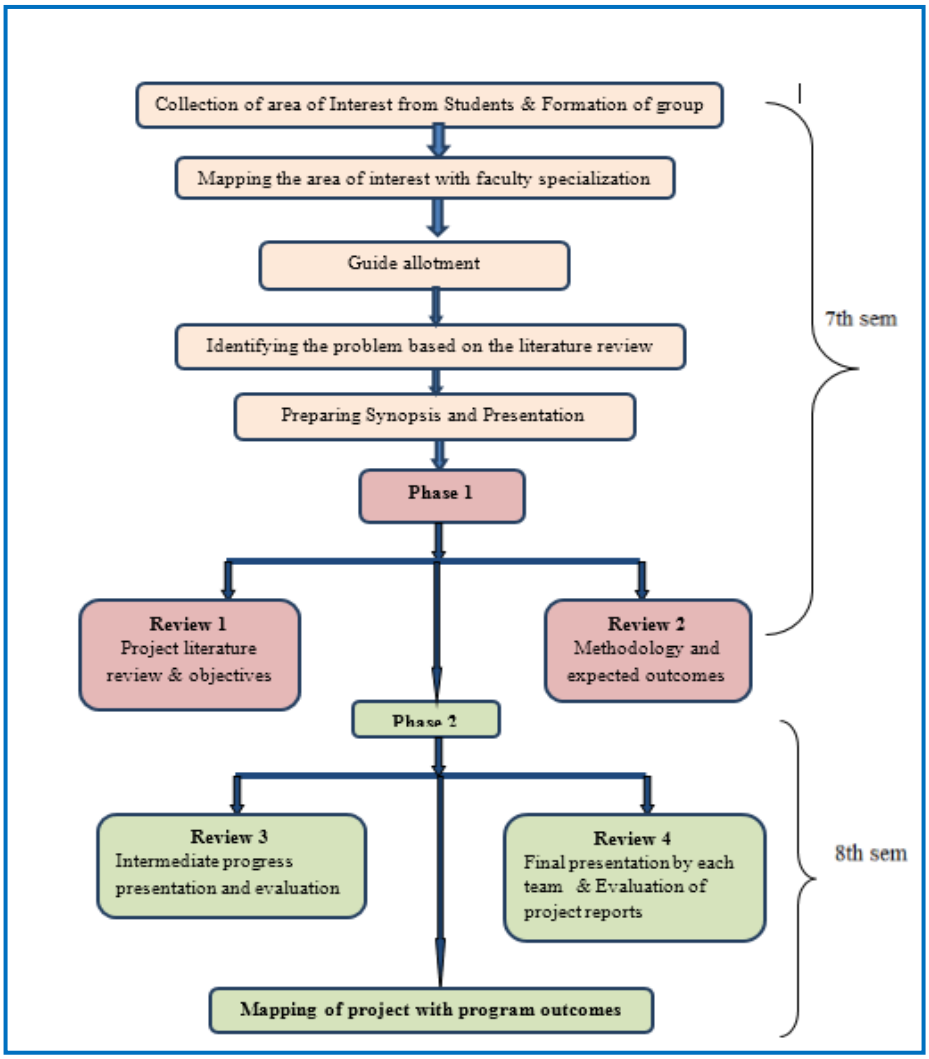


Figure 2.22 Flow Chart of Project completion process

A. Identification of projects and allocation methodology to Faculty Member

Task	Particulars
Final Year Project work	
Collection of area of interest from students & formation of group	• Project coordinator is responsible for planning, scheduling and execution of all the activities related to the student project work • Students are invited to prepare their batch and submit their area of interest to project coordinator • Project coordinator finalizes project groups consisting minimum two and maximum of four members as per the University guidelines
Mapping the area of interest with faculty specialization	• Project coordinator will map the area of interest of students with faculty specialization
Guide allotment	• Based on the student's interested area, faculty specialization, a project guide is allotted by Program coordinator in mutual consent with students and guide
Identifying the problem based on the literature review	• Students are instructed to do the literature survey to identify the problem for project
Preparing synopsis and presentation	• The student submitting project synopsis is pre-evaluated by project guide • Final Synopsis is submitted to project coordinator
Phase 1	
Review 1	Project literature review & objective
Review 2	Methodology and expected outcomes
Phase 2	
Review 3	Intermediate progress presentation and evaluation as per rubrics
Review 4	Final presentation by each team and evaluation of project reports as per rubrics
Final Evaluation	Internal and External Examiners as per the university Guideline Final Viva voce is conducted for 100 marks

B. Types and relevance of the projects and their contribution towards attainment of POs and PSOs

Table B 2.11 Student Project works carried out in various Domains

Domain	2018-2022	2019-2023	2020-2024
Design & Fabrication	27	17	05
Analysis	02	01	01
Composite Materials	02	03	04

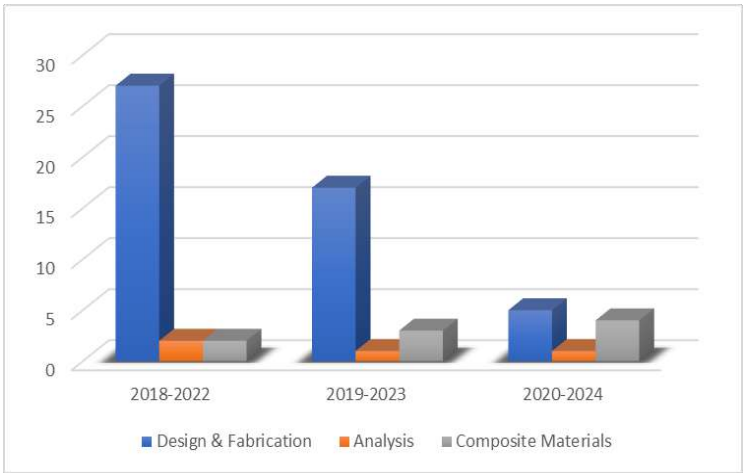


Table B 2.12: List of Projects 2018-2022 Batch

Sl. No	Project Title	Year	Project Guide	Student Name	USN	POs/PSOs attainment
1	Design and Fabrication of Automated Quality Inspection System for R T Shell Component	2022	Dr. Mallaradhya H M	1SJ18ME034	GIRISH KUMAR S	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME051	KISHAN DEEKSHITH	
				1SJ18ME054	MANJUNATH B	
				1SJ18ME053	MANJUNATH E	
2	Design of Voice Operated Motorized Exoskeleton Arm	2022	Prof. Bharath S Gowda	1SJ18ME012	BHARATH G M	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME028	DHANUSH S	
				1SJ18ME016	CHANDAN B M	
				1SJ18ME013	BHARATH KUMAR G M	
3	Design and Fabrication of Limb Exoskeleton	2022	Prof. Harish S	1SJ18ME011	BHARATH G	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME021	CHARAN KUMAR K	
				1SJ18ME024	CHETHAN GOWDA M	
				1SJ18ME022	CHARAN KUMAR N	

4	Synthesis and Mechanical Characterization of Titanium Carbide Reinforced Copper Metal Matrix Composites	2022	Dr. Chandramohan H K	1SJ18ME037	HEMANTH A N	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME060	NAGARAJ B	
				1SJ18ME090	SANTHOSH K G	
				1SJ18ME057	MANOJ KUMAR N M	
5	Design and Development of Hydrogen Powered Household Cooking Appliance	2022	Prof, Shridar J	1SJ18ME007	ANUREDDY J	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME032	GANGOTHRI V	
				1SJ18ME042	K ABDUL WASEEM	
				1SJ18ME045	KASIBOYANA ANJANI KUMAR	
6	Design and Fabrication of Paddy Transplanter Machine	2022	Prof. Palakshaiah	1SJ18ME030	DURGA PRASAD G A	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME049	KIRANKUMAR S	
				1SJ18ME052	LIKHITH S	
				1SJ18ME068	PAVAN YADAV H N	
7	Design and Development of Coin Sorting Machine	2022	Dr. Thyagaraj N R	1SJ18ME033	GIRIDHARSHAN K V	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME038	HEMANANTH KUMAR D	
				1SJ18ME041	JAGATHKUMAR C	
				1SJ18ME043	KARTHIK M	
8	Modeling and Fabrication of Emergency Hand Brake System for Handicaps	2022	Dr. Rukmangadha P	1SJ19ME406	HARISH G R	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ19ME407	KEMPARAJU K U	
				1SJ19ME413	NIRMAL C M	
				1SJ19ME415	RAGHAVENDRA K	
9	Manually Operated Seed Sowing Machine	2022	Prof, Bharath S Gowda	1SJ18ME058	MOHAN KUMAR B S	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME014	BHARGAV REDDY K R	
				1SJ18ME061	NANDISH P C	
				1SJ18ME062	NAVEEN N	
10	Development of Areca Nut Tree Climbing and Harvesting Machine with Pesticide Sprayer	2022	Prof. Palakshaiah	1SJ18ME047	KEERTHI U	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME048	KIRAN I M	
				1SJ18ME055	MANOJ B G	
11	Developmenet and Fabrication of Hybrid Wind and Hydro Electricity Generator	2022	Dr. Ravikumar T R	1SJ18ME076	RAHUL S	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME079	RAJU N HEERAPUR	
				1SJ18ME083	ROHAN R	
				1SJ18ME107	YERASI SHIVA JAGAN YADAV	
12	Design and Development of	2022	Dr. Mallaradhya H	1SJ18ME064	NAYAZ B	PO1, PO2, PO3, PO4, PO7,
				1SJ18ME091	SHAKSHA A N	

	Drilling Machine using PLC		M	1SJ18ME110	ZAMEER PASHA C	PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME087	SANGAMESHWAR	
13	Design and Fabrication of Shaft Driven Hybrid Bicycle	2022	Prof. Umesh Ashok Chougala	1SJ18ME085	SAGAR V	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME104	VISHWAS S	
				1SJ18ME067	NITHIN M	
				1SJ18ME073	PRATHIK S	
14	Design and Fabrication of Mecanum Wheel for Pesticide Sprayer	2022	Dr. Rukmangadha P	1SJ18ME077	RAJDEEP SHAW	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME088	SANJAY L	
				1SJ18ME099	SURAJ M	
				1SJ18ME082	RANJITH M	
15	Mechanically Automativ Drainage Cleaner	2022	Dr. Yathish Narayana Rao K N	1SJ18ME084	ROHITH MAHADEV HONAKATTI	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME109	YUVARAJREDDY B N	
16	Microstructure and Mechanical Properties of AL-Sic Alloy Synthesized by Conventional Sintering and Extrusion Technique	2022	Dr. Chandramohan H K	1SJ18ME096	SINDHU H N	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME101	VARSHINI V G	
				1SJ18ME078	RAJESH D S	
				1SJ18ME097	SPOORTHI V	
17	A Study on Wear Behaviour of Die Casted Phosphor Bronze	2022	Dr. R Ranganatha	1SJ18ME081	RAKSHITHA N R	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME100	VANI G B	
18	Design and Fabrication of Solar Powered Air Purifier	2022	Prof. Sridhar J	1SJ19ME402	ANIL	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ19ME403	BHANU PRAKASH	
				1SJ19ME409	MAHESH M	
				1SJ19ME421	ARUN KUMAR K R	
19	Design and development of 360 degree rotating vehicle for carrying light weight industrial products	2022	Prof. Venkatraj M	1SJ19ME401	AKHIL M N	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ19ME404	CHETHAN M	
				1SJ19ME408	M SUDHARSHAN GOWDA	
				1SJ19ME416	RAKSHITH KUMAR C V	
20	Design and Development of optional operating hybrid two wheeler vehicle.	2022	Prof.Bharath S Gowda	1SJ18ME006	ABHISHEK REDDY M	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME009	ATTAR SAIFULLA	
				1SJ18ME031	FAIZAN AHMAD KHAN	
				1SJ18ME046	KATTEL DURGA PRASAD	
21	Automation of Bending Sequence using Pneumatic Drives Controlled by PLC	2022	Dr. Ranganath R	1SJ19ME410	MANOJ S	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ19ME418	SANDEEP C M	
				1SJ19ME420	VIJAY KUMAR H M	

22	Soft Robotics Based Voice Controlled Prosthetic Hand	2022	Dr. Mallaradhya H M	1SJ18ME071	PRAJWAL R	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME092	SHAM SUNDAR G K	
				1SJ18ME094	SHREE HARSHA A	
				1SJ18ME106	YATHISH GOWDA K R	
23	Design and fabrication of coin sorting and counting machine	2022	Dr. Ranganath R	1SJ19ME400	AJAY KUMAR YADAV B V	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ19ME414	PUNITH KUMAR V	
				1SJ19ME417	RAVITEJA T S	
				1SJ19ME419	SANJAY A S	
24	Development of battery operated weed remover	2022	Prof. Venkatraj M	1SJ18ME004	ABHILASH G A	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME040	HEMANTHKUMAR V R	
				1SJ18ME050	KIRANKUMAR S B	
25	Design and fabrication of Wireless Robotic Fire Extinguisher	2022	Dr. Ravi Kumar T R	1SJ18ME005	ABHISHEK C	PO1, PO2, PO3, PO4, PO7, PO8,PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME035	HARISHA G N	
				1SJ18ME105	YASHWANTH G K	
				1SJ18ME059	MUREVARI MANOJKUMAR REDDY	
26	Pesticide sprayer	2022	Dr. Thyagaraj N R	1SJ18ME065	NIKHIL M D	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME089	SANJAY N	
				1SJ18ME095	SHREYAS S	
27	Design and Fabrication of arm mounted drill for accurate drilling	2022	Dr. Rukmangadha P	1SJ17ME047	POULAB SAHA	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ17ME085	HARSHITH V	
28	Modelling And Fabrication Of Boat For Collecting Floating Debris In Lakes	2022	Dr. Yathish Narayan Rao. K.N	1SJ17ME003	ABHISHEK KUMAR	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ17ME031	LINGAM YASHWANTH DURGA	
				1SJ17ME035	MALLESH R	
				1SJ17ME038	MOHAMMED HASSAN Z	
29	Analysis of Microstructure and Mechanical Properties of Roravator Blade	2022	Dr. Mallaradhya H M	1SJ17ME042	NISHANTH B R	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ17ME076	VIJAY KUMAR C N	
				1SJ17ME413	LIKHITH C R	
				1SJ17ME432	VENUGOPAL P G	
30	Modelling and fabrication of Peltier based refrigeration system	2022	Dr. Yathish Narayan Rao	1SJ17ME050	RAHUL S	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ17ME060	S BALAKOTIREDDY	
				1SJ18ME428	SUHAS S	
				1SJ18ME431	SYED SHAKEEB	
31	Modification and	2022	Dr. Thyagaraj	1SJ18ME407	DHANUSH S	PO1, PO2, PO3,

	fabrication of road cleaning machine		N R	1SJ18ME408	GOUTHAM T K	PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ18ME425	SHRIDAR K	
				1SJ16ME014	BABU B	
32	Design and fabrication of arm mounted drill for accurate drilling	2022	Dr.P.Rukhmangadha	1SJ18ME434	VINAY P	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				1SJ16ME016	LOKESH K V	

Table B 2.13 List of Projects 2019-2023 Batch

Sl.No	Project Title	Year	Project Guide	Student Name	USN	POs/PSOs attainment
1	Semi-Automatc Manhole Cleaning Machine	2023	Dr. Mallaradhya H M	Anirudh	1SJ19ME005	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Kuruba Avinash	1SJ19ME025	
				Vivek B	1SJ19ME078	
				Pooja P	1SJ19ME049	
2	Protection of Crops and Proper Usage of Rain Water	2023	Dr. K N Manjunath	Girish KN	1SJ19ME405	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Praveen Kumar H A	1SJ20ME416	
				Sumanth Y S	1SJ20ME417	
				Arun Kumar K N	1SJ20ME419	
3	Characterization of Epoxy Composites with Graphene and Cenosphere	2023	Dr. Thyagaraj N R	Nithin M	1SJ19ME046	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Osama Hyder Babu Darvesh	1SJ19ME047	
				Sanivarapu Raja Sekhar Reddy	1SJ19ME060	
				Shashank V	1SJ19ME066	
4	Design and Development of Ornithopter Drone	2023	Prof. Shridar J	Sanjay S	1SJ19ME061	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Shrinidhi Kulkarni	1SJ19ME068	
				Tabrez Pasha	1SJ19ME074	
				Yashwanth K N	1SJ19ME079	
5	Exhaust Gas Heat Resrortion System in Automobile	2023	Prof. Venkatraj M	Sandeep B R	1SJ19ME059	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Shailesh N	1SJ19ME064	
				Shreyas L	1SJ19ME067	
				Sudeep Gowda N	1SJ19ME072	
6	Desingn and Fabrication of Limb Exoskeleton	2023	Dr. Manjunath K N	Nikhil K M	1SJ19ME044	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Sreedhar A	1SJ19ME069	
				Sridhar Reddy B	1SJ19ME071	
				Swasthik K M	1SJ19ME073	

7	Tribological Characterization of Al/B4C Metal Matrix Composites	2023	Dr. Thyagaraj N R	Nandhini G	1SJ19ME043	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Karthik K J	1SJ20ME411	
				Madhu T V	1SJ20ME412	
				Pavan Kumar T N	1SJ20ME414	
8	Speed Locking System for Two Wheelers	2023	Prof. Yathish Kumar B M	Rameshwar B M	1SJ19ME057	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				V S Monish	1SJ19ME076	
				Rahul M	1SJ19ME055	
9	Design and Development of Power Pod	2023	Prof. Palakshaiah	Chadive Sathish Kumar Reddy	1SJ19ME008	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Kethireddy Hruday Reddy	1SJ19ME023	
				Pothurai Ravikumar Reddy	1SJ19ME050	
				Pulugura Manjunath Reddy	1SJ19ME052	
10	Study and Analysis of Aerodynamic Force on Automative Car	2023	Dr. Rukmangadha P	1Gagan Gowda C	1SJ19ME014	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Jayanth K R	1SJ19ME020	
				Karthik B N	1SJ19ME021	
				Manoj H V	1SJ19ME034	
11	Design and Fabrication of Pedal Operated Power Generator	2023	Dr. Ravikumar T R	Chandan Gowda T N	1SJ20ME404	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Jayateertha C A	1SJ20ME409	
				Varshith Gowda L	1SJ20ME418	
				Abhilash K N	1SJ20ME404	
12	Smart Helmet Control Vehicle	2023	Dr. Rukmangadha R	Chandan Gowda M	1SJ18ME017	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Bhavan.D	1SJ20ME403	
				G Chandan	1SJ20ME407	
				Nandakishor R	1SJ20ME413	
13	Effect of Infill Percentage in 3D Printed Materials using Taguchi Method	2023	Dr. Mallaradhya H M	Lakshay Kumar Singh	1SJ19ME027	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				K G Rajeev Iyengar	1SJ20ME410	
				Mohammed Shoaib	1SJ19ME037	
				Likith K N	1SJ19ME028	
14	Solar base Grass Cutter	2023	Prof. Bharath S Gowda	Jahnavi Krupa A	1SJ19ME018	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Mohith K V	1SJ19ME040	
				Chandan N Gowda	1SJ20ME405	

				Deepak N	1SJ20ME406	
15	Fabrication of Chainless Bicycle	2023	Dr. K N Manjunath	Balaji N	1SJ19ME006	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Chethanraj D N	1SJ19ME010	
				Madhu K	1SJ19ME029	
				Akshay M	1SJ19ME003	
16	Development and Fabrication of Manually Operated Seed cum Fertilizer Drill	2023	Dr. Yathish Narayana Rao K N	Ajay Kumar G	1SJ20ME401	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Ashoka C	1SJ20ME402	
				Harshith A	1SJ20ME408	
				Pradeep N	1SJ20ME415	
17	The Development and Analysis of Heating System by using Peltier Effect	2023	Dr. Yathish Narayana Rao K N	Keerthana B K	1SJ19ME022	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Kumar S	1SJ19ME024	
				Prabhakar Y V	1SJ19ME051	
				Sagar T A	1SJ19ME058	
18	Design and Development of 36o degree Portable Robotic Fire Extinguisher	2023	Prof. Shridar J	Nithin M	1SJ19ME045	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Punith D S	1SJ19ME053	
				Rahul A	1SJ19ME054	
				Santosh N	1SJ19ME062	
19	Vertical Axis Wind Turbine to generate Electric Power	2023	Prof. Venkatraj M	Chirag C	1SJ19ME011	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Kushal Y S	1SJ19ME026	
				Mohan H V	1SJ19ME038	
				Mohankrish N	1SJ19ME039	
20	Development of Automatic Water Dispenser	2023	Prof. Yathish Kumar B M	Bhuvan Athresh S	1SJ19ME007	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Nandan H	1SJ19ME042	
				Jashwanth J	1SJ19ME019	
				Akarsh M	1SJ19ME002	
21	Design and Fabrication of Thermo-Electric Cooler	2023	Prof. Palakshaiah	Ganesh U	1SJ19ME015	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Manjunath C	1SJ19ME031	
				Manohar H K	1SJ19ME032	
				Nagendra Babu N P	1SJ19ME041	
22	Mechanical Characterization of Al-Ni alloy Synthesized by Centrifugal Casting Technique	2023	Prof. Bharath S Gowda	Seetharam S	1SJ19ME063	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Sharath Kumar H V	1SJ19ME065	
				Tabrez Pasha	1SJ19ME074	
				Dhanush B	1SJ19ME012	
23	Design and Fabrication of Reactor for the extraction of Fuel from Waste Plastic by Pyrolysis Process	2023	Dr. Ravikumar T R	Dhanush N	1SJ19ME013	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Harshith Gowda T L	1SJ19ME016	
				Madhu M N	1SJ19ME030	

Table B 2.14 List of Projects 2020-2024 Batch

Sl.No	Project Title	Year	Project Guide	Student Name	USN	POs/PSOs attainment
1	Design and fabrication of air driven engine	2024	Dr. Manjunath K N	Sai Koushik P	1SJ20ME025	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Dileep Kumar Mm	1SJ20ME009	
				Mithun L	1SJ20ME019	
				Vinith Kumar S	1SJ20ME031	
2	Effect of titanium carbide filler material in chopped sida acuta fibre reinforced epoxy composite	2024	Dr. H K Chandramohan	Chandan Kumar S	1SJ20ME005	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Sharan Kumar Km	1SJ20ME026	
				Lokesh A	1SJ20ME016	
				Manoj B	1SJ20ME018	
3	Long range spy robot	2024	Dr. Yathish Narayana Rao	Satishbabu L	1SJ21ME407	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				T Pavan Kumar Sahu	1SJ21ME411	
				Nandan B M	1SJ21ME404	
				Nagendra Babu G	1SJ21ME403	
4	A comparative study of Al-Mg Alloy on microstructure and mechanical properties prepared by casting and extrusion process	2024	Prof. Sridhar J	Sudarshan S	1SJ21ME410	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Chethan K	1SJ20ME006	
				Dhanush N N	1SJ21ME400	
				Likhith Chandu	1SJ21ME401	
5	Performance enhancement of multi stage axial flow compressor by using computational fluid dynamics (CFD)	2024	Prof. Palakshaia	ROSHAN ZAMEER JR	1SJ20ME024	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Umar Farooq S A	1SJ20ME029	
				Kuruba Nagesh	1SJ20ME015	
				Raghavan P S	1SJ20ME023	
6	Development of a power generation unit using dual renewable energy source	2024	Dr. P Rukmangadha	Shashank MS	1SJ21ME409	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Shashank G	1SJ21ME408	
				Nithin A	1SJ21ME405	
				Rajashekhar Reddy M S	1SJ21ME406	
7	Design, Development and analysis of hybrid composites made up of natural fibres.	2024	Dr. Thyagaraj N R	Vivek MC Shekar	1SJ20ME032	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Deepak Kumar K J	1SJ20ME007	
				Tejas B M	1SJ20ME027	
				Anil Kumar S	1SJ21ME412	
8	Self-healing UHMWPE composites with Nano	2024	Dr.Mallaradhya H M	ESHWAR B M	1SJ20ME010	PO1, PO2, PO3, PO4,

	cellulose and clay nanoparticles			Chandan N	1SJ19ME009	PO10, PO11, PO12, PSO1, PSO2
				Babu Reddy G N	1SJ20ME003	
				Mohan Kumar M	1SJ21ME402	
9	Automatic motorbike stand slider	2024	Prof Venkataraj M	Adharsh M	1SJ20ME001	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Nithish Kumar T M	1SJ20ME022	
				Mruthyunjaya R	1SJ20ME021	
				Mohammed Saif	1SJ20ME020	
10	Study of vibrational characteristics of AL6061 reinforced with Alu TRminium oxide and silicon carbide	2024	Dr. Ravikumar T R	Bharath T	1SJ20ME004	PO1, PO2, PO3, PO4, PO10, PO11, PO12, PSO1, PSO2
				Deepika L	1SJ20ME008	
				Jayanth M	1SJ20ME012	
				Mohammad Nawaz	1SJ20ME017	

C. Process for monitoring and evaluation

The department has systematic procedure to monitor and review the progress of project work continuously. Project reviews are conducted in two phases as per the schedule displayed in the calendar of events. The phase I project review is conducted in seventh semester and phase II project review is conducted in eight semesters as per University curriculum. During review, all students must present the progress of their project work. The review will be conducted by the project coordinators along with panel members appointed by the Program coordinator. The project work will be evaluated as per the rubrics decided. During the review, students have to present their objectives, literature review, methodology and project outcomes.

The project report prepared by the students is as per the specified guidelines of university. Department encourage students to participate and present their completed project in various conferences and project exhibition both inside and outside college.

The Internal Project Evaluation is carried out in 2 Phases i.e. Phase-1 & 2. The details are shown below.

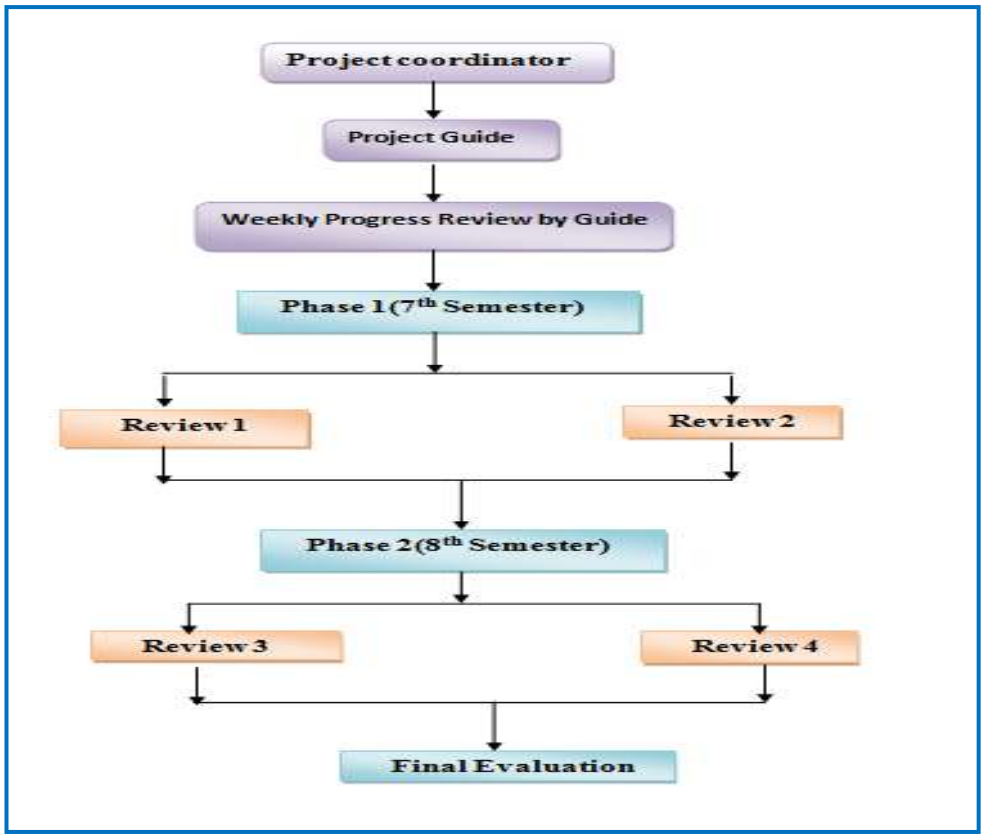


Figure 2.23 Process for project monitoring and evaluation

Table B 2.15 Rubrics for Project Internal Evaluation

Project Phase – I Rubrics

Phase – I (Review – I): Preliminary Project Evaluation **Marks: 40**

1	Literature Review	10 Marks	**3**	Significance and relevance of work	5 Marks
2	Problem identification and definition	10 Marks	**4**	Presentation and Report	15 Marks

Phase – I (Review – II): Project Synopsis and Project Seminar Evaluation **Marks: 60**

1	Objectives and methodology of project	10 Marks	3	Project Seminar	20 Marks
2	Plan of execution	05 Marks	4	Project Synopsis report	25 Marks

Project Phase – II Rubrics

Phase – II (Review –I): Project Intermediate Evaluation **Marks: 40**

1	Plan of execution	05Marks	3	Implementation/Results	05 Marks
2	Progress of work	10 Marks	4	Presentation and Report	20 Marks

Phase – II (Review – II): Project Intermediate Evaluation **Marks: 60**

1	Demonstration	10 Marks	3	Results, discussions and conclusion	15 Marks
2	Presentation	10 Marks	4	Final project report	25Marks

D. Process for individual and team performance

The project coordinator, guides and the reviewers will scrutinize the process of project work in the following way

Internal Evaluation: The project work and the report will be evaluated by internal committ Phase-1 and Phase-2

External Evaluation: The project work and the report will be evaluated by internal and external examiners appointed by the University. The external examiner will be from other VTU affiliated Institutions.

The examination consists of presentation and demonstration followed by Viva-Voce on the project work carried out by students.

The students individually need to defend their work and effective answers for their quarries will be awarded marks for the students.

The following rubrics are used to do assess individual and team work is tabulated in the Table B.2.19.

Table B 2.16 Rubrics for Project Internal Evaluation

Sl. No	Title	Level of Achievement			
		Excellent	**Good**	**Average**	**Average**
1	Literature Review (10)	• Information is gathered from multiple, research-based sources. • Detailed conclusions are reached from the evidence offered. • Information is cited properly and in standard format. (10)	• Information is gathered from multiple sources. • Conclusions are reached from the evidence offered. • Information is cited properly. (8)	• Information is gathered from a limited number of sources. • There is some indication of conclusions from the evidence offered. • Information is cited, but has errors. (5)	•Information is gathered from a single source. • No conclusions are made from the evidence offered • Information is not cited or is cited incorrectly. (3)
2	**Problem identification and definition (10)**	•Detailed and extensive explanation of the purpose and need of the project • Detailed and extensive explanation of the specifications and the limitations of the existing systems **(10)**	• Good explanation of the purpose and need of the project • Collects a great deal of information and good study of the existing systems. **(8)**	• Average explanation of the purpose and need of the project • Moderate study of the existing systems; collects some basic information. **(5)**	• Moderate explanation of the purpose and need of the project • Explanation of the specifications and the limitations of the existing systems not very satisfactory; limited information. **(3)**
3	**Significance and relevance of work (5)**	• Selected work is researchable and could potentially resolve a clearly identified problem or issue • Selected work is relevant timely and grounded in practice **(5)**	• Description of the context for the question is clear • Selected work is timely and relevant to the issue or problem **(4)**	• Context is mentioned but not well described • Selected work is timely **or** relevant to the issue or problem, but not both **(3)**	• No description for the context of the new or revised question **(2)**
4	**Presentation (10)**	•Contents of presentations are appropriate and well arranged •Proper eye contact with audience and clear voice with good spoken language **(10)**	• Contents of presentations are appropriate but not well arranged • Satisfactory demonstration, clear voice with good spoken language but eye contact not proper **(8)**	•Contents of presentations are appropriate but not well arranged •Eye contact with few people and unclear voice **(5)**	• Contents of presentations are not appropriate • Demonstration not satisfactory **(2)**
	Report (5)	• Project preliminary report is according to the specified format and submitted in time **(5)**	• Project preliminary report is according to the specified format but not submitted in time **(4)**	• Project preliminary report is according to the specified format but some mistakes **(3)**	• Project preliminary report not prepared according to the specified format **(2)**

E. Quality of project and working Prototypes

Working Prototypes and Enhancing the Relevance of Projects:

- The best projects identified will be sent to different colleges/institute for participation in

exhibition

- The internal guide will help the students to publish their work in National/ International Conference and Journal.
- The Evidences of papers published /Awards received by projects are shown in Table Below

Sl. No	Year	Authors	Prize/Award	Place
1	2021	Vidhayadhara D, Suhas S, Sushas S, Srinatha CV	2nd Prize	BIT, Bengaluru
2	2021	Kiran M Charan Kumar K S Chandana T N Sunitha V	1st Prize	SJCIT, Chikkaballapur

- Projects are applied for KSCST Student Project Proposal for funding, other agencies and granted funding details are shown in the Table Below.

Sl. No	Year	Authors	Title Of the Paper	Name of the Funding Agency	Amount Sanctioned
1	2021-22	Manoj B G, Keerthi U, Kiran I M, Prof. Palakshaiah	Development of Areca nut free climbing and harvesting machine with pesticide sprayer	KSCST	8000/-
2	2021-22	Prajwal R, Sham Sundar G K, Shreeharsha A, Yathish, Gowda K R , Dr H M Mallaradhya	Soft Robotics based voice controlled prosthetic hand	KSCST	6000/-
3	2020-21	Karthik E, Naveen Kumar G N, Arvinda T M, B Vishnu	Design and Fabrication of Advanced Disinfection Tunnel To Tackle External Surface Disinfection Of Covid-19 Virus In Public Places	KSCST	6000/-
4	2019-20	Suraj Mahato, Vinutha H V, Pawan Chand, Rahul Kumar	Design and Development of Semi-Automatic Manhole Cleaning Machine	KSCST	7000/-
5	2020-21	Shaikh Datta, Basavaraj,	Exo-Skeleton	NAIN & IT-	2,30,000/-

		Deepak Ray		BT	
6	2020-21	Suraj Mahato, Vinutha H V Pawan Chand, Rahul Kumar Abhishek Reddy, Anu Reddy J, Gangothri V	Design and Development of Semi-Automatic Manhole Cleaning Machine	NAIN & IT-BT	2,73,900/-
7	2020-21	Naveen N N, Mohan Kumar B S, Rakshitha N R, Prajwal R	Tissue Culture-Helping hand in Agriculture	NAIN & IT-BT	2,65,730/-
8	2020-21	Naveen N N, Mohan Kumar B S, Rakshitha N R	Automated Overhead Tank Cleaning Machine	NAIN & IT-BT	2,56,650/-
9	2020-21	Naveen N N, Mohan Kumar B S, Rakshitha N R	Low Cost Manually Operated Seed Sowing Machine	NAIN & IT-BT	2,65,000/-
10	2018-19	Nayaz Pasha, Saraswathi M, Tek Raj Khati, Vidhisha S Kumar	Design And Fabrication of Road Cleaning/Sweeping Machine	NAIN & IT-BT	2,10,320/-

2.2.4. Initiatives related to industry interaction (15)

The department always strives to impart quality education and research to meet the needs of growing industry, society and environment.

Following are the initiatives taken to improve industry interaction.

- MOUs are signed between industries and institute for establishing Centre of Excellence and Line of Career.
- Industry experts will be invited for technical talks on the required Courses/topics, for enriching the knowledge of students for better placement.
- Students will be sent to industries to carry out the project.
- Internship program at college level by industry experts/academic experts are arranged.
- Industrial visits are arranged.
- To keep both students and faculty updated with the latest developments in Mechanical Engineering and also to strengthen the interaction with industries, the department has conducted guest lectures, seminars, symposiums, workshops and conferences.

MOUs with industry

The MOUs with industry are shown in Table 2.17

Table B 2.17: MOU's with Industry

Sl.No.	Name of the company with address	Date of signing MOUs	Activity conducted
1.	Karnataka Science and Technology (KSTA), Bengaluru	10/09/2020	Sponsored Project Symposium
2.	Engimat Simulations Private Limited	25/03/2019	Internship/Project work
3.	Engineer Materials Inc., Bengaluru	25/03/2019	Training program and Internships for students
4.	Bhabha Atomic Research Centre Mumbai	08/03/2016	Technology Transfer
5.	Jindal Aluminium Limited, Jindal nagar, Tumkur road, Bangalore.	10/06/2015	Internship/Project work/Jobs
6.	University of Agricultural Sciences, Raichur	14/08/2012	Internship/Project work
7.	University of Agricultural Sciences Bangalore.	14/08/2012	Internship/Project work
8.	Rexroth Bosch Ltd, Bangalore.	05/01/2011	Training program and designing courses for students

Organization Membership with Professional Bodies:

1) Indian Society of Heating, Refrigeration and Air Conditioning Engineers (ISHRAE)
2) Institute of Indian Foundrymen - Bangalore (IIF)
3) Institute of Engineers (IE)

A. Impact analysis of industry institute interaction and actions taken thereof

- It will provide an Industry-Institute Interaction.
- Students will gain exposure to incorporate an entrepreneurial spirit and project-based thinking.
- Students will be able to implement their ideas in their final year projects.

- Students will get practical knowledge related to their theory Courses.
- Students will acquire skill to write report on industrial visit and final year projects.
- Students will get an idea about the recent developments in the Mechanical industry.

2.2.5. Initiatives related to industry internship/summer training (15)

A. Industrial training/tours for students (3)

Department is regularly arranging industrial visit to our students once in a year/semester to different Construction sites to improve the practical knowledge of students and also to get better Knowledge about the latest technologies.

Table B 2.18 Industrial visit for the Academic Year 2018 to 2024

Academic Year		Date	Sem	Name of Industry Visited	No. of Students	Relevance to PO/PSO
2023-24		29/11/2024	3rd & 7th	AN AUTOMOTIVE EV TECHNOLOGY SHOW KTPO CONVENTION CENTRE, WHITEFIELD, BANGALORE	58	PO1to PO12 PSO1,PSO2
		15/10/2024	5th	RITTAL PRIVATE LTD VEERAPURA, DODDABALLAPURA	27	
2022-23		21/03/2023	1st	KMF MEGA DIARY NANDI CROSS, DODDAMARALI CHIKKABALLAPUR	50	
2021-22	Feb-May 2022	11/05/2022	7th	YASHKAWA INDIA PRIVATE LIMITED, ELECTRONIC CITY, BENGALURU	52	
	Aug-Dec 2021	18/12/2021	7th A&B	HAL HERITAGE CENTRE AND AEROSPACE MUSEUM, BENGALURU	65	
		17/12/2021	5th A&B	HAL HERITAGE CENTRE AND AEROSPACE MUSEUM, BENGALURU	80	

Figure 2.24 Industrial visits Photos

Visit Conducted to: YASHKAWA INDIA PRIVATE LIMITED

Report: The Department of Mechanical Engineering, S. J. C. Institute of Technology organized an industrial visit to YASHKAWA INDIA PRIVATE LIMITED. on 11-05-2022 for the under graduate students in the Semester V.

The visit was organized with the prior permission of Principal Dr. G T Raju and guidance of HOD, Mechanical Engineering Department Dr. Ranganath R. The faculty coordinators Mr. Bharath and Mr. Sridhar J accompanied a batch of 30 students who made this visit a success.

B. Industrial /internship /summer training of more than two weeks and post training Assessment

The students are encouraged to take internship program during their semester break for a period of four weeks. Faculty members give their guidelines, suggestions and contact details of an internship. They also help the students by interacting with the industrial experts, provide the students recommendation letters and other necessary supports. The alumni coordinator constantly interacts with alumni those who are working in the industries and request them to provide necessary guidelines and supports for their graduating students internship. University has made student internship as mandatory.

Table B 2.19 Industrial Training/Internship of more than 2 weeks for CAY (2023-24)

CAY[2023-24]					
Sl.No.	**Company Name**	**Student Name**	**USN**	**Duration**	**Date**
1	ACE Designers	Adarsh M	1SJ20ME001	01-09-2023 to 22-09-2023	22-09-2023
		Mruthyunjaya R	1SJ20ME021		
		Nithish Kumar T M	1SJ20ME022		
2	Archidply Decor	Eshwar B M	1SJ20ME010	01-09-2023 to 30-09-2023	30-09-2023
		Dhanush N.N	1SJ21ME400		
		Likhith Chandu	1SJ21ME401		
3	BEML	Bharath T	1SJ20ME004	30-08-2023 to 29-09-2023	29-09-2023
		Mohan Kumar .M	1SJ21ME402		
		Sudarshan S	1SJ21ME410		
4	Ford Technologies	Deepika L	1SJ20ME008	18-08-2023 to 19-09-2023	19-09-2023
		Nithin A	1SJ21ME405		
5	HAL	Deepak Kumar K J	1SJ20ME007	21-08-2023 to 19-09-2023	19-09-2023
		Raghavan P S	1SJ20ME023		
		Roshan Zameer J R	1SJ20ME024		
		Tejas B M	1SJ20ME027		
		Vinith Kumar S	1SJ20ME031		
		Vivek M C Shekar	1SJ20ME032		
6	Iform Solutions Pvt Ltd	Chandan Kumar S	1SJ20ME005	23-08-2023 to 23-09-2023	23-09-2023
		Satishbabu L	1SJ21ME407		
7	Indo Autotech Limited	Rajashekara Reddy M S	1SJ21ME406	23-08-2023 to 23-09-2023	23-09-2023
8	L & T	Chethan K	1SJ20ME006	21-08-2023 to 20-09-2023	20-09-2023
		Saikoushik P	1SJ20ME025		
		Nandan B.M	1SJ21ME404		
		Shashank M S	1SJ21ME409		
9	M K Tractors and Farm Equipment	Mohammed Saif	1SJ20ME020	01-09-2023 to 30-09-2023	30-09-2023
		Tharun A	1SJ20ME028		
10	Railway Wheel Factory	Mithun L	1SJ20ME019	11-08-2023 to 09-09-2023	09-09-2023
		Shashank G	1SJ21ME408		
11	Rida Engineers	Babu Reddy G N	1SJ20ME003	01-09-2023 to 22-09-2023	22-09-2023
		Kuruba Nagesh	1SJ20ME015	21-08-2023 to 15-09-2023	15-09-2023
		Mahammad Nawaz	1SJ20ME017		
		Umar Farooq S A	1SJ20ME029		
12	Rittal	Sharan Kumar K M	1SJ20ME026	15-08-2023 to 15-09-2023	15-09-2023
		Vinay B A	1SJ20ME030		
13	Satvayur	Telukala Pavan Kumar Sahu	1SJ21ME411	21-08-2023 to 20-09-2023	20-09-2023
14	SLV CNC Technologies	Anil Kumar .S	1SJ21ME412	21-08-2023 to 20-09-2023	20-09-2023
15	VTU AICTE ATAL Idea Lab	Jayanth M	1SJ20ME012	21-08-2023 to 15-09-2023	15-09-2023
		Lokesh A	1SJ20ME016		
		Manoj B	1SJ20ME018		

		Dileep Kumar M M	1SJ20ME009		
		Harshithasarika G	1SJ20ME011		
		Chandan N	1SJ19ME009		
		Nagendra Babu G	1SJ21ME403		

Table B 2.20 Industrial Training/Internship of more than 2 weeks for CAY (2022-23)

CAY[2022-23]					
Sl.No.	**Company Name**	**Student Name**	**USN**	**Duration**	**Date**
1	BOSCH REXROTH, SJCIT, CHICKBALLAPUR	Adarsh M	1SJ19ME001	13/02/2023 TO 10/03/2023	10/03/2023
		Akarsh M	1SJ19ME002		
		Akshay M	1SJ19ME003		
		Amruth V M	1SJ19ME004		
		Anirudh	1SJ19ME005		
		Balaji N	1SJ19ME006		
		Bhuvan Athresh S	1SJ19ME007		
		Chadive Sathish Kumar Reddy	1SJ19ME008		
		Chethanraj D N	1SJ19ME010		
		Chirag C	1SJ19ME011		
		Dhanush B	1SJ19ME012		
		Dhanush N	1SJ19ME013		
		Gagan Gowda C	1SJ19ME014		
		Ganesh U	1SJ19ME015		
		Harshith Gowda T L	1SJ19ME016		
		Jahnavi Krupa A	1SJ19ME018		
		Jashwanth J	1SJ19ME019		
		Jayanth K R	1SJ19ME020		
		Karthik B N	1SJ19ME021		
		Keerthana B K	1SJ19ME022		
		Kethireddy Hruday Reddy	1SJ19ME023		
		Kumar S	1SJ19ME024		
		Kuruba Avinash	1SJ19ME025		
		Kushal Y S	1SJ19ME026		
		Lakshay Kumar Singh	1SJ19ME027		
		Likith K N	1SJ19ME028		
		Madhu K	1SJ19ME029		
		Madhu M N	1SJ19ME030		
		Manjunath C	1SJ19ME031		
		Manohar H K	1SJ19ME032		
		Manoj H V	1SJ19ME034		
		Md Aakib Khan	1SJ19ME036		
		Mohammed Shoaib	1SJ19ME037		
		Mohan H V	1SJ19ME038		
		Mohankrish0 N	1SJ19ME039		

		Mohith K V	1SJ19ME040		
		Abhilash K N	1SJ20ME400		
		Ajay Kumar G	1SJ20ME401		
		Ashoka C	1SJ20ME402		
		Bhavan.d	1SJ20ME403		
		Chandan Gowda T N	1SJ20ME404		
		Chandan N Gowda	1SJ20ME405		

Table B 2.21 Industrial Training/Internship of more than 2 weeks for CAY (2022-23)

CAY[2021-22]					
Sl.No.	**Company Name**	**Student Name**	**USN**	**Duration**	**Date**
1.	BOSCH REXROTH, SJCIT, CHICKBALLAPUR	ABHILASH G A	1SJ18ME004	14/03/2022 TO 01/04/2022	02/04/2022
		ABHISHEK C	1SJ18ME005		
		ATTAR SAIFULLA	1SJ18ME009		
		DURGA PRASAD G A	1SJ18ME030		
		GIRIDHARSHAN K V	1SJ18ME033		
		HARISHA G N	1SJ18ME035		
		HEMANTH KUMAR D	1SJ18ME038		
		HEMANTHKUMAR V R	1SJ18ME040		
		KARTHIK M	1SJ18ME043		
		KIRAN I M	1SJ18ME048		
		KIRANKUMAR S B	1SJ18ME050		
		MUREVARI MANOJKUMAR REDDY	1SJ18ME059		
		NANDISH P C	1SJ18ME061		
		NAYAZ B	1SJ18ME064		
		PRAJWAL R	1SJ18ME071		
		RAJDEEP SHAW	1SJ18ME077		
		SHAM SUNDAR G K	1SJ18ME092		
		VIJAY G	1SJ18ME103		
		YATHISH GOWDA K R	1SJ18ME106		
		ZAMEER PASHA C	1SJ18ME110		
		AJAY KUMAR YADAV.B.V	ISJ19ME400		
		AKHIL.M.N	ISJ19ME401		
		ANIL	ISJ19ME402		
		BHANU PRAKASH	ISJ19ME403		
		CHETHAN. M	ISJ19ME404		
		HARISHA G .R	ISJ19ME406		
		KEMPARAJU.K.U	ISJ19ME407		
		M SUDHARSHAN	ISJ19ME408		

		GOWDA			
		MAHESH.M	ISJ19ME409		
		MANOJ S	1SJ19ME410		
		NIRMAL. C. M	1SJ19ME413		
		PUNITH KUMAR V	1SJ19ME414		
		RAGHAVENDRA. K	1SJ19ME415		
		RAKSHITH KUMAR C V	1SJ19ME416		
		RAVITEJA T S	1SJ19ME417		
		SANDEEP C M	1SJ19ME418		
		SANJAY. A. S	1SJ19ME419		
		VIJAY KUMAR. H. M	1SJ19ME420		

2	ACCURATE BEARING COMPONENTS, DODABALLAPUR	SHAKSHA A N	1SJ18ME091	14/03/2022 TO 01/04/2022	16-03-22
		VISHWAS S	1SJ18ME104		
3	ASK AUTOMOTIVE PVT LTD. KOLAR	GIRISH KUMAR S	1SJ18ME034	28/03/2022 To 28/04/2022	29/04/2022
4	BISLERI INTERNATIONAL PVT LTD.	K ABDUL WASEEM	1SJ18ME042	21/01/2022 To 20/05/2022	20/05/2022
5	BLUE VOLTS SERVICES, BANGALORE	ANUREDDY J	1SJ18ME007	16/03/2022 To 15/04/2022	15/04/2022
		RAJESH D S	1SJ18ME078		
		RAKSHITHA N R	1SJ18ME081		
		ROHAN R	1SJ18ME083		
		SINDHU H N	1SJ18ME096		
6	CLIMAVENETA MITSUBISHI	NIKHIL M D	1SJ18ME065	01/04/2022 To 29/04/2022	29/04/2022
		RANJITH N	1SJ18ME082		
		SANJAY N	1SJ18ME089		
		SURAJ M	1SJ18ME099		
7	DANA ANAND INDIA PVT LTD, DARWAD	RAJU N HEERAPUR	1SJ18ME079	1/04/2022 To 1/05/2022	01/05/2022
		ROHIT MAHADEV HONAKATTI	1SJ18ME084		
8	GEMINI SAMPLING SOLUTIONS PVT. LTD	FAIZAN AHMAD KHAN	1SJ18ME031	25/08/2021 To 20/09/2021	20/09/2021
9	GOSTOL TST INDIA PVT LTD. BANGALORE	NIRMAL. C. M	1SJ19ME413	14/03/2022 To 14/04/2022	14/04/2022
		RAGHAVENDRA. K	1SJ19ME415		
10	INCRESOL ENGINEERING SOLUTIONS,BANGALORE	GANGOTHRI V	1SJ18ME032	1/04/2022 To 29/04/2022	29/04/2022
		KASIBOYANA ANJANI KUMAR	1SJ18ME045		
		KATTELA DURGA PRASAD	1SJ18ME046		
		MOHAN KUMAR B S	1SJ18ME058		
		SPOORTHI V	1SJ18ME097		
		VANI G B	1SJ18ME100		
		VARSHINI V G	1SJ18ME101		

11	INDO AUTOTECH LTD. NARASAPURA	NITHIN M	1SJ18ME067	19/03/2022 20/04/2022	20/04/2022
		PRATHIK S	1SJ18ME073		
		SAGAR V	1SJ18ME085		
		SANGAMESHWAR	1SJ18ME087		
		SANJAY. L	1SJ18ME088		
		YASHWANT G K	1SJ18ME105		
		YERASI SHIVA JAGAN YADAV	1SJ18ME107		
12	INGENIOUS PLASTICS PVT LTD, TUMKURU INDUSTRIAL AREA	HEMANTH A N	1SJ18ME037	14/03/2022 To 12/04/2022	12/04/2022
		KIRANKUMAR S	1SJ18ME049		
		LIKHITH S	1SJ18ME052		
		NAGARAJ B	1SJ18ME060		
		PAVAN YADAV H N	1SJ18ME068		

13	JLM AUTOMATICS, BANGALORE	YUVARAJREDDY B N	1SJ18ME109	17/03/2022 To 25/04/2022	25/04/2022
14	KISHORE SCIENTIFIC TECHNOLOGIES, CHICKBALLAPUR	M SUDHARSHAN GOWDA	ISJ19ME408	21/03/2022 To 22/04/2022	22/04/2022
		RAKSHITH KUMAR C V	1SJ19ME416		
15	L&T CONSTRUCTION EQUIPMENT LTD.	BHARATH G	1SJ18ME011	22/03/2022 To 22/04/2022	22/04/2022
		BHARGAV REDDY K R	1SJ18ME014		
		CHARAN KUMAR K	1SJ18ME021		
		CHETHAN GOWDA M	1SJ18ME024		
		KISHAN DEEKSHITH	1SJ18ME051		
		MANJUNATH E	1SJ18ME053		
		MANJUNATH.B	1SJ18ME054		
		MANOJ KUMAR N M	1SJ18ME057		
		ARUNKUMAR K R	1SJ19ME421		
16	MIKROTEK MACHINES LIMITED, CHIKBALLAPUR	BHARATH G M	1SJ18ME012	28/03/2022 To 29/04/2022	29/04/2022
		BHARATH KUMAR G M	1SJ18ME013		
		CHANDAN B M	1SJ18ME016		
		CHARAN KUMAR N	1SJ18ME022		
		DHANUSH S	1SJ18ME028		
17	MUSASHI AUTO PARTS INDIAN PVT LTD., BANGALORE	ABHISHEK REDDY M	1SJ18ME006	03/09/2021 To 30/09/2021	30/09/2021
18	NOKIA SOLUTIONS AND NETWORKS INDIA PVT LTD, KANCHIPURAM	RAHUL S	1SJ18ME076	05/05/2022 To 04/06/2022	04/06/2022
19	TAFE , DODBALLAPURA	KEERTHI U	1SJ18ME047	15/03/2022	15/04/2022

		MANOJ B G	1SJ18ME055	To 15/04/2022	
20	TITAN COMPANY LIMITED, CHICKBALAPURA	NAVEEN N N	1SJ18ME062	01/04/2022 To 30/05/2022	30/05/2022
		SHREE HARSHA A	1SJ18ME094		
		SHREYAS S	1SJ18ME095		
21	WIPRO INFRASTRUCTURE ENGINEERING, HINDUPUR	SANTHOSH K G	1SJ18ME090	23/03/2022 To 22/04/2022	22/04/2022

CERTIFICATE

This is to certify that Mr.Roshan Zameer J R (USN NO:1SJ20ME024) who is a student of B.E Mechanical, SJC Institute of Technology, Chickballapur has undergone Internship Training at HAL AROC, Design Complex, Bangalore from 21.08.2023 to 15.09.2023 on "No-Pay-No-Fee-Basis". He has been punctual, sincere and committed trainee. His conduct has been Found Excellent.

The student brings in a lot of energy and enthusiasm in the work. He is structured in his approach and methodical in resolving a problem. He is resourceful and adaptive to working environment.

Manager – (HR)
AROC, Design Complex

AICTE ATAL IDEA LAB

INTERNSHIP CERTIFICATE OF COMPLETION

JAYANTH M
USN: 1SJ20ME012
Dept of Mechanical Engineering
SJC Institute of Technology
Chickballapur Karnataka 562101

Coordinator
ATAL IDEA LAB

Figure 2.25. Sample Permission letter & Internship Certificate from the Industry

Post Training Assessment (4)

After completion of the internship / industrial visits /industrial tours students will submit the report covering the following items

Objectives:

- **Bridging Theory and Practice:** To provide students with the opportunity to apply academic knowledge (concepts, theories, engineering/scientific principles) learned in the classroom to real-world industrial operations, processes, or projects.

- **Gaining Practical Exposure:** To expose students to the actual working environment, industry culture, and the operational structure of an organization.

- **Developing Technical Skills:** To acquire and enhance hands-on practical skills relevant to the discipline, including the operation, maintenance, and troubleshooting of industrial equipment, machinery, or software.

• **Fostering Professional Skills:** To develop essential soft skills necessary for professional success, such as teamwork, effective technical communication, work ethics, time management, and responsibility.

• **Understanding Safety and Compliance:** To become familiar with industry-specific quality standards (e.g., ISO, GMP, specific codes) and stringent safety, health, and environmental (SHE/EHS) protocols.

Outcomes:

The Outcomes of an Industrial Training/Internship are the demonstrable results and acquired competencies the student gains.

1. **Technical & Practical Competence:**
    - **Applied Knowledge:** Successfully applying classroom theory to real-world operational problems.
    - **Tool Proficiency:** Gaining hands-on skill with industry-specific equipment, instruments, and software.
    - **Process Understanding:** Comprehending the complete industrial process flow and technical procedures.
2. **Professional & Soft Skills:**
    - **Work Ethics:** Development of professionalism, accountability, and time management.
    - **Collaboration:** Effective teamwork and communication with colleagues and supervisors.
    - **Safety & Compliance:** Thorough understanding and adherence to EHS protocols and quality standards.
3. **Reflective & Career Growth:**
    - **Realistic Perspective:** Gaining a true understanding of the industry's demands and challenges.
    - **Career Clarity:** Confirming or refining future career goals and specialization interests.

Also, students submit the internship certificates.

C. Impact Analysis of industrial training/Internship

- Students gain exposure to spirit of entrepreneurship
- Students will be able to implement their ideas in their final year projects
- Students will get practical knowledge related to their theory courses.
- Students will get an idea about the recent developments in the industries
- Students will improve their communication skills and gain knowledge about industry requirements and modern tools usage.

D. Industrial In-Plant Training Laboratories

The Industrial In-Plant Training Laboratories focuses on providing students and trainees with real-world, practical experience in an industrial setting to bridge the gap between academic theory and industry practice. The exact content is highly discipline-specific (e.g., Mechanical, Chemical, IT, Civil Engineering, Pharmacy) but generally covers a combination of technical knowledge, hands-on lab work/operations, and professional skills.

Sl. No	Training Name	No. of Participants	No. of Days
1	Internship / In-plant Training at R & D Centre (REXROTH)	56	17-05-2022 to 23-05-2022
2	Internship / In-plant Training at R & D Centre (REXROTH)	23	09-05-2022 to 23-05-2022
3	Internship / In-plant Training on Hydraulics, Pneumatics, CNC Programming & 3D Printing	43	15-11-2021 to 30-11-2021

Figure 2.26: Session on Hydraulic and Pneumatic & Session at FMS Lab

CRITERION 3	Course Outcomes and Program Outcomes	120

3. COURSE OUTCOMES AND PROGRAM OUTCOMES (120)

3.1. Establish the correlation between the courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

Program Outcomes and Program Specific Outcomes as mentioned in Annexure-I

The program outcomes are achieved through curriculum that offers a number of mandatory courses as well as elective courses. For every course, outcomes are defined and are mapped to program specific outcomes. The correlation between the courses and program outcomes as well as program specific outcomes is shown in Table B.3.1.

TableB.3.2: Correlation between courses, POs and PSOs [18 Scheme]

Sl. No.	Course Code	Course Name	CO – PO Correlation	CO – PSO Correlation
I SEMESTER				
1.	18MAT11	Calculus and Linear algebra	PO1, PO2, PO3, PO4	PSO1
2.	18PHY12/22	Engineering Physics	PO1, PO2, PO3	PSO1
3.	18ELE13/23	Basic Electrical Engineering	PO1, PO2	-
4.	18CIV14/24	Elements of civil engineering and mechanics	PO1, PO2	-
5.	18EGDL15/25	Engineering Graphics	PO1, PO2, PO3	PSO1
6.	18PHYL16/26	Engineering Physics Laboratory	PO1, PO2, PO3, PO5, PO8, PO9, PO10, PO12	-
7.	18ELEL17/27	Basic Electrical Engineering Laboratory	PO1, PO2, PO3	-
8.	18EGH18	Technical English	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	-
II SEMESTER				
9.	18MAT21	Advanced Calculus and Numerical Methods	PO1, PO2, PO3, PO4,PO5	PSO1
10.	18CHE12/22	Engineering Chemistry	PO1, PO2, PO3, PO12	-
11.	18CPS13/23	C Programming for problem solving	PO1, PO2, PO3, PO4, PO5, PO8, PO12	-
12.	18ELN14/24	Basic Electronics	PO1, PO2, PO3, PO4, PO8, PO9, PO12	-
13.	18ME15/25	Elements of Mechanical Engineering	PO1, PO2, PO3, PO4, PO7, PO10, PO11	PSO1
14.	18CHEL16/26	Engineering Chemistry Laboratory	PO1, PO2, PO3, PO4, PO5, PO12	-
15.	18CPL17/27	C Programming Laboratory	PO1, PO2, PO3, PO12	-
16.	18EGH28	Technical English-II	PO1, PO2, PO3, PO4, PO6, PO7	-
III SEMESTER				
17.	18MAT31	Transform calculus, fourier series and Numerical techniques	PO1, PO2, PO3, PO4	PSO1
18.	18ME32	Mechanics of Materials	PO1, PO2, PO3	PSO1
19.	18ME33	Basic Thermodynamics	PO1, PO2, PO3, PO4, PO10, PO11	PSO1

20.	18ME34	Material Science	PO1, PO2, PO3, PO4, PO10, PO11	PSO1
21.	18ME35A	Metal cutting and Forming	PO1, PO2, PO3, PO10, PO11	PSO1
22.	18ME36A	Computer Aided Machine Drawing	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
23.	18MEL37	Material Testing Lab	PO1, PO2,PO3, PO5, PO8, PO9, PO10, PO12	PSO1,PSO2
IV SEMESTER				
24.	18ME42	Applied Thermodynamics	PO1, PO2, PO3, PO4, PO9, PO10, PO11	PSO1
25.	18ME43	Fluid Mechanics	PO1, PO2, PO3, PO4, PO10, PO11	PSO1
26.	18ME44	Kinematics of Machines	PO1, PO2, PO3, PO4, PO10, PO11	PSO1
27.	18ME45B	Metal casting and Welding	PO1, PO2, PO3, PO10, PO11	PSO1
28.	18ME46B	Mechanical Measurements and Metrology	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
29.	18MEL48B	Foundry, Forging and Welding lab	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
V SEMESTER				
30.	18ME51	Management and Economics	PO1, PO2, PO6, PO10, PO11	--
31.	18ME52	Design of Machine elements-I	PO1, PO2, PO3, PO4, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
32.	18ME53	Dynamics of Machines	PO1, PO2, PO3, PO4, PO5	PSO1, PSO2
33.	18ME54	Turbo machines	PO1, PO2, PO3, PO4, PO6, PO7, PO10,PO11	PSO1, PSO2
34.	18ME55	Fluid Power Engineering	PO1, PO2, PO3, PO10, PO11 , PO12	PSO1, PSO2
35.	18ME56	Operation Management	PO1, PO2, PO3, PO11, PO12	-
36.	18ME57	Fluid Mechanics Lab	PO1, PO2, PO3, PO5, PO9, PO10, PO11	PSO1,PSO2
37.	18ME58	Energy conversion Lab	PO1, PO2, PO3, PO5, PO9, PO10, PO11	PSO1,PSO2
VI SEMESTER				
38.	18ME61	Finite Element Method	PO1, PO2, PO3, PO4, PO10, PO11, PO12	PSO1, PSO2
39.	18ME62	Design of machine elements	PO1, PO2, PO3, PO4, PO8 PO10, PO11, PO12	PSO1
40.	18ME63	Heat transfer	PO1, PO2 PO3, PO4, PO9, PO10, PO11	PSO1,
41.	18ME646	Non-traditional machining	PO1, PO2, PO3, PO9, PO10, PO11	PSO1
42.	18MEL67	Heat transfer Lab	PO1, PO2, PO3, PO4, PO5, PO8, PO10, PO11, PO12	PSO1, PS02
43.	18MEL68	Computer Aided Modelling and Analysis Lab	PO1, PO2, PO3, PO4, PO5, PO8, PO10, PO12	PSO1, PSO2
44.	18MEMP68	Mini Project	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2

VII SEMESTER				
45.	18ME71	Control Engineering	PO1, PO2 PO3, PO4, PO5, PO9,	PSO1, PSO2
46.	18ME72	Computer Aided Design and Manufacturing	PO1, PO2, PO3, PO4,	PSO1
47.	18ME732	Automation & Robotics	PO1, PO2, PO3, PO8, PO9	-
48.	18ME744	Mechatronics	PO1, PO2, PO3, PO10, PO11, PO12	-
VIII SEMESTER				
49.	18ME81	Energy Engineering	PO1, PO2, P06, P07, P010	-
50.	18ME82	Automative Engineering	PO1, PO2, PO3, PO4, PO7	-
51.	18MEP83	Project Work	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PO12	PSO1, PSO2
52.	18MES84	Seminar	PO1, PO2 PO3, PO4, PO5, PO7, PO8, PO10, PO11, PO12	PSO1
53.	18MEI85	Internship	PO1, PO2 PO3, PO4, PO5, PO7, PO8, PO10, PO11, PO12	PSO1

3.1.1a. Course Outcomes (COs) (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

After a successful completion of the course, the student will be able to:

Table B. 3.1: C202 – Mechanics of Materials **Course Year:** 2021-22

Course/Cos	Course Outcomes
C202.1	**Describe** the mechanical behaviour and elastic constants of materials and stress-strain relationships.
C202.2	**Determine** the simple, compound, thermal stresses and strains induced on Mechanical elements such as bars, beams, cylinders, columns and shafts.
C202.3	**Analyze** the SFD and BMD for different types of beams subjected to different loads.
C202.4	**Evaluate** suitable dimensions for shafts and columns based on strength, stiffness, and stability requirements.
C202.5	**Discuss** about failure theories for different ductile and brittle materials.

Table B.3.2: C215-Metal Casting and Welding **Course Year:** 2021-22

Course/Cos	Course Outcomes
C215.1	**Classify** various manufacturing process and list the types of patterns and binders.
C215.2	**Classify** types of melting furnaces and different casting process using metal molds.
C215.3	**Describe** the solidification process, steps used after casting process and nonferrous foundry practice.
C215.4	**Elaborate** various welding process and sketch the types of special mould process
C215.5	**Interpret** the principle of soldering, brazing and gas welding. Classify the types of inspection methods used in casting.

Table B.3.3 C302- Design of Machine Elements **Course Year:** 2022-23

Course/Cos	Course Outcomes
C301.1	**Illustrate** the design procedure of various Machine elements (such as Shafts, Joints, Couplings, Keys, Riveted joints, Welded Joints, Threaded Fasteners and Power screws).
C301.2	**Determine** stresses induced in machine elements subjected to different loading conditions (Such as Static, Dynamic).
C301.3	**Design** Machine Elements based on Strength and Rigidity criteria.
C301.4	**Analyze** Machine Elements to meet the desired design requirements.

Table B.3.4: C311-Finite Element Methods **Course Year:** 2022-23

Course/Cos	Course Outcomes
C311.1	**Describe** the basic concepts, definitions in finite element method related structural, heat transfer and fluid flow.
C311.2	**Apply** suitable boundary conditions to a global equation for bars, trusses, beams, circular shafts, heat transfer, fluid flow, axi symmetric and dynamic problems.
C311.3	**Develop** element characteristic equations for 1D, 2D structural, Thermal and Dynamic elements.
C311.4	**Solve** for stresses, strains, deformation and temperature of a structural and thermal components subjected to static, thermal and dynamic loading.

Table B.3.5: C 401- Control Engineering **Course Year: 2023-24**

Course/Cos	Course Outcomes
C401.1	**Elucidate** the fundamentals of control systems and interpret mathematical model of the physical systems.
C401.2	**Determine** the response and error in response of first and second order systems subjected standard input signals
C401.3	**Apply** the concept of Laplace transforms to find transfer function of complex physical system using block diagram and signal flow graph and obtain transfer function
C401.4	**Analyse** a linear feedback control system for stability using Hurwitz criterion, Routh's criterion root Locus technique, Polar plots, Nyquist and Bode plots in complex domain

Table B.3.6: C411- Energy Engineering **Course Year: 2023-24**

Course/Cos	Course Outcomes
C411.1	**Understand** the construction and working of steam generators and their accessories.
C411.2	**Discuss** the principles of energy conversion from alternate sources including Wind, Solar, Geothermal, Ocean, Biomass, and Biogas
C411.3	**Determine** the desired parameter of wind turbines, cooling towers & hydroelectric power plant.
C411.4	**Demonstrate** a solid understanding of fission process, multiplication factor, nuclear fuels, and various reactor types.

3.1.2a CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester (05)

2018-Scheme

Table B. 3.7: CO-PO Matrix

C202-Mechanics of Materials [18ME32]												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1	3								1		1	2
C202.2		3										2
C202.3	3	3	2									
C202.4		2	2									
C202.5	3	2										2
C202	3	2.5	2						1		1	2

Table B. 3.8: CO-PO Matrix

C-215 Metal Casting and Welding [18ME45]												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C214.1	3											
C214.2	3											
C214.3	3	2										
C214.4	3											
C214.5	3	2										
C214	3	2										

Table B.3.9: CO-PO Matrix

C302- Design of Machine Elements-I[18ME52]												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C302.1	3	2	1									
C302.2	3	3	2									
C302.3	3	3	3									
C302.4	1	1	1	3								
C302	2.5	2.25	1.75	3								

Table B.3.10: CO-PO Matrix

C311- Finite Element Method												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C311.1	3							2		2		2
C311.2	3	3							2			
C311.3	3	3	3									
C311.4		3	3	2	3			2		2		2
C311	3	3	3	2	3			2	2	2		2

Table B 3.12: COs-POs Matrix

	C401- Control Engineering											
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C401.1	3	2	1						1	1		1
C401.2	2	3	1						1	1		1
C401.3	1	2	2	1					1	1		1
C401.4	1	2	2	1	3				1	1		1
C401	1.75	2.25	1.5	1	3				1	1		1

Table B.3.12: COs-POs matrix

C411-Energy Engineering [18ME81]												
CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C411.1	3	2	1			1						
C411.2	2	3	1			2		3				
C411.3	3	2				2		3				
C411.4	1	2	1									
C411	2.25	2.25	1			1.66		3				

3.1.2b (A): CO-PSO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester)

Table B. 3.20: COs-PSOs Matrix

18ME32	Mechanics of Materials	
CO/PSO	**PSO1**	**PSO2**
C202.1		2
C202.2	3	
C202.3	2	
C202.4	2	
C202.5	3	2
C202	2.5	2

Table B. 3.21: COs-PSOs Matrix

18ME45B	Metal Casting and Welding	
CO/PSO	**PSO1**	**PSO2**
C215.1	3	
C215.2	3	
C215.3	3	
C215.4	3	
C215.5	3	
C215	3	

Table B. 3.22: COs-PSOs matrix

18ME52	Design of Machine Elements	
CO/PSO	PSO1	PSO2
C302.1	1	3
C302.2		2
C302.3		3
C302.4		3
C302	1	2.75

Table B. 3.23: COs-PSOs Matrix

18ME61	Finite Element Method	
CO/PSO	PSO1	PSO2
C311.1		2
C311.2	3	
C311.3	3	
C311.4	3	2
C313	3	2

Table B. 3.24: COs-PSOs Matrix

18ME71	Control Engineering	
CO/PSO	PSO1	PSO2
C401.1	2	
C401.2	3	1
C401.3	3	1
C401.4	2	1
C401	2.5	1

Table B. 3.24: COs-PSOs Matrix

18ME81	Energy Engineering	
CO/PSO	PSO1	PSO2
C411.1	1	
C411.2		2
C411.3	2	1
C411.4	2	1
C411	1.66	1.333

3.1.3 (A) Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Table B. 3.22: List the program level Course-PO matrix of all courses including first year courses [18-Scheme]

Courses/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I SEMESTER												
C101	2.4	2	1.75	2	1							1
C102	3	2	2									
C103	3	2.16	2									
C104	2.6	2.25	3		2					1		
C105	3	2	2	1	2			2	2			
C106	3	2	1									
C107	3	2	1.6									0.4
II SEMESTER												
C111	2.52	2.44	1.24	1.76	1							1
C112	3	2					**2**					
C113	2.25	1.75	1.75	1	1.75						1.75	1.5
C114	2.5	3	3	3					2	2		1
C115	3	2.5					2					
C115	3	1							**1**			
C116	1.5	2	1									
III SEMESTER												
C201	3	2.8	2.20	2.2	1.25						1.2	
C202	3	2.5	2						1		1	2
C203	3	2.4	2.4		1	1	1	1	1	1		1
C204	3	1.33										
C205	3	3										
C206	2.8	2.4	2.75	2	2.4			2	2,25	2	2	2
C207	3	2.33	2	1	3	2	2	2	2	2		2
C208	3	2	2		1.75	2		2	2	2	2	2
IV SEMESTER												
C211	3	2.8	2.20	2.2	1.25							1.2
C212	1.5	3	2						2	2		1
C213	3	2.6	2.6		2							
C214	3	1.67	3	3				2	2	2	2	2
C215	3	2										
C216	3	3	3	2.5	3					2	2	2
C217	2	3	2		2			2	2	2		2
C218	2					1		1	1.5			
V SEMESTER												
C301	3	2.75	2	2.25	1							1
C302	2.5	2.25	1.75	3								
C303	3	2.33	2	2					2	2	2	2

C304	2	2.2	3	1								
C305	3	3										
C306	2.75	1.5	1								2	2
C307	2.33	2.5		2	3		3	3	2	1		1
C308	2	2.75	3		2.5	2	2		2	2	2	2
VI SEMESTER												
C311	3	3	3	2	3			2	2	2		2
C312	3	2.25	2.67	1.33				2				3
C313	3	2.8	2.2	2.2								1.2
C314	3	2	1						1			
C315	3	2		2	3				2	2		2
C316	3	2.4	2		2.66	2	2	2	2	2	2	2
C317	3	2.75	3	3	3	2	2	2	2	2	3	2
VII SEMESTER												
C401	1.75	2.25	1.5	1	3				1	1		1
C402	3	2.75	2.25	1.66	2							
C403	1.8	2		2		1		2	2	2		
C404	3	2	1									
C405	3	2	2	2	3		2	2	1.33	2	2	2
C406	2.5	2.25	2.5	1.75	3		2		2.5	2.5	1.5	1
VIII SEMESTER												
C411	2.25	2.25	1			1.66		3				
C412	3	2	2	2								
C413	3	2.75	3	3	3	2	2	2	2	2	3	2
C414	3	2	2	2	2.5	2	2	2	3	2	3	2.25
C415	3	2	2	2	3	1.75	2	2	2	2.4	1	2
AVERAG	2.73	2.30	2.10	2.00	2.25	1.70	2.00	2.00	1.82	1.87	1.97	1.64

COs-PSOs Matrix of all Courses Including First Year Courses:

Table B. 3.23: List the program level CO-PSO matrix of all courses Including first year courses [2018 Scheme]

Courses	PSO1	PSO2	Courses	PSO1	PSO2
I SEMESTER			**II SEMESTER**		
C101			**C111**		
C102			**C112**		
C103			**C113**		
C104	2		**C114**	2	
C105	2	2	**C115**	2	
C106			**C116**		
C107			**C117**		

III SEMESTER			IV SEMESTER		
C201			**C211**		
C202	2.5	2	**C212**	3	
C203	1		**C213**		
C204	2		**C214**	3	2
C205	2		**C215**	3	
C206	2.67	2.8	**C216**	2	3
C207	3	2	**C217**	2	2
C208	2	2	**C218**		3
V SEMESTER			**VI SEMESTER**		
C301			**C311**	3	2
C302	1	2.75	**C312**		
C303	3	2	**C313**		
C304	1.66	1.66	**C314**	2	
C305	2		**C315**	2	3
C306	1.75		**C316**	2	3
C307	2	2	**C317**	3	3
C308	2	2			
VII SEMESTER			**VIII SEMESTER**		
C401	2.5	1	**C411**	1.66	1.333
C402	2	2.5	**C412**	2.25	2
C403	1		**C413**	3	3
C404	3		**C414**	2	2
C405	2	3	**C415**	2.33	2
C406	2.25	2.75			
AVERAGE				2.19	2.29

3.2. Attainment of Course Outcomes (50)

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

The various types of assessment tools followed are presented in table below. This describes the mode of assessment adopted to measure the students' performance using direct assessment and indirect assessment methods.

Table B. 3.24: Assessment Tools for Course Outcomes Evaluation

DIRECT ASSESSMENT TOOLS			
Sl. No.	**Assessment process**	**Description**	**Frequency**
1	**Continuous Internal Evaluation Assessment (Theory)**	2018 scheme – 40 marks (30 marks CIE +10 marks Assignment)	Three times in a semester
2	**(CIE) (Lab Internals) & Record**	2018 scheme – 40 marks (12 marks lab record + 8 marks CIE)	(1) Lab Record-Weekly (2) Lab Internal-Once per sem (End of each semester)
3	**Semester End Exam (SEE)**	2021 scheme: 50 Marks 2018 scheme: 60 Marks	Semester End Exam
4	**Project work**	Students are required to register for the project as a group. Phase wise conduction as per calendar of events will be scheduled. University exam will be conducted for 100 marks at the end of 8th semester	(1) Two phases in each semester (2) Once (Semester End University Exam will be conducted)
5	**Technical Seminar**	Technical semester will be evaluated at the end of 8thsemester, individual student for 100 Marks	Once (Semester End internal evaluation)
6	**Internship Program**	Students are assigned to complete internship program in association with industries and evaluated for 50 marks as internal assessment. University exam will be executed for 50 marks at the end of 8th semester.	Once (Semester End Evaluation)
INDIRECT ASSESSMENT TOOLS			
7	**Course End Survey**	Quality of the course contents & delivery is assessed through student feedback mapped with COs which aids in improving	Once Per Semester (End of each semester)

		teaching learning process	
8	**Program Exit survey**	Quality of curriculum and infrastructure will be assessed through student feed back	(End of the program)

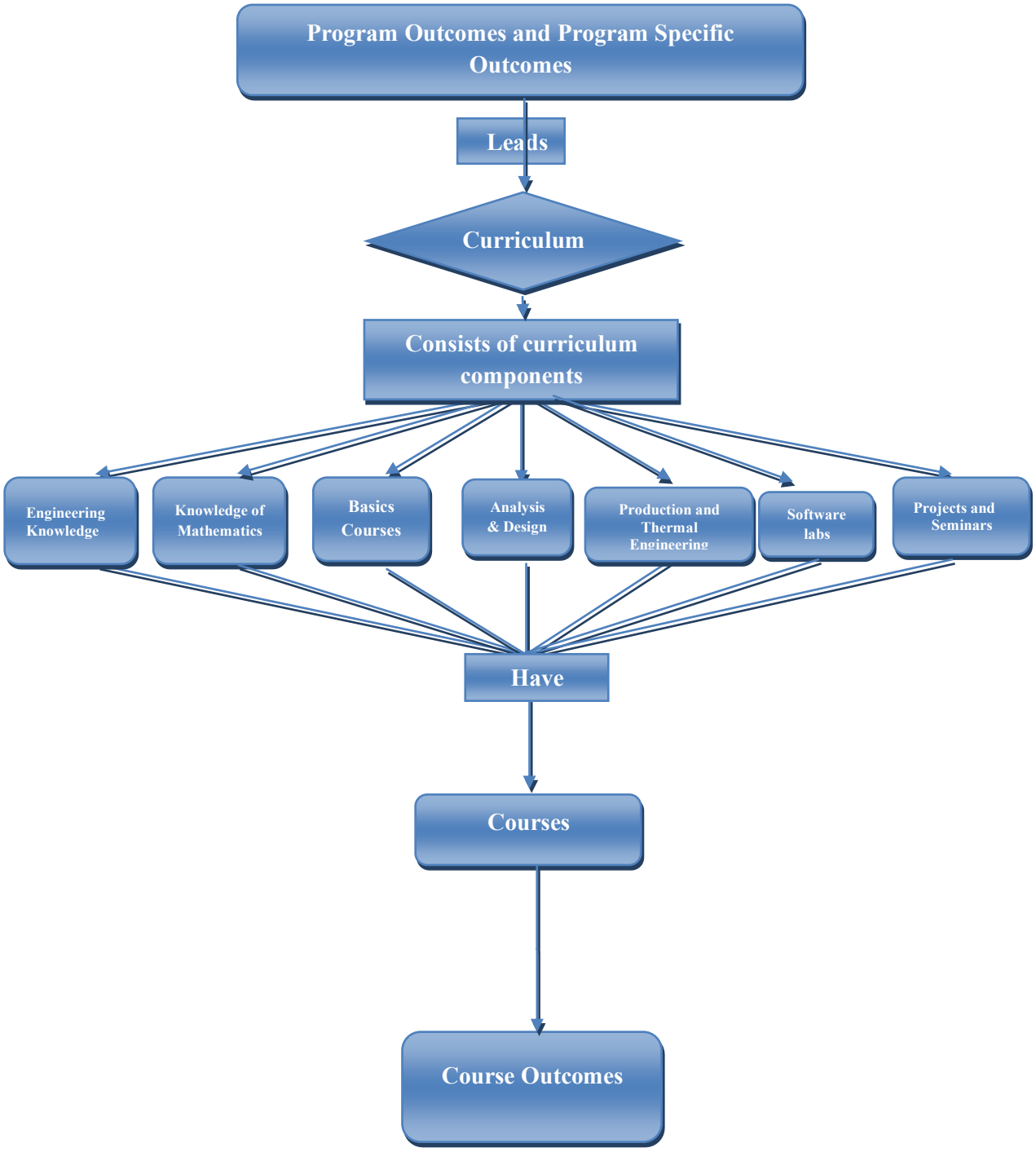


Figure 3.1: Assessment process for Course Outcomes Evaluation

Direct method:

18 Scheme: The components used for direct assessment method are (CIE) and Semester End Examination (SEE) with a weight age of 40% and 60% respectively. IA assessment for theory courses is based on marks scored by a student in Tests, Assignment. The curriculum also includes courses such as Projects and Technical seminar.

CO Attainment through CIE

The Course Outcome (CO) attainment illustrates the performance of a student in a particular course. CO attainment is calculated based on students score in each assessment tools.

Course Achievable Matrix

The course outcomes for every course are defined based on the Bloom's taxonomy learning levels. The course achievable matrix is derived from the course content. The course coordinator and approved by the PAC.

Test (IA)

CO attainment is calculated by considering the marks of each question in the question paper for all the three tests. Each question in test question papers is mapped with COs. Through this mapping we get the student score for each CO.

Laboratory

- Laboratory in-charge faculty members follow rubrics, which is set by the department for evaluation of laboratory programs.
- Laboratory experiments are conducted with assessment based on rubric metric as given in table B3.25. For every experiment, procedure is to be written, executed and demonstrated to the lab in charges. The demonstration of the output is followed by oral viva-voce.
- Laboratory tests evaluation is as discussed in criteria 2.2.1.6

Rubrics for evaluation of Laboratory work:

Table B. 3.25: Rubrics for Laboratory work Continuous Internal Evaluation Assessment

Rubric	Methodology / Process Steps	2018	2021
A	Observation, Write up and Punctuality	3	4
B	Conduction of experiment and Output	7	8
C	Viva – Voce (Questions & Answers on relevant Experiment / Topic)	5	4
D	Record write-up	25	25
CIE	Internal Test	15	15
Total Marks		40	50

Seminar Work Evaluation:

- The seminar on technical topics with report and presentation is a part of the curriculum for every individual student. The Department selects a senior faculty member as a Seminar coordinator who along with other faculty would assess the Technical seminar presentations by students. He/She would ensure that the students choose advanced concepts in Mechanical Engineering and allied research areas with a lot of relevance and applicability.
- One seminar per student in the VIII semester is conducted as per the schedule.
- Seminarcoordinators follow rubrics, which is set by the department for evaluation of seminar

Rubrics of evaluation for student technical seminars:

Table B. 3.26: Seminar Assessment Rubrics

Rubric	Methodology / Process Steps	Marks (100)
a	Relevance and Understanding of the topic	**10**
b	Literature Survey and Observation	**30**
c	Report Content	**30**
d	Presentation with Explanation	**30**
e	Q&A	**10**

Major Project

The students carry out Project works, in teams during final year of the program. They are required to identify, formulate, review research literature and analyse complex engineering problems. The students are also required to design solutions using appropriate modern engineering and IT tools with considerations for public health and safety, cultural, societal and environmental aspects.

Table B. 3.27:
Phase – I (Review – I): Preliminary Project Evaluation

Rubric	Methodology / Process Steps	Marks (40)
a	Literature Review	**10**
b	Problem identification and definition	**10**
c	Significance and relevance of work	**05**
d	Presentation and Report	**15**

Table B. 3.28:
Phase – I (Review – II): Project Synopsis and Project Seminar Evaluation

Rubric	Methodology / Process Steps	Marks (60)
a	Objectives and methodology of project	**10**
b	Plan of execution	**05**
c	Project Seminar	**20**
d	Project Synopsis report	**25**

Table B. 3.29: Phase – II (Review – I): Project Intermediate Evaluation

Rubric	Methodology / Process Steps	Marks (40)
a	Plan of execution	**05**
b	Progress of work	**10**
c	Implementation/Results	**05**
d	Presentation and Report	**20**

Table B 3.30 Phase – II (Review – II): Project End Evaluation

Rubric	Methodology / Process Steps	Marks (60)
a	Demonstration	**10**
b	Project Presentation	**10**
c	Results, discussions and conclusion	**15**
d	Final project report	**25**

Sl. No	Title		Level of Achievement			
			Excellent	Good	Average	Poor
1	Literature Review(10)		• Information is gathered from multiple, research-based sources. • Detailed conclusions are reached from the evidence offered. • Information is cited properly and in standard format. (10)	• Information is gathered from multiple sources. • Conclusions are reached from the evidence offered. • Information is cited properly. (8)	• Information is gathered from a limited number of sources. • There is some indication of conclusions from the evidence offered. • Information is cited, but has errors. (5)	• Information is gathered from a single source. • No conclusions are made from the evidence offered • Information is not cited or is cited incorrectly. (3)
2	Problem identification and definition(10)		• Detailed and extensive explanation of the purpose and need of the project • Detailed and extensive explanation of the specifications and the limitations of the existing systems (10)	• Good explanation of the purpose and need of the project • Collects a great deal of information and good study of the existing systems. (8)	• Average explanation of the purpose and need of the project • Moderate study of the existing systems; collects some basic information (5)	• Moderate explanation of the purpose and need of the project • Explanation of the specifications and the limitations of the existing systems not very satisfactory; limited information (3)
3	Significance and relevance of work (5)		• Selected work is researchable and could potentially resolve a clearly identified problem or issue • Selected work is relevant, timely and grounded in practice (5)	• Description of the context for the question is clear • Selected work is timely and relevant to the issue or problem (4)	• Context is mentioned but not well described • Selected work is timely or relevant to the issue or problem, but not both (3)	• No description for the context of the new or revised question (2)
4	Presentation and Report (15)	Presentation (10)	• Contents of presentations are appropriate and well arranged • Proper eye contact with audience and clear voice with good spoken language (10)	• Contents of presentations are appropriate but not well arranged • Satisfactory demonstration, clear voice with good spoken language but eye contact not proper (8)	• Contents of presentations are appropriate but not well arranged • Eye contact with few people and unclear voice (5)	• Contents of presentations are not appropriate • Demonstration not satisfactory (2)
		Report (5)	• Project preliminary report is according to the specified format and submitted in time (5)	• Project preliminary report is according to the specified format but not submitted in time (4)	• Project preliminary report is according to the specified format but some mistakes (3)	• Project preliminary report not prepared according to the specified format (2)

Figure 3.2: Snapshot of Micro level rubrics for Project Evaluation

CO Attainment through SEE

CO attainment through SEE will be derived from the Marks scored by the students in the university examination in that particular course.

Indirect method

Indirect method includes course end survey for particular course in a semester. Feedback will be collected at the end of every course and are mapped to Cos. All these components contribute to 10% of CO attainment.

3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40)

- **Process for the CO attainment:** Course Outcome for a course identifies the knowledge and skills gained by the students upon completion of the course. Course attainment is a measure of the course outcomes acquired by the students. The COs is discreetly defined based on the Syllabus of each course.

- **Expected Attainment:** The expected attainment level is the threshold of attainment, which the student has to gain after completion of each course. The expected attainment levels for each course are set based on the previous attainment level for that course or based on class average marks. The students are required to achieve the expected CO attainment level which facilitates the CO attainment of that particular course. If the attainment of the course is not meeting the target level, course coordinators retrospect the reason and recommend for modification of course curriculum or the delivery/assessment method, to improve the CO levels. If the course is introduced for the first time, the target level is set based on the inputs from faculty expertise in that course.

- **Course Outcome Attainment:** The process of CO attainment, based on direct and indirect methods is as depicted in Figure below. The CO of every course is mapped with PO as defined by NBA. Question papers of CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) are mapped with CO to arrive at individual CO Weightage. CO attainment of each student is calculated based on CIE, SEE, laboratory, assignment and self-study performance. The CO attainment of students is averaged to obtain target attainment levels.

Course Outcome attainment Target levels for all courses

Table B.3.31: Assessment Targets for Course Outcomes Evaluation (2020-2024 Batch) (CAY)

Batch: 2020 – 2024				
Sl. No.	**Assessment Method**	**Maximum Marks**	**Course Outcome Target**	
			Percentage	**Marks**
1	Internal Assessment Test (IA) CIE	30	60%	18
2	Semester End Examinations (SEE)	60	50%	30
3	Lab Assessment (Internal)	16	70%	12
4	Practical Examinations	60	60%	36
5	Seminar	100	70%	70
6	Project Work Evaluation (Phase-I and Phase-II)	200	70%	140
7	Project Work Evaluation and viva voce (External)	100	60%	60
8	Internship Evaluation (Internal)	50	60%	30
9	Internship Evaluation (External)	50	60%	30

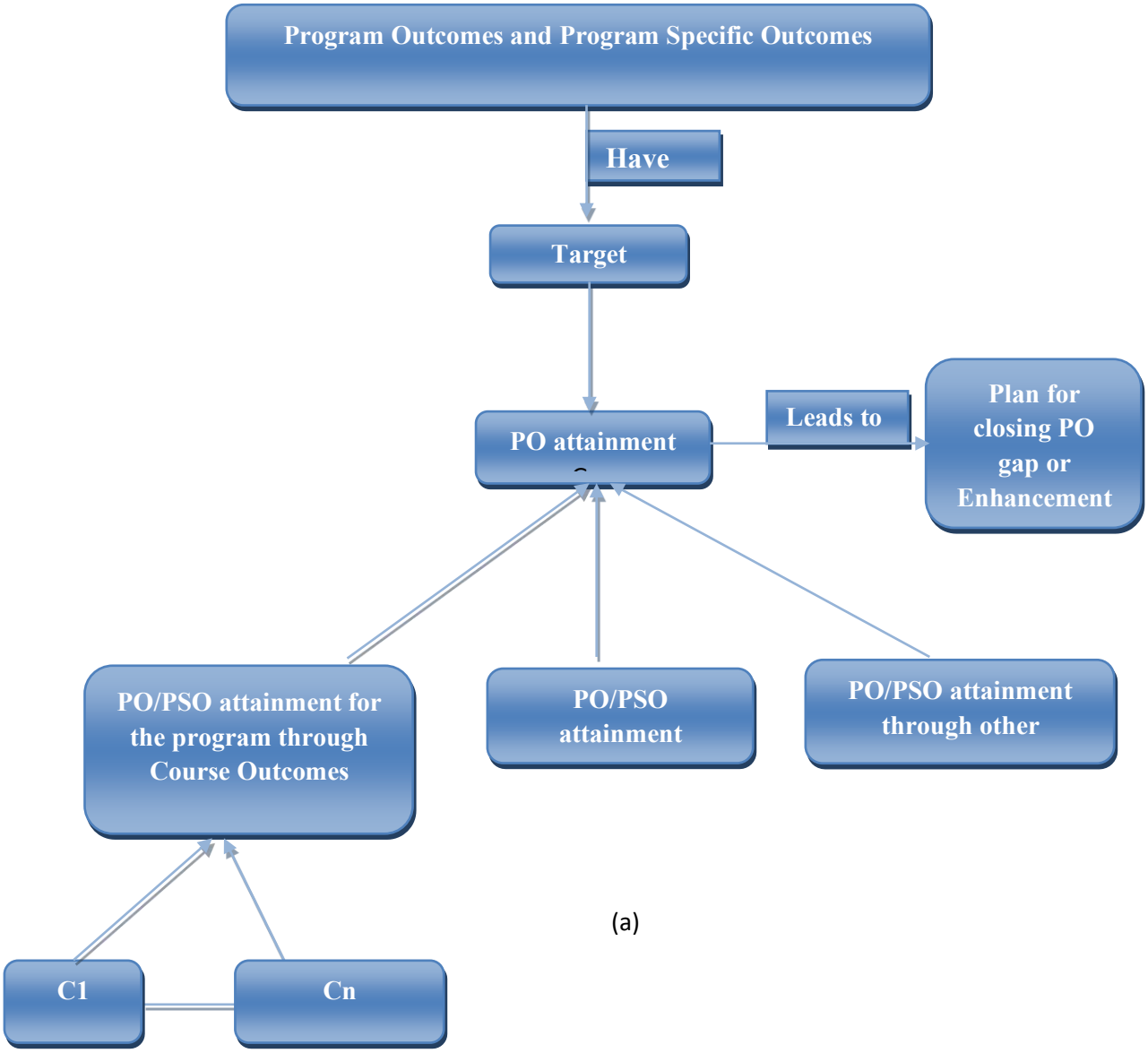
Set attainment level for above Course Outcomes targets are:
Attainment Level 1: 40% students scoring more than set target level in the final examination.
Attainment Level 2: 50% students scoring more than set target level in the final examination.
Attainment Level 3: 60% students scoring more than set target level in the final examination.

Table B.3.32: Indirect Assessment Methods

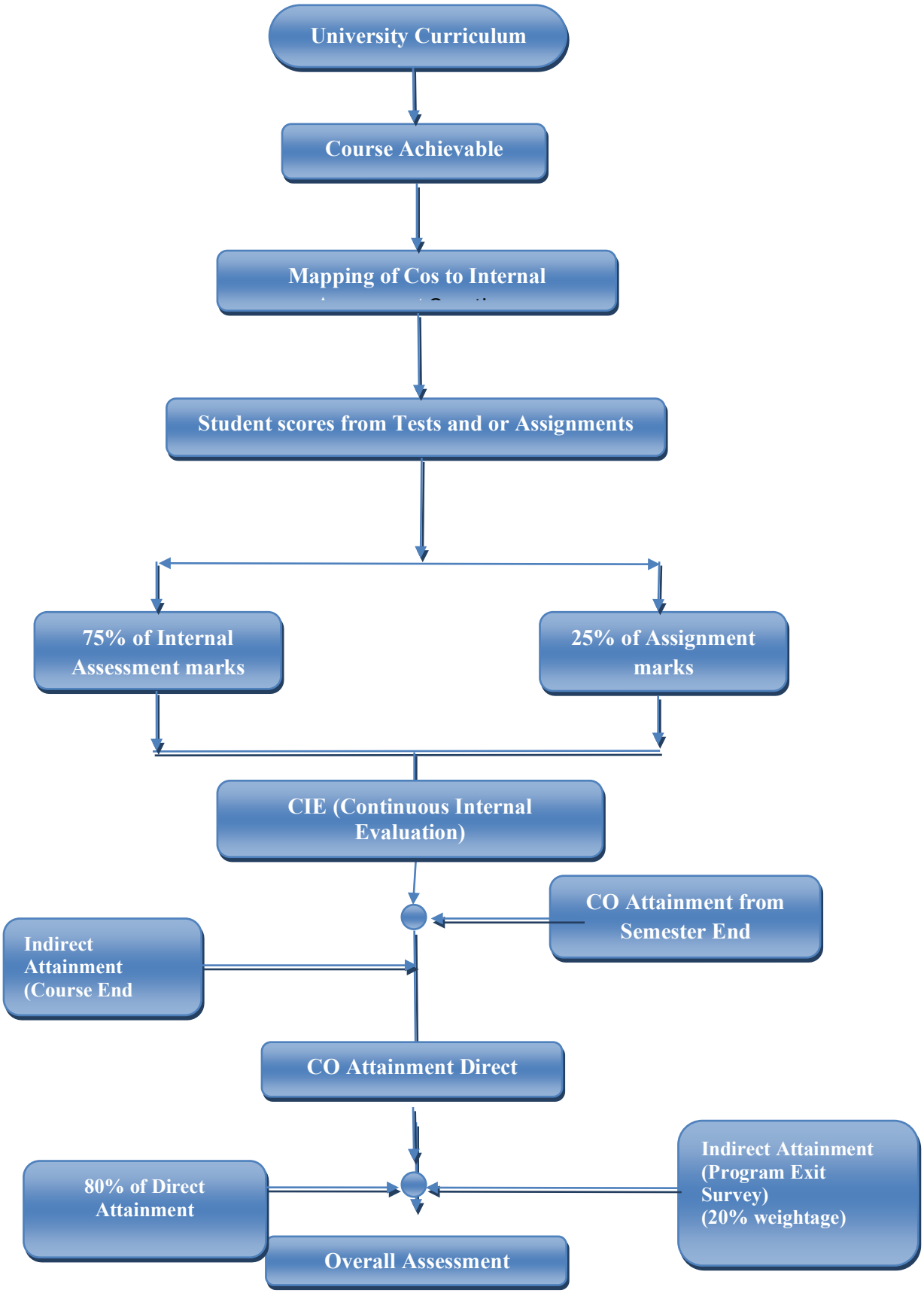
Sl no.	Survey Type	Methodology	Frequency
1	Course End Survey	Online Survey – DHI Software	After end of the course /Semester
2	Program Exit Survey	Online Survey – DHI Software	After end of the Graduation Programme

Model / Tool used for assessment of CO, PO and PSO:

The assessment tool for the assessment of Course Outcomes (COs), Program Outcomes (POs) and the Program Specific Outcomes (PSOs) has been designed and developed based on the inputs from the coordinators from different departments, all the heads of the departments and the Principal following the basic steps as described in Figure 3.3: (a), (b) & (c).



(a)


University Curriculum
Course Achievable
Mapping of Cos to Internal
Student scores from Tests and or Assignments
75% of Internal Assessment marks
25% of Assignment marks
CIE (Continuous Internal Evaluation)
CO Attainment from Semester End
Indirect Attainment (Course End
CO Attainment Direct
80% of Direct Attainment
Indirect Attainment (Program Exit Survey) (20% weightage)
Overall Assessment

(b)

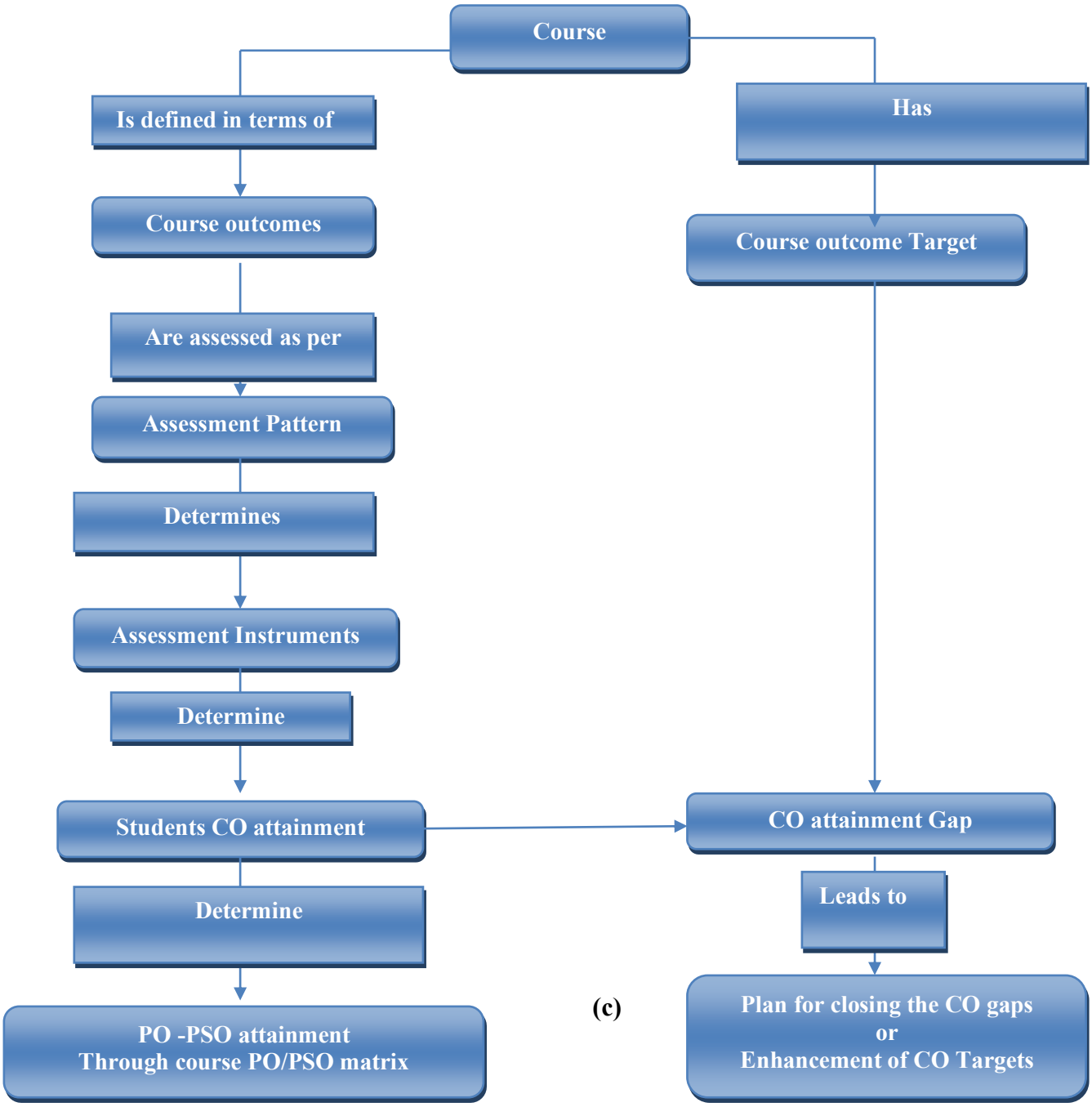


Figure 3.3 (a), (b) & (c): PO-PSO attainment through Co attainment

Attainment calculation tool and snapshots:

The sample snapshots of the final summary sheet to display initial setting of targets, weightages of SEE and CIE, CO-PO-PSO mapping correlation matrix and CO/PO/PSO attainment calculations is as shown in figures 3.4 to 3.8.

(a) Summary Sheet to display CO, CO-PO Mapping and CO / PO targets for Attainment

SJCIT/NBA/ COURSE/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering

Course Information						
Programme Name:	Mechanical Engineering					
Academic Year:	2021-22	Semester:	6	Section:	AB	Subject Type:	Theory
Course Title:	FINITE ELEMENT METHOD					
Course Instructor Name:	Dr THYAGARAJ N R					Class Strength:
Subject Code:	18ME61	Course No:	1	Course ID:	C311	92

Scheme of Teaching & Marks					
Contact Hr/Week:	5	Lecture Hours (Hr.):	3	Tutorials (Hr.):	2
Max.CIE Marks:	40	Max. SEE Marks:	60	Total Max.Marks:	100
Min.CIE Marks:	19	Min.SEE Marks:	21	Total Min.Marks:	40
Final CIE (IA) Marks:	40	Assignment Marks:	10	Test Marks:	30

Threshold Values for Attainment Calculation							Final CO Attainment			
Attainment level	3	%	2	%	1	%	(Percentage Contribution, %)			
Internal Assessment	>=	70	>=	60	>=	50	CIE	40	SEE	50
SE Examination	>=	55	>=	45	>=	35	-		CES	10

Statements of Course Outcomes		No.of CO's	5	Target(%)	BL
C311.1	Describe the basic concepts, definitions in finite element method related structural, heat transfer and fluid flow.			60	L3
C311.2	Apply suitable boundary conditions to a global equation for bars, trusses, beams, circular shafts, heat transfer, fluid flow, axi symmetric and dynamic problems.			60	L3
C311.3	Develop element characteristic equations for 1D, 2D structural, Thermal and Dynamic elements.			60	L3
C311.4	Solve for stresses, strains, deformation and temperature of a structural and thermal components subjected to static, thermal and dynamic loading.			60	L4
C311.5	Analyze the basic mechanical components using FEM Tool			60	L4

Semester End Exam. (SEE) Target(%)	70	Course End Survey(CES) Target (%):	90

CO-PO Mapping Table (In the scale of 3)													CO-PSO Mapping Table				
CO/PO	1	2	3	4	5	6	7	8	9	10	11	12	CO/PSO	1	2	3	4
C311.1	3												C311.1				
C311.2	3	3											C311.2	3			
C311.3	3	3	3										C311.3	3			
C311.4		3	3	2									C311.4	3			
C311.5		3	2	1	3				3			2	C311.5		3		
Total	9	12	8	3	3				3			2	Total	9	3		

Figure 3.4: Sample snapshot of Cos, CO-PO mapping & targets set for attainment

(b) Internal Tests Marks/ Quiz / Assignment

SJCIT/NBA/ CIE-MARKS/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering									
Course Title:	FINITE ELEMENT METHOD									
Subject Code:	18ME61	Semester & Section				6 - AB	No.Students			92
Course Intructor Name:	Dr THYAGARAJ N R					Course ID:	C311			
	Test No:1									
Ref-Question Number:	1	2	3	4	5	6	7	8	9	10
	CIE Marks Entry Format For the Academic Year - 2021-22									
Questions	1,2	3,4	5,6	7,8	9,10	As-1				
Main Question No.	1	2	3	4	5	6				
Mapped CO-No.	1	2	1	3	2	5				
SL USN/Q-Marks	10	10	10	10	10	10				
1 1SJ19ME001	8	6	8	8	8	9				
2 1SJ19ME002	4	10	9	10	10	10				
3 1SJ19ME003	1		9		10	10				
4 1SJ19ME004	2		10		10	10				
5 1SJ19ME005	4	9	10	10	8	10				
6 1SJ19ME006	7	8	8	8	8	10				
7 1SJ19ME007	5	2	10	8	9	10				
8 1SJ19ME008	7	3	10	2	10	10				
9 1SJ19ME010	2		10		10	10				
10 1SJ19ME011	6	3	10		10	10				
11 1SJ19ME012	5	10	10		10	10				
12 1SJ19ME013	2	7	10	1	9	10				
13 1SJ19ME014	8	7	10	2	4	10				
14 1SJ19ME015	6	5	6			8				
15 1SJ19ME016	8	10	8			10				
16 1SJ19ME018	10	5	10	8	9	10				
17 1SJ19ME019	6	8	10	10	10	10				
18 1SJ19ME020	4		9		9	10				
19 1SJ19ME021	3		8	4	7	10				
20 1SJ19ME022	10	10	10	9	10	10				
21 1SJ19ME023	2	2	4	3	9	10				
22 1SJ19ME024	4	8	10	1	9	10				
23 1SJ19ME025	3	1	10		10	9				
24 1SJ19ME026	2	8	10	8	7	10				
25 1SJ19ME027	7	6	9	8	8	10				
26 1SJ19ME028	7	7	7	7		9				
27 1SJ19ME029	7	8	7	7	7	8				
28 1SJ19ME030	7	8	8	7	8	10				
29 1SJ19ME031	5	7	9		10	10				
30 1SJ19ME032	2	5	0		10	10				
31 1SJ19ME034	8	7	8	8	8	10				
32 1SJ19ME036	8	8	8	8	8	4				
33 1SJ19ME037	8	8	8	8	8	10				
34 1SJ19ME038	5	6	9	4	10	10				
35 1SJ19ME039	8	6	8	6	8	10				
36 1SJ19ME040	8	8	8	8	8	9				

Figure 3.5: Sample Snapshot showing Quiz, Assignment & Continuous Internal Evaluation marks entry sheet

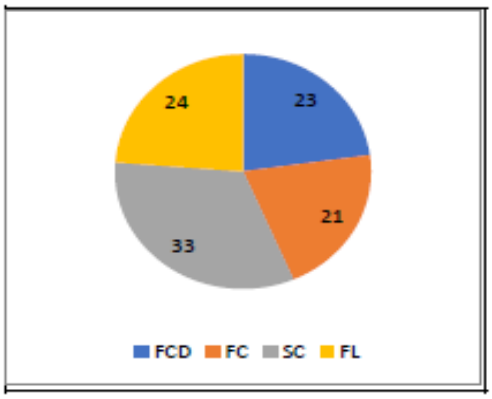
(c) Internal/ External Assessment:

SJCIT/NBA/ SEE-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering								
Course Title	FINITE ELEMENT METHOD					Course Code	C311		
Subject Code	18ME61	Semester	6	Section	AB	Emp.ID	940		
Faculty Name	Dr THYAGARAJ N R					No.students	92		
	Format for Entry of Semester End Examination Marks						40	60	100
Sl.	USN	NAME	CIE	SEE	TOT	Result	Class	ATNT	Grade	Rank
1	1SJ19ME001	Adarsh M	30	0	30	FAIL			0	48
2	1SJ19ME002	Akarsh M	31	21	52	PASS	SC	1	6	30
3	1SJ19ME003	Akshay M	26	7	33	FAIL			0	45
4	1SJ19ME004	Amruth V M	26	5	31	FAIL			0	47
5	1SJ19ME005	Anirudh	37	45	82	PASS	FCD	3	9	5
6	1SJ19ME006	Balaji N	32	28	60	PASS	FC	2	7	22
7	1SJ19ME007	Bhuvan Athresh S	29	22	51	PASS	SC	1	6	31
8	1SJ19ME008	Chadive Sathish Kumar Reddy	31	23	54	PASS	SC	1	6	28
9	1SJ19ME010	Chethanraj D N	26	11	37	FAIL			0	41
10	1SJ19ME011	Chirag C	27	22	49	PASS	SC	1	6	32
11	1SJ19ME012	Dhanush B	34	24	58	PASS	SC	1	6	24
12	1SJ19ME013	Dhanush N	29	11	40	FAIL				39
13	1SJ19ME014	Gagan Gowda C	33	41	74	PASS	FCD	3	8	10
14	1SJ19ME015	Ganesh U	23	23	46	PASS	SC	1	6	35
15	1SJ19ME016	Harshith Gowda TI	28	36	64	PASS	FC	3	7	18
16	1SJ19ME018	Jahnavi Krupa A	36	36	72	PASS	FCD	3	8	12
17	1SJ19ME019	Jashwanth J	37	21	58	PASS	SC	1	6	24
18	1SJ19ME020	Jayanth K R	28	34	62	PASS	FC	3	7	20
19	1SJ19ME021	Karthik B N	29	27	56	PASS	SC	2	6	26
20	1SJ19ME022	Keerthana B K	39	42	81	PASS	FCD	3	9	6
21	1SJ19ME023	Kethireddy Hruday Reddy	29	39	68	PASS	FC	3	7	15
22	1SJ19ME024	Kumar S	36	49	85	PASS	FCD	3	9	2
23	1SJ19ME025	Kuruba Avinash	31	13	44	FAIL				37
24	1SJ19ME026	Kushal Y S	27	21	48	PASS	SC	1	6	33
25	1SJ19ME027	Lakshay Kumar Singh	36	47	83	PASS	FCD	3	9	4
26	1SJ19ME028	Likith K N	28	0	28	FAIL			0	50
27	1SJ19ME029	Madhu K	25	0	25	FAIL			0	51
28	1SJ19ME030	Madhu M N	29	11	40	FAIL				39
29	1SJ19ME031	Manjunath C	28	30	58	PASS	SC	2	6	24
30	1SJ19ME032	Manohar H K	27	2	29	FAIL			0	49
31	1SJ19ME034	Manoj H V	29	32	61	PASS	FC	2	7	21
32	1SJ19ME036	Md Aakib Khan	20	10	30	FAIL			0	48
33	1SJ19ME037	Mohammed Shoaib	30	38	68	PASS	FC	3	7	15
34	1SJ19ME038	Mohan H V	33	38	71	PASS	FCD	3	8	13
35	1SJ19ME039	Mohankrishna N	25	5	30	FAIL			0	48
36	1SJ19ME040	Mohith K V	28	10	38	FAIL			0	40
37	1SJ20ME400	Abhilash K N	26	21	47	PASS	SC	1	6	34
38	1SJ20ME401	Ajay Kumar G	30	24	54	PASS	SC	1	6	28
39	1SJ20ME402	Ashoka C	31	42	73	PASS	FCD	3	8	11
40	1SJ20ME403	Bhavan.d	27	9	36	FAIL			0	42

Figure 3.6: Sample snapshot of Continuous Internal Evaluation & Semester End Examination marks

(d) Summary Sheet to display result analysis of the course

SJCIT/NBA/ SEE-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering						
Course Title	FINITE ELEMENT METHOD					Course Code	C311
Subject Code	18ME61	Semester	6	Section	AB	Emp.ID	940
Faculty Name	Dr THYAGARAJ N R					No.students	92
	Result Analysis of Subject Code -18ME61 - for the Academic year 2021-22						



Result Analysis of Section: 6 - AB				
No. Students	Pass	%	Fail	%
92	70	76	22	24

Class Analysis of Section: 6 - AB			
No. Students	92	%	Grade Point
FCD	21	23	10,9,8
FC	19	21	7
SC	30	33	6,4
FL	22	24	0

Max. and Avg. Marks					
CIE	AVG	SEE	AVG	TOT	AVG
40	30	60	27	100	56

CO Attainment in SEE	
Sum_AT	155
T_students	92
Avg.ATNT	1.7
Sum_AT(=3)	36
AT(=3)%	39
Attainment	NO

ANALYSIS OF GRADE POINT AND GRADE LETTER							
Grade Letter	S	A	B	C	D	E	F
Grade Point	10	9	8	7	6	4	0
No.of Students		8	13	19	29	1	17
% of Students		9	14	21	32	1	18

CIE and SEE correlation Coefficient	0.61

Course Coordinator Remarks on Semester End Results for the Academic Year2021-22

Signature of Course Coordinator Signature HOD/DAC

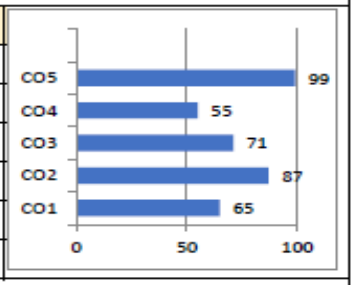
Figure 3.7: Sample snapshot of result analysis of the course

(f) Final Summary Sheet to display attainment of Course outcomes

SJCIT/NBA/ CO-REPT/ 2021-22	S J C INSTITUTE OF TECHNOLOGY Chickballapur - 562 101 Department of Mechanical Engineering						
Course Title	FINITE ELEMENT METHOD					Course Code	C311
Subject Code	18ME61	Semester	6	Section	AB	Emp.ID	940
Faculty Name	Dr THYAGARAJ N R					No.students	92

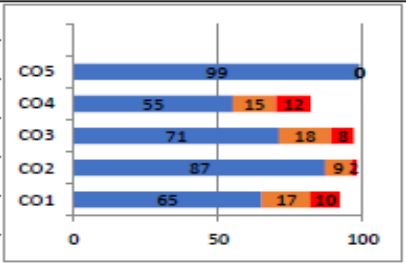
CO Attainment from -TEST - 3, in the Subject: 18ME61-Based on: TYPE-1, Academic Year 2021-22

Sl.	CO Number	Sum	T_Std	Av-AT	TS(=3)	AT,%	Ac_AT	ATNT
CO1	C311.1	221	92	2.4	60	65	2	YES
CO2	C311.2	258	92	2.8	80	87	2.6	YES
CO3	C311.3	236	92	2.6	65	71	2.1	YES
CO4	C311.4	177	85	2.1	47	55	1.7	
CO5	C311.5	273	92	3	91	99	3	YES



Distribution of CO Attainment from -TEST - 3, in Subj: 18ME61-Based on: TYPE-1, ACDY:2021-22

Sl.	CO Number	3	%	2	%	1	%
CO1	C311.1	60	65	16	17	9	10
CO2	C311.2	80	87	8	9	2	2
CO3	C311.3	65	71	17	18	7	8
CO4	C311.4	47	55	13	15	10	12
CO5	C311.5	91	99		0		0



Remarks of Course Intructor

Signature of HOD/DAC	*Signature of Course Instructor*

Fig. 3.8 Sample snapshot of attainment of the Course Outcomes

3.3 Attainment of Program Outcomes and Program Specific Outcomes (50)

3.3.1. Describe assessment tools and processes used for measuring the attainment of each PO and PSO (10)

For each course, COs contributes to the attainment of POs. Different courses emphasize on contribution to different POs leading to eventual attainment of POs upon successful completion of all courses and hence the programme. Following are the assessment tools used for measuring the POs and PSOs

Table B. 3.33: Direct and Indirect Assessment Method

Direct Assessment		
Direct method	**Form of assessment**	**Frequency of assessment**
CO Attainment	1.Test 2. Assignment	1. Test: Three times / semester 2.Assignment:3 times for semester
	2.Laboratory	2. Laboratory: Weekly
	3.Semester End Examination	3.SEE: End of semester
	4.Tech Seminar	4.Tech Seminar: 8th semester as per event of calendar
	5.Project Work	5.Project Work: Assessed phase wise 1,2,3 (7th and 8th semester)
	6.Internship	6.Four weeks duration (During 7th and 8th semester)
Indirect Assessment Methods		
Indirect method	**Form of assessment**	**Frequency of assessment**
Course end survey	Survey Questionnaire through DHI software	After completion of each course
Program exit survey	Survey Questionnaire through DHI software	After completion of programme

3.3.2. Provide results of evaluation of each PO & PSO (40)

Direct attainment levels of PO & PSO is determined by taking average across all courses addressing that PO and/or PSO

Table B.3.34, Table B.3.38 and Table B.3.42 presents the PO attainment and Table B.3.25 Table B.3.39 and Table B.3.43 presents the PSO attainment for 2021 scheme. The attainment for every course has been calculated based on direct and indirect assessment methods with a weightage of 50% and 50% respectively. The PO attainments of every course have been rated on a scale of 1-3. These values are the weighted average of PO attainment of all the courses.

Table B.3.34: PO Total Attainment (CAY: 2020-24 Batch)

Courses/ POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I SEMESTER												
C101	1.34	1.11	0.97	1.11	0.56							0.56
C102	1.67	1.12	1.12									
C103	3	2.16	2									
C104	2.6	2.25	3		2					1		
C105	2	2	1.5	0.75	1.5			1.5	1.5			
C106	2.5	1.83	1.66									
C107	3	2	1.6									0.4
II SEMESTER												
C111	2.1	2.01	1.0	1.45	0.8							0.83
C112	3	2					2					
C113	1.79	1.54	1.54	0.85	1.54						1.54	1.32
C114	2.5	3	3	3					2	2		1
C115	3	2.5					2					
C116	3	1							1			
C117	1.5	2	1.00									
III SEMESTER												
C201	1.47	1.33	1.55	0.93	1.11						0.84	
C202	2.04	2.26	0.92						0.37		0.37	1.3
C203	0.52	0.42	0.42		0.2	0.2	0.2	0.2	0.2	0.15		0.18
C204	2.1	0.98										
C205	1.17	1.2										
C206	2.7	2.32	2.65	1.9	2.32			1.9	2.18	1.95	1.93	1.93
C207	3	2.33	2	1	3	2	2	2	2	2		2
C208	3	2	2		1.75	2		2	2	2	2	2
IV SEMESTER												
C211	1.82	1.73	1.41	1.41	0.93							0.72
C212	0.82	1.26	0.8						1	1		0.5
C213	2.9	2.52	2.54		2.2							
C214	1.65	0.93	1.6	1.6				1.1	1.1	1.1	1.1	1.1
C215	3	2										
C216	1.03	1.43	1.2	1.25	1.35					0.5	0.8	0.97
C217	2	3	2		2			2	2	2		2

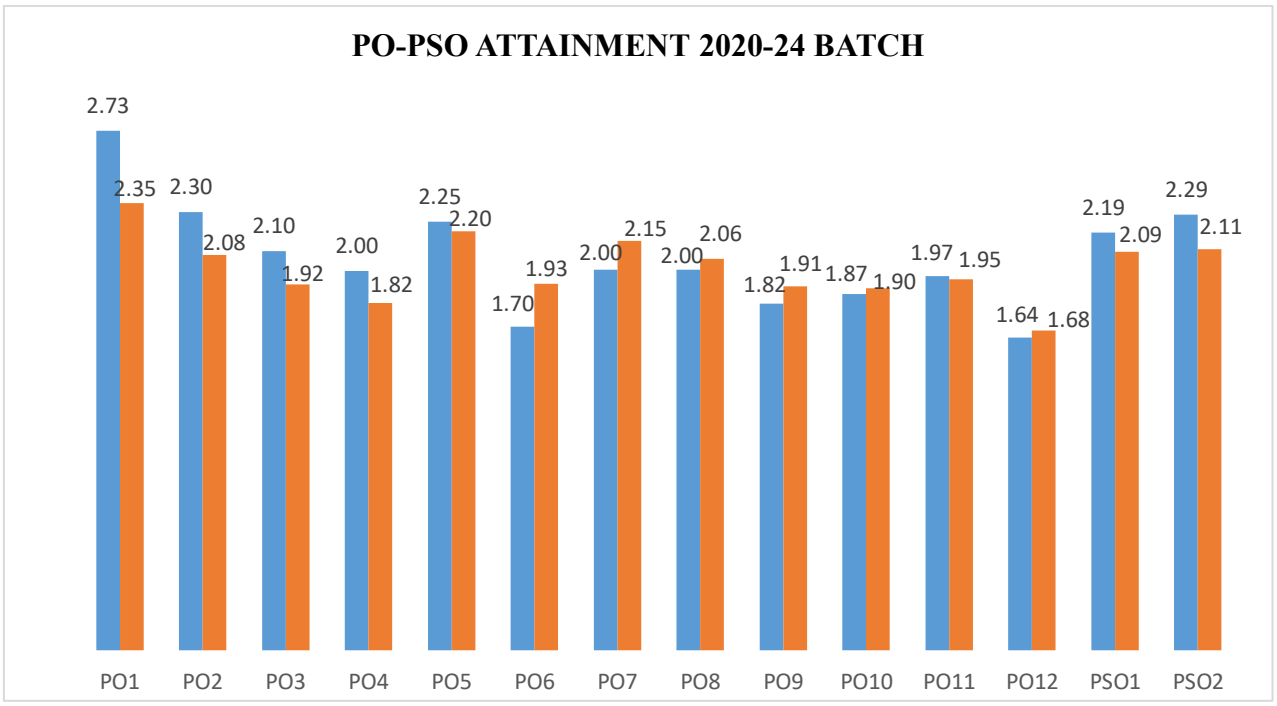
C218	3	2	2		1.75			2	2	2		2
V SEMESTER												
C301	1.55	1.43	1.03	1.18	0.5							0.53
C302	1.45	1.3	1.03	1.8								
C303	1.53	1.2	1.1	0.95					1.1	1	1.1	1.1
C304	0.98	1.06	1.5	0.48								
C305	2.3	2.5										
C306	2.18	1.2	0.8								1.5	1.5
C307	2.33	2.5		2	3		3	3	2	1		1
C308	2	2.75	3		2.5	2	2	-	2	2	2	2
VI SEMESTER												
C310	2.23	2.17	2.1	1.5	2.2			1.55	1.5	1.55		1.55
C311	1.5	1.13	1.33	0.67				1				
C312	1.76	1.64	1.3	1.3								0.7
C313	2.2	1.54	0.88						0.88			
C314	3	2		2	3				2	2		2
C315	3	2.4	2		2.66	2	2	2	2	2	2	2
C316	3	2.75	3	3	3	2	2	2	2	2	3	2
C317	2.23	2.17	2.1	1.5	2.2			1.55	1.5	1.55		1.55
VII SEMESTER												
C401	1.4	1.78	1.2	0.8	2.4				0.8	0.8		0.8
C402	2	1.83	1.5	1.1	1.3							
C403	1.62	1.8		1.8		0.9		1.8	1.8	1.8		
C404	3	2	1									
C405	3	2	2	2	3		2	2	1.33	2	2	2
C406	2.5	2.25	2.5	1.75	3		2		2.5	2.5	1.5	1
VIII SEMESTER												
C410	1.9	1.9	0.83			1.4		2.55				
C411	2	1.38	1.5	1.35								
C412	3	2.75	3	3	3	2	2	2	2	2	3	2
C413	3	2	2	2	2.5	2	2	2	3	2	3	2.25
C414	3	2	2	2	3	1.75	2	2	2	2.4	1	2
C415	1.9	1.9	0.83			1.4		2.55				
Direct	**2.19**	**1.85**	**1.65**	**1.53**	**2.00**	**1.66**	**1.94**	**1.82**	**1.64**	**1.63**	**1.69**	**1.35**

Indirect Attainment	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Overall attainment (20% direct + 20%	**2.35**	**2.08**	**1.92**	**1.82**	**2.20**	**1.93**	**2.15**	**2.06**	**1.91**	**1.90**	**1.95**	**1.68**

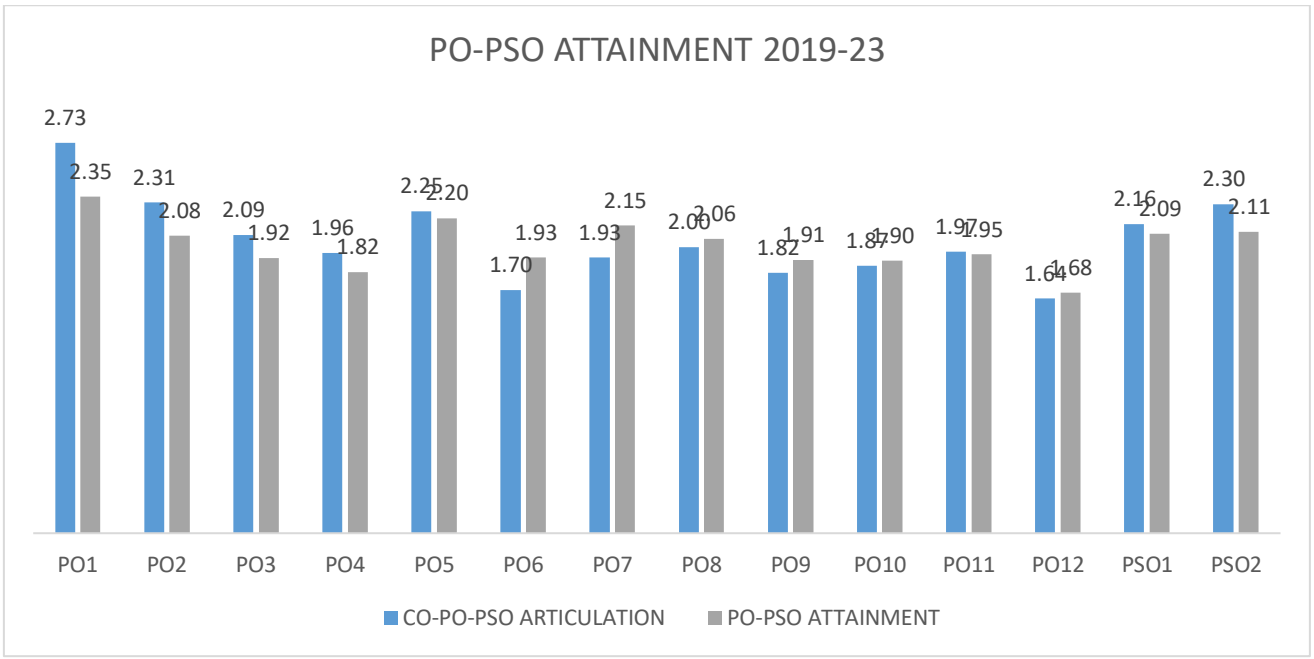
Table B.3.35: PSO Direct Attainment (CAY: 2020-24 Batch)

Courses	PSO1	PSO2	Courses	PSO1	PSO2
I SEMESTER			**II SEMESTER**		
C101			**C111**		
C102			**C112**		
C103			**C113**		
C104	2		**C114**	2	
C105	1.5	1.5	**C115**	2	
C106			**C116**		
C107			**C117**		
III SEMESTER			**IV SEMESTER**		
C201			**C211**		
C202	2.24	1.1	**C212**	1.3	
C203	0.18		**C213**	2.9	2.52
C204	1.32		**C214**	1.65	1.1
C205	1.17		**C215**	3	-
C206	2.57	2.7	**C216**		1.33
C207	3	2	**C217**	2	2
C208	2	2	**C218**	2	2
V SEMESTER			**VI SEMESTER**		
C301	1.55	1.43	**C311**	2.17	1.55
C302	0.6	1.6	**C312**	1.5	1.5
C303	1.53	1	**C313**		
C304	0.8	0.63	**C314**	1.54	
C305	1.65		**C315**	2	3
C306	1.4		**C316**	2	3
C307	2	2	**C317**	3	3
C308	2	2			
VII SEMESTER			**VIII SEMESTER**		
C401	2	0.8	**C411**	1.4	1.13
C402	1.35	1.65	**C412**	1.62	1.2
C403	0.9		**C413**	3	3
C404	3		**C414**	2	2
C405	2	3	**C415**	2.33	2
C406	2.25	2.75			
Program Specific Outcomes				**PSO1**	**PSO2**
Direct				1.87	1.88
Indirect Attainment				3	3
Overall Attainment				2.09	2.11

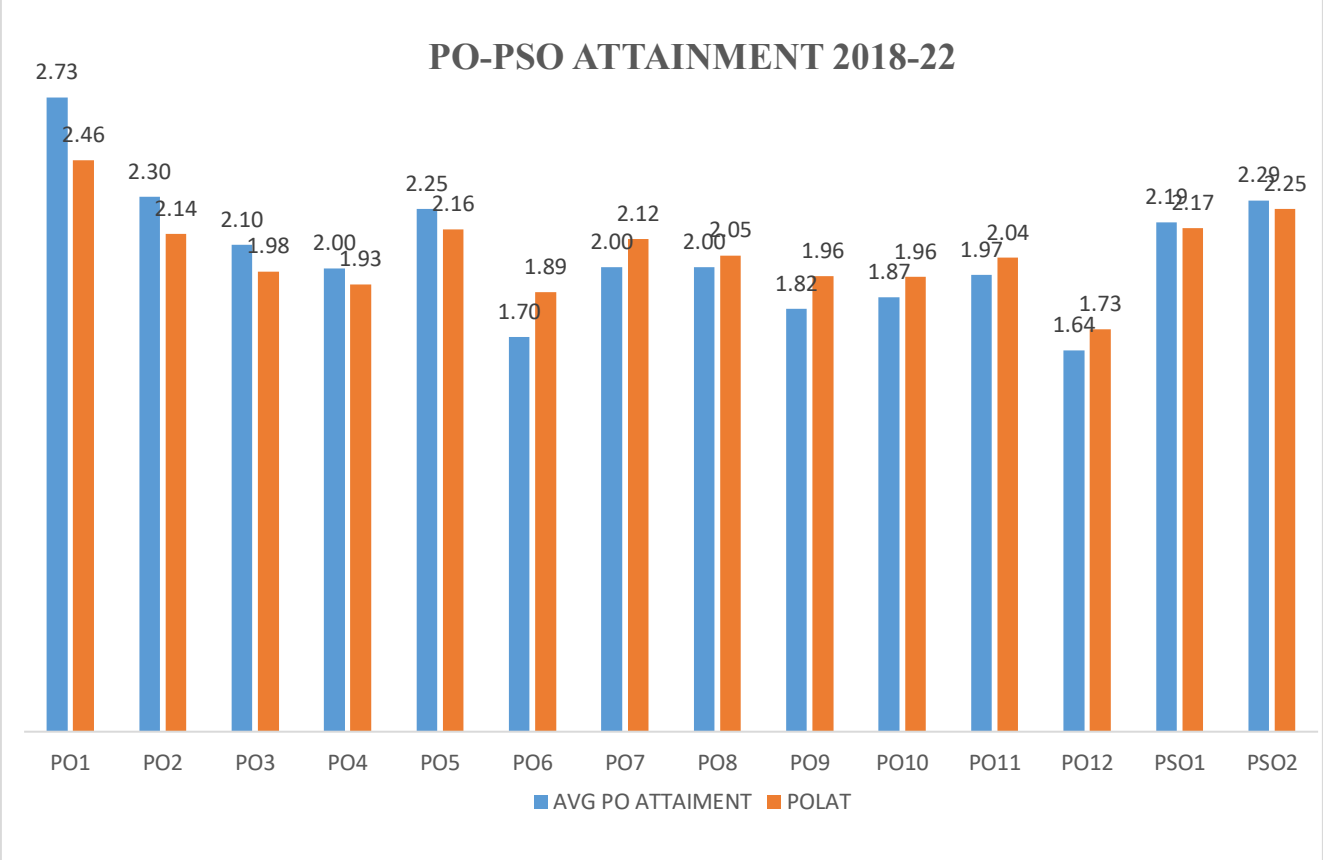
Attainments of PO-PSO of 2023-24



Attainment of PO-PSO of 2022-23



Attainment of PO-PSO of 2021-22



CRITERION 4	Students' Performance	150

4. STUDENT PERFORMANCE (150)

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY (2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)	CAYm4 (2020-21)	CAYm5 (2019-20)	CAYm6 (2018-19)
Sanctioned intake of the program (N)	30	30	30	60	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)	28	29	10 (9+1)	09+1	(26-1+1) =26	(73-2) = 71	104
Number of students admitted in 2nd year in the same batch via lateral entry (N2)	5	4	21	14	12	19	21
Separate division students (SNQ-Super Numeracy Quota), if applicable (N3)	1	2	-	2	6	6	6
Total number of students admitted in the Program (N1 + N2 + N3)	**34**	**35**	**31**	**26**	**44**	**96**	**131**

Table B.4a

CAY- Current Academic Year (2024-25)
CAYm1- Current Academic Year minus 1 = Current Assessment Year (2023-24)
CAYm2- Current Academic Year minus 2 = Current Assessment Year minus 1 (2022-23)
CAYm3- Current Academic Year minus 3 = Current Assessment Year minus 2 (2021-2022)
CAYm4 /LYG - Current Academic Year minus 4 / Last Year Graduate (2020-2021)
CAYm5 /LYGm1 - Current Academic Year minus 5 / Last Year Graduate minus 1 (2019- 2020)
CAYm6 / LYGm2 - Current Academic Year minus 6 / Last Year Graduate minus 2 (2018-2019)

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 (2024-25)	29 (28+0+1)				
CAYm1 (2023-24)	35 (29+4+2)	8			
CAYm2 (2022-23)	31(10+21+0)	2	7		
CAYm3 (2021-22)	26(10+14+2)	6	13 (6+7)	8 (5+3)	8 (5+3)
CAY m4 (2020-21)	43(25+12+6)	8	5 (4+1)	5 (4+1)	5 (4+1)
CAY m5 (2019-20)	96(71+19+6)	34	22 (18+4)	14 (12+2)	14 (12+2)
CAY m6 (2018-19)	131(104+21+6)	38	42 (33+9)	37 (29+8)	36 (29+7)

Table B.4b

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 (2024-25)	29 (28+0+1)				
CAYm1 (2023-24)	35 (29+4+2)	22			
CAYm2 (2022-23)	31(10+21+0)	9	27		
CAYm3 (2021-22)	26(10+14+2)	11	23(10+13)	23 (10+13)	23 (10+13)
CAY m4 (2020-21)	43(25+12+6)	31	43 (31+12)	42 (29+13)	41(28+13)
CAY m5 (2019-20)	96(71+19+6)	79	94 (75+19)	92 (72+20)	92 (72+20)
CAY m6 (2018-19)	131(104+21+6)	81	100(80+20)	98 (78+20)	98 (78+20)

Table B.4c

4.1 Enrolment Ratio (20)

Enrolment ratio = N1/N =

Sl. No	Year	N1	N	Enrolment ratio (N1/N)	Marks Obtained
1	CAY (2024-25)	28	30	0.93	20
2	CAYm1 (2023-24)	29	30	0.97	20
3	CAY m2 (2022-23)	10	30	0.33	0
Average				0.74	16

Table B.4.1

4.2. Success Rate in the stipulated period of the program (40)

4.2.1. Success rate without backlogs in any semester/year of study (25)

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 = 25 × Average SI= 25 X 0.179= **4.475**

Item	Latest Year of Graduation LYG (2023-24) / CAYm4 (2020 Batch)	Latest Year of Graduation LYG m1 (2022-23) / CAYm5 (2019 Batch)	Latest Year of Graduation LYG m2 (2021-22) / CAYm6 (2018 Batch)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	43(25+ 12+6)	96(71+19+6)	131(104+21+6)
Number of students who have graduated without backlogs in the stipulated period	5(4+1)	14 (12+2)	36 (29+7)
Success Index (SI)	**0.116**	**0.145**	**0.275**
Average SI	**0.179**		

Table B.4.2.1

4.2.2. Success rate with backlog in stipulated period of study (15)

SI = (Number of students who graduated from the program in the stipulated period of course duration) / (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 = 15 × Average SI = =15 X 0.885= **13.28**

Item	LYG (2023-24) / CAYm4 (2020 Batch)	LYG (2022-23) / CAYm5 (2019 Batch)	LYG (2021-22) / CAYm6 (2018 Batch)
Number of students admitted in the corresponding First Year + admitted in 2nd year via lateral entry and separate division, if applicable	43(25+ 12+6)	96(71+19+6)	131(104+21+6)
Number of students who have graduated in the stipulated period	41(28+13)	92 (72+20)	98 (78+20)
Success Index (SI)	**0.95**	**0.958**	**0.748**
Average SI	**0.885**		

Table B.4.2.2

4.3. Academic Performance in Third Year (15)

Academic Performance = 1.5 x Average API (Academic Performance Index)

API = ((Mean of 3rd 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 Third 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 final year.

Academic Performance	CAYm1 2023-24 (2021 Batch	CAYm2 2022-23 (2020 Batch	CAYm3 2021-22 (2019 Batch
Mean of CGPA or Mean Percentage of all successful students (X)	7.65	6.78	6.40
Total no. of successful students (Y)	23	41	92
Total no. of students appeared in the examination (Z)	23	43	95
API = X* (Y/Z)	**7.65**	**6.46**	**5.598**
Average API = (AP1 + AP2 + AP3)/3	**6.569**		

Table B.4.3

Academic Performance = 1.5 x Average API = 1.5 X 6.569 = **9.85**

4.4. Academic Performance in Second Year (15)

Academic Performance Level = 1.5 x Average API (Academic Performance Index)

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.

Academic Performance	**CAY m1 2023-24 (2022 Batch)**	**CAY m2 2022-23 (2021 Batch)**	**CAY m3 2021-22 (2020 Batch)**
Mean of CGPA or Mean Percentage of all successful students (X)	7.19	7.61	6.27
Total no. of successful students (Y)	27	23	42
Total no. of students appeared in the examination (Z)	28	23	42
API = X* (Y/Z)	**6.93**	**7.61**	**6.27**
Average API = (AP1 + AP2 + AP3)/3	**6.937**		

Table B.4.4

Academic Performance = 1.5 x Average API = 1.5 X 6.937 = **10.405**

Academic Performance in First Year

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

Academic Performance	**CAY m1 2023-24 (2023 Batch)**	**CAY m2 2022-23 (2022 Batch)**	**CAY m3 2021-22 (2021 Batch)**
Mean of CGPA or Mean Percentage of all successful students (X)	7.03	6.54	5.76
Total no. of successful students (Y)	30	09	11
Total no. of students appeared in the examination (Z)	30	09	11
API = X* (Y/Z)	**7.03**	**6.54**	**5.76**
Average API = (AP1 + AP2 + AP3)/3	**6.443**		

Table B.4.4.1

4.5 Placement, Higher studies and Entrepreneurship (40)

Assessment Points = 40 X Average placement

Item	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
Total No. of Final Year Students (N)	41	92	98
No. of Students placed in companies or Government Sector (x)	31	63	56
No. of students admitted to higher studies with valid qualifying score (GATE or equivalent state or National level Tests, GRE, GMAT etc.) (y)	04	05	02
No. of students turned entrepreneur in engineering/technology (z)	01	02	00
x + y + z =	36	70	58
Placement Index : (x + y + z) / N	**0.878**	**0.76**	**0.592**
Average placement = (P1 + P2 +P3) / 3	**0.743**		

Table B.4.5

Assessment Points = 40 X Average placement = 40 X 0.743 = **29.73**

4.5a. Provide the placement data in the below mentioned format with the name of the program and the assessment year:

Mechanical Engineering-CAYm1 (2023-24)				
Sl. No.	**Name of the student placed**	**Enrolment No.**	**Name of the Employer**	**Appointment Letter reference No. With date**
1.	ADARSH M	1SJ20ME001	Fowler Westrup (India) Private Limited and Entrepreneur	Offer letter (01/08/2024)
2.	BABU REDDY G N	1SJ20ME003	BRIGADE HONDA, M/S SRI LAKSHMI AUTOMOBILES PVT LTD	Offer letter (15/11/2024)
3.	BHARATH T	1SJ20ME004	Hitachi Astemo FIE Private Limited	Employee Code: 460741 (11/08/2024)
4.	CHANDAN KUMAR S	1SJ20ME005	Hitachi Astemo FIE Private Limited	Employee Code: 460740 (11/08/2024)
5.	CHETHAN K	1SJ20ME006	Hitachi Astemo FIE Private Limited	Employee Code: 460752 (11/08/2024)
6.	DEEPIKA L	1SJ20ME008	Suprajit Automotive pvt ltd	Offer letter (27/06/2024)
7.	DILEEP KUMAR M M	1SJ20ME009	Suprajit Automotive pvt ltd	Id Card (Emp No. 8643)
8.	JAYANTH M	1SJ20ME012	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	Ref: FHHTIMDPL/FXBL/3799/PE_FXBL Project/PE-ME_FXBL Project/2024 (27/09/2024)
9.	LOKESH A	1SJ20ME016	Hitachi Astemo FIE Private Limited	Employee Code: 460742 (11/08/2024)

10.	MAHAMMAD NAWAZ	1SJ20ME017	Fowler Westrup (India) Private Limited	Offer letter (01/08/2024)
11.	MANOJ B	1SJ20ME018	INDO-MIM Pvt ltd	ID and Offer Letter Emp Code: 38697-GAT (28/10/2024)
12.	MRUTHYUNJAYA R	1SJ20ME021	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	Ref: FHHTIMDPL/FXBL/2351/PE_FXBL Project/PE-ME_FXBL Project/2024 (30/09/2024)
13.	NITHISH KUMAR T M	1SJ20ME022	Fowler Westrup (India) Private Limited	Offer letter (22/06/2024)
14.	SHARAN KUMAR K M	1SJ20ME026	INDO-MIM Pvt ltd	Offer letter (Ref No: IM/PM/2024) (02/04/2024)
15.	TEJAS B M	1SJ20ME027	Universal Corporation Ltd	Offer letter (22/10/2024)
16.	VINAY B A	1SJ20ME030	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	id card and offer letter is available Ref: FHHTIMDPL/FXBL/4896FAC_FXBL/2024 (27/09/2024) (EMP ID: HH0020210) (19/12/2024)
17.	VIVEK M C SHEKAR	1SJ20ME032	EXEDY CLUTCH INDIA PVT LTD	Ref No: 190515-001 (20/08/2024)
18.	DHANUSH N.N	1SJ21ME400	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	Id card is available (EMP ID: HH0021796)
19.	LIKITH CAHANDU	1SJ21ME401	Yunijet aerospace Bangalore	Id card is available

				EMP ID: UA007
20.	NITHIN A	1SJ21ME405	Suprajit Automotive pvt ltd	Offer letter (27/06/2024)
21.	SATISH BABU	1SJ21ME407	HAL Bangalore	Ref No: F/TRG/02-SEL/GEA-15/2024 (11/06/2024)
22.	TELUKALA PAVAN KUMAR SAHU	1SJ21ME411	Hitachi Astemo FIE Private Limited	ID Card (Emp Code: 460745)
23.	DEEPAK KUMAR K J	1SJ20ME007	Gate Qualified	GATE CARD IS AVAILABLE (Enrollment ID: T445e63) (Reg No: ME24S21323022)
24.	KURUBA NAGESH	1SJ20ME015	Christ University Bangalore	Id Card (MTMD 2467207)
25.	ROSHAN ZAMEER J R	1SJ20ME024	Christ University Bangalore	Id Card (MTMD 2467205)
26.	UMAR FAROOQ S A	1SJ20ME029	Christ University Bangalore	ID CARD (MTMD 2467206)
27.	MOHAMMED SAIF	1SJ20ME020	ANS Silk Khadi Industry Association Bangalore	Registration certificate available (Ref No.: DRBR/SOR/55/2024-25) (14/10/2024)
28.	ESHWAR B M	1SJ20ME010	XERVI INNOVATION CENTRE	01/07/2025
29.	SAIKOUSHIK P	1SJ20ME025	Sai India Ltd	02/05/2025
30.	VINITH KUMAR S	1SJ20ME031	EXEDY Clutch India Pvt Ltd	HROL-190515-001
31.	NANDAN B.M	1SJ21ME404	INDO-MIM Pvt ltd	Emp Id: 38698
32.	RAJASHEKARA	1SJ21ME406	FOXCONN HON HAI	01/09/2025

	REDDY M.S		TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	
33.	SHASHANK M.S	1SJ21ME409	TOYOTA KIRLOKAR BANGALORE	01/09/2025
34.	SUDARSHAN S	1SJ21ME410	Clara Pvt Ltd	01/08/2025
35.	MITHUN L	1SJ20ME019	Suprajit Automotive pvt ltd	01/09/2025
36.	THARUN A	1SJ20ME028	SPNN Business Service Private ltd	01/08/2025
Mechanical Engineering-CAYm2 (2022-23)				
Sl. No.	**Name of the student placed**	**Enrolment No.**	**Name of the Employer**	**Appointment Letter reference No. With date**
1.	ADARSH M	1SJ19ME001	Workex Solution and Services Pvt Ltd.	Letter of Intent (22/10/2023)
2.	AMRUTH V M	1SJ19ME004	Maini Precision Products Ltd	Ref: MPP/HR/EOL/2023 (24/11/2023)
3.	CHETHANRAJ D N	1SJ19ME010	OMI MATRIX DODDABALLAPUR/HITACHI DODDABALLAPUR	2023
4.	CHIRAG C	1SJ19ME011	TriP Factory, Doddaballapur	26/12/2023
5.	DHANUSH B	1SJ19ME012	TEACHNOOK/MICROTEK, CHICKBALLAPUR	OL No: TN9107 (28/02/2023)
6.	DHANUSH N	1SJ19ME013	CADD CENTRE Bangalore	91KA1145/1061 (21/09/2023)
7.	GAGAN GOWDA C	1SJ19ME014	WISTRON , NARASAPURA	EMP ID: 219587
8.	GANESH U	1SJ19ME015	MINIPRECISION PEENYA	
9.	HARSHITH GOWDA T L	1SJ19ME016	TEACHNOOK	
10.	HARSHITH K	1SJ19ME017	PAYTM, SALEEXECUTIVE,	

			YELAHANKA	
11.	JAHNAVI KRUPA A	1SJ19ME018	TCS	ID No. 1268242
12.	JASHWANTH J	1SJ19ME019	TEACHNOOK	OL No: TN9060 (28/02/2023)
13.	KARTHIK B N	1SJ19ME021	Engineer and technology solution Bangalore	
14.	KEERTHANA B K	1SJ19ME022	IMI BANGALORE	ID No: 133969
15.	KUMAR S	1SJ19ME024	M/S RINEX TECHNOLOGIES / SKYDNE GLOBAL SOLUTION, BANGALORE	
16.	KURUBA AVINASH	1SJ19ME025	KIA Motors	EMP ID: 98011543
17.	LAKSHAY KUMAR SINGH	1SJ19ME027	TCS	Ref: TCSL/DT20222930007/Bangalore
18.	LIKITH K N	1SJ19ME028	RESOURCE PRO DODDABALLAPUR	Id card is available
19.	MADHU K	1SJ19ME029	AEROSPACE INDIA PVT BANGALORE	
20.	MADHU M N	1SJ19ME030	Omni matrix pvt ltd doddaballapur	EMP Id: HH0021734
21.	MANJUNATH C	1SJ19ME031	EXCELLER EDTECH PVT, LTD	HSN/SAC/999293
22.	MANOHAR H K	1SJ19ME032	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	Ref: FHHTIMDPL/FXBL/9304/MLB MFG Department_FXBL/MLB MFG Section_GXBL/2024

23.	MANOJ H V	1SJ19ME034	AEROSPACE INDIA PVT BANGALORE	EMP ID: A0113
24.	MOHAMMED SHOAIB	1SJ19ME037	ALTEN	Emp No: 6732
25.	MOHANKRISHNA N	1SJ19ME039	Interior and Exterior pvt ltd Bangalore	Emp ID-229
26.	MOHITH K V	1SJ19ME040	TRIP FACTORY DODDABALLAPUR	26/12/2023
27.	NANDHINI G	1SJ19ME043	CAPGEMINI TRAINING	
28.	NIKHIL K M	1SJ19ME044	DESMACO BANGALORE	EMP ID: 1075
29.	NITHIN M	1SJ19ME045	FOXCONN HON HAI TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	Emp No: HH0013642
30.	NITHIN M	1SJ19ME046	YasHas Management Solution Pvt Ltd (BFW), Bangalore	
31.	PUNITH D S	1SJ19ME053	TEACHNOOK/ETHNUS	CIN: U80212KA2010PTC054851
32.	RAMESHWAR B M	1SJ19ME057	SWITCH GEAR AND CONTROL TECHNIQUES PVT LTD	SCTPL/HR/A-LTR/2023
33.	SAGAR T A	1SJ19ME058	VOLVO BUS PVT LTD, BANGALORE	ID No: PI24027
34.	SANDEEP B R	1SJ19ME059	M/S RINEX TECHNOLOGIES	CIN: U74999KA2021PTC143276
35.	SANJAY S	1SJ19ME061	PORD TECHNOLOGY CHICKBALLAPUR	EMP No: PT011
36.	SEETHARAM S	1SJ19ME063	AVERY DENESSION/ PORD TECHNOLOTY	
37.	SHAILESH N	1SJ19ME064	HCL Tech	Document ID - 9820017f-e612-

				406e-858a-2d67c5e90e5c
38.	SHASHANK V	1SJ19ME066	AUTOLIV	20230623
39.	SHREYAS L	1SJ19ME067	AUTOLIV	20230623
40.	SREEDHAR A	1SJ19ME069	ICON PROJECT FUND ENGG SOLUTION	
41.	UDAY KIRAN G R	1SJ19ME075	Doing Job	
42.	VIJAYKUMAR K S	1SJ19ME077	SKY DYNAMICS BANGALORE (ENTREPNUER)	Registration No: 29CTLPV8715R1Z9
43.	VIVEK B	1SJ19ME078	TATA MOTORS	Ref: FIAPL:HR:CAR:GAT:54
44.	YASHWANTH K N	1SJ19ME079	M/S QUEST INFORMATICS	
45.	ABHILASH K N	1SJ20ME400	MAHENDRA AEROSPACE BANGALORE	
46.	AJAYKUMAR G	1SJ20ME401	Topaz Fire system Bangalore	EMP ID: TF073
47.	ASHOKA C	1SJ20ME402	YUKEN INDIA PVT LTD	Ref No: 873209 EMP No: 2808
48.	BHAVAN D	1SJ20ME403	AEROSKY PVT LTD BANGALORE	EMP No: A0099
49.	CHANDAN GOWDA T N	1SJ20ME404	MAHARSHI METALLICS, BANGALORE	
50.	DEEPAK N	1SJ20ME406	FUTUREARTH GROUP	ID card is Available
51.	G CHANDAN	1SJ20ME407	L&T Apprencities Bangalore	
52.	HARSHITHA A	1SJ20ME408	FOXCONN HON HAI	Ref:

			TECHNOLOGY INDIA MEGA DEVELOPMENT PVT LTD	FHHTIMDPL/FXBL/1385/FATP-AAE_FXBL/AAEFATP_FXBL/2024 EMP No: HH0013864
53.	JAYATEERTHA C A	1SJ20ME409	CREATIVE SYNERGIES GROUP	20240101
54.	K G RAJEEV IYENGAR	1SJ20ME410	TRANSWIND PVT LTD BANGALORE	EMP No: 73
55.	KARTHIK K J	1SJ20ME411	CORIZO, BANGALORE	
56.	NANDA KISHORE R	1SJ20ME413	TECHMAHENDRA BANGALORE/Unijet aerosky Bangalore	EMP ID: UA0010
57.	PAVANKUMAR	1SJ20ME414	Westron	
58.	PRADEEP N	1SJ20ME415	WISTRON NASARAPURA	ID No: MI23090311
59.	SUMANTH Y S	1SJ20ME417	MAHENDRA AEROSPACE BANGALORE	Ref No: AKAKL4729634
60.	VARSHITH GOWDA L	1SJ20ME418	SATS FOOD SOLUTION PVT LTD	Ref: HR/BC/APP/TR/002/2023-24 EMP No: B 1002
61.	ANIRUDH	1SJ19ME005	MMD SJCIT Chickballapur	1SJ23MMD01
62.	AKARSH M	1SJ19ME002	Higher study at Malankara Mar Thoma Syrian Church	CLRG/7-2/2024/1800
63.	BHUVAN ATHRESH S	1SJ19ME007	M.Tech SJCIT Chickballapur	1SJ23MMD02
64.	NAGENDRA BABU N P	1SJ19ME041	M.Tech SJCIT Chickballapur	1SJ23MMD04

65.	RAHUL M	1SJ19ME055	Tele Perform BANGALORE	ID CARD: 5976502
66.	SUDEEP GOWDA N	1SJ19ME072	Entreprenure SAM Interior and Construction and Shobha Paper Plate Industry	Registration No.: 29DZTPG9944N1Z2
67.	SWASTHIK K M	1SJ19ME073	CAE AUTOMOTIVE GOLDE ROOF BANGALORE	Id card : 40001
68.	V S MONISH	1SJ19ME076	ATLANTA ELECTRICAL DODDABALLAPUR	Offer Letter is available: 12/08/2025
69.	SHRINIDHI KULKARNI	1SJ19ME068	SUKHENA TECHNOLOGY	HR/App/Feb/25-26/003
70.	TABREZ PASHA	1SJ19ME074	TRANS SPACE LTD MALUR	01/09/2025
Mechanical Engineering-CAYm3 (2021-22)				
Sl. No.	**Name of the student placed**	**Enrolment No.**	**Name of the Employer**	**Appointment Letter reference No. With date**
1.	ABHILSH G A	1SJ18ME004	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
2.	ABHISHEK C	1SJ18ME005	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220425
3.	ABHISHEK REDDY M	1SJ18ME006	TVS MOTOR COMPANY ltd, PB No. 4, Harita, Hosur, Tamil nadu -635109	20211020

4.	ANUREDDY J	1SJ18ME007	INDO-MIM PVT LTD, #45(P), KIADB Industrial Area Doddaballapur, Bengaluru, Karnataka 561203 Phone: 080 2204 8800	20220609
5.	ATTAR SAIFULLA	1SJ18ME009	VIVA TOYOTA/VK NEOPHYTECH	20220425
6.	BHARATH G M	1SJ18ME012	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220425
7.	BHARGAV REDDY K R	1SJ18ME014	Girmiti Software	1716
8.	CHETHAN GOWDA M	1SJ18ME024	PENTAGONSPACE/VK NEOPHYTECH	20220425
9.	DHANUSH S	1SJ18ME028	PENTAGONSPACE	20220425
10.	DURGA PRASAD G A	1SJ18ME030	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220425
11.	FAIZAN AHMAD KHAN	1SJ18ME031	BYJUS, 3326, 7th Cross Rd, HAL 2nd Stage, Doopanahalli, Indiranagar, Bengaluru, Karnataka 560008	20220519
12.	GANGOTHRI V	1SJ18ME032	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220425
13.	HARISHA G N	1SJ18ME035	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220425

14.	HEMANTH A N	1SJ18ME037	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220425
15.	HEMANTH KUMAR D	1SJ18ME038	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220425
16.	HEMANTHKUMAR V R	1SJ18ME040	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220425
17.	KARTHIK M	1SJ18ME043	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220605
18.	KASIBOYANA ANJANI KUMAR	1SJ18ME045	CAPGEMINI, Summit Tower A, 73/1, Whitefield Main Rd, Garudachar Palya, Mahadevapura, Bengaluru, Karnataka 560048 Phone: 080 6177 2300	2290645
19.	KIRANKUMAR S	1SJ18ME049	INDO-MIM PVT LTD, #45(P), KIADB Industrial Area Doddaballapur, Bengaluru, Karnataka	20220609

			561203 Phone: 080 2204 8800	
20.	KIRANKUMAR S B	1SJ18ME050	WIPRO, Papanna Street, Off, St Mark's Rd, Bengaluru, Karnataka 560001 Phone: 080 3058 2902	20220421
21.	LIKHITH S	1SJ18ME052	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
22.	MANJUNATH B	1SJ18ME054	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
23.	MANOJ KUMAR N M	1SJ18ME057	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
24.	MOHAN KUMAR B S	1SJ18ME058	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
25.	NAGARAJ B	1SJ18ME060	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka	20220608

			560100 Phone: 063667 61922	
26.	NIKHIL M D	1SJ18ME065	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
27.	NITHIN M	1SJ18ME067	TCS, MANYATA TECH PARK-1, Nagavara, Bengaluru, Karnataka 560045 Phone: 090606 86291	20211031
28.	PAVAN YADAV H N	1SJ18ME068	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
29.	PRAJWAL R	1SJ18ME071	CAPGEMINI, Summit Tower A, 73/1, Whitefield Main Rd, Garudachar Palya, Mahadevapura, Bengaluru, Karnataka 560048 Phone: 080 6177 2300	2314306
30.	RAHUL S	1SJ18ME076	CAPGEMINI, Summit Tower A, 73/1, Whitefield Main Rd, Garudachar Palya, Mahadevapura, Bengaluru, Karnataka 560048 Phone: 080 6177 2300	2325186
31.	RAJDEEP SHAW	1SJ18ME077	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka	20220610

			560100 Phone: 063667 61922	
32.	RAJESH D S	1SJ18ME078	CAPGEMINI, Summit Tower A, 73/1, Whitefield Main Rd, Garudachar Palya, Mahadevapura, Bengaluru, Karnataka 560048 Phone: 080 6177 2300	20220608
33.	RAKSHITHA N R	1SJ18ME081	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
34.	RANJITH N	1SJ18ME082	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
35.	ROHITH MAHADEV HONAKATTI	1SJ18ME084	WIPRO, Papanna Street, Off, St Mark's Rd, Bengaluru, Karnataka 560001 Phone: 080 3058 2902	20220608
36.	SAGAR V	1SJ18ME085	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
37.	SANJAY N	1SJ18ME089	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka,	20220608

			Bangalore-562157	
38.	SANTHOSH K G	1SJ18ME090	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
39.	SHAKSHA A N	1SJ18ME091	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
40.	SHAM SUNDAR G K	1SJ18ME092	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
41.	SHREEHARSHA A	1SJ18ME094	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
42.	SHREYAS S	1SJ18ME095	WIPRO, Papanna Street, Off, St Mark's Rd, Bengaluru, Karnataka 560001 Phone: 080 3058 2902	20220608
43.	SINDHU	1SJ18ME096	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
44.	SPOORTHI V	1SJ18ME097	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
45.	SURAJ M	1SJ18ME099	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD	20220608

			2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	
46.	VARSHNI V G	1SJ18ME101	INDO-MIM PVT LTD, #45(P), KIADB Industrial Area Doddaballapur, Bengaluru, Karnataka 561203 Phone: 080 2204 8800	20220609
47.	VIJAY G	1SJ18ME103	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220608
48.	VISHWAS S	1SJ18ME104	TCS, MANYATA TECH PARK-1, Nagavara, Bengaluru, Karnataka 560045 Phone: 090606 86291	20211031
49.	YATHISHGOWDA K R	1SJ18ME106	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220608
50.	AJAY KUMAR YADAV B V	1SJ19ME400	ATRIA BRIDAVAN POWER PVT LTD	20220715
51.	BHANUPRAKASH P	1SJ19ME403	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka	20220608

			560100 Phone: 063667 61922	
52.	HARISHA G R	1SJ19ME406	INDO-MIM PVT LTD, #45(P), KIADB Industrial Area Doddaballapur, Bengaluru, Karnataka 561203 Phone: 080 2204 8800	20220609
53.	NIRMAL C M	1SJ19ME413	ACCENTURE, Bagmane Developers Pvt Ltd SEZ-II Marathalli Ring Road, KR Puram Hobli, Doddanekundi, Bengaluru, Karnataka 560048 Phone: 080 4233 0100	20220509
54.	PUNITH KUMAR V	1SJ19ME414	ATRIA POWER, ATRIA BRINDAVAN POWER PRT LTD, 1ST FLOOR, NO.11, COMMISSARIAT ROAD, BENGALURU-560025, Ph.No: +91 -80-49411411, www.atriapower.com	20220715
55.	RAVITEJA T S	1SJ19ME417	VK NEOPHYTECH, VK NEOPHYTECH (P) LTD 2nd floor, Center point, 1st Main Rd, Electronics City Phase 1, Electronic City, Bengaluru, Karnataka 560100 Phone: 063667 61922	20220508
56.	ARUNKUMAR K R (coc)	1SJ19ME421	VIVA TOYOTA, No. 171/1, Hunasamaranahalli, Jala hobli, Yelahanka, Bangalore-562157	20220608
57.	NAVEEN N N	1SJ18ME062	FRIEDRICH ALEXANDER UNIVERSITAT ERLANGEN-NURNBERG	23202722

58.	ROHAN R	1SJ18ME083	Fachhochschule des Mittelstands (FHM) Germany	123020419

Table B.4.5a

4.6 Professional Activities (20)

4.6.1 Professional Societies/Chapters and organizing & Engineering Events (5)

The following are the Professional Societies or Chapters exist in the Department

Sl. No	Name of Professional Societies/Chapters	Year of Establishment	Academic Year	No. Of students Enrolled
1	ISHRAE (Indian Society of Heating Refrigeration and Air conditioning Engineers)	2008	2023-24	15
			2022-23	17
			2021-22	32
2	ASM (American Society of Metals)	2018	2020-21	-
			2019-20	16
			2018-19	31

Table B.4.6.1a

Activities conducted under ISHRAE student chapter:

Sl. No.	Name of the student	USN	Name of the Activity	Date and Place
1	All ISHRAE chapter students	24 students	Auto EV India Expo 2024 KTPO	29/11/2024, KTPO Convention Centre White Field Bangalore
2	All IV and VI semester ISHRAE chapter students	43 No.	Technical Talk on Refrigeration and Air Conditioning	06/06/2023, MED Seminar Hall
3	All VI ISHRAE chapter students	24 No.	Entrepreneurship Awareness Program	19/04/2023, Seminar Hall, Aerotek Design, Banglaore
4	Shreyas L	1SJ19ME067	Participated in "ISHRAE	09/03/2023, ISHRAE

	Shailesh N Gagan Gowda C and Kumar S	1SJ19ME064 1SJ18ME097 1SJ18ME007	aQUEST-Chapter Level Quiz Competation Program	Bangalore chapter at Nitte Meenakshi Institute Bangalore
5	All VI semester ISHRAE chapter students	25 No.	Industry Exposer	08/03/2023, Aerotek Industry Pvt Ltd Bangalore
6	All IV and VI ISHRAE chapter students	52 No.s	Visited VTS TF Air handling and Conditioning Systme	02/07/2022, VTS TF Air System Bangalore
7	All VI ISHRAE chapter students	34 No.s	Industry tour	03/12/2022, Climaveneta industry Narasapura

Fig. Activities conducted under ISHRAE student Chapter.

4.6.2 Publication of Technical Magazines, Newsletters etc., (5)

The following are the student (s) presented the papers in Reputed Journals and Outside of the Campus

Sl. No.	Name of the Student (s)	USN	Tittle	Date	Details
1.	Naveen N N	1SJ18ME062	Advancements in Electronics Skin	23/07/2022	IRJMETS, Volume 4, Issue 07, July 2022
2.	Abhilasah G A Hemanthkumar V R Kirankumar S B	1SJ18ME004 1SJ18ME040 1SJ18ME050	Development of Battery Operated Weed Remover	27th and 28th May 2022	NCMDM -2022 JSS Academy of Technical Education Bangaore
3	Abhishek Reddy M	1SJ18ME006	Design and Development of Option able Operating Hybrid Two Wheeler Vehicle	27th and 28th May 2022	NCMDM -2022 JSS Academy of Technical Education Bangaore


IRJMETS

International Research Journal Of Modernization in Engineering Technology and Science

(Peer-Reviewed, Open Access, Fully Refereed International Journal)

e-ISSN: 2582-5208

Ref: IRJMETS/Certificate/Volume 4/Issue 07/40700112854 Date: 23/07/2022

Certificate of Publication

This is to certify that author "Naveen NN" with paper ID "IRJMETS40700112854" has published a paper entitled "ADVANCEMENTS IN ELECTRONIC SKIN" in International Research Journal Of Modernization In Engineering Technology And Science (IRJMETS), Volume 4, Issue 07, July 2022

Editor in Chief

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JSS Academy of Technical Education

Department of Mechanical Engineering

Two Days

National Conference on

Emerging Trends in Materials, Design and Manufacturing - (NCMDM – 2022)

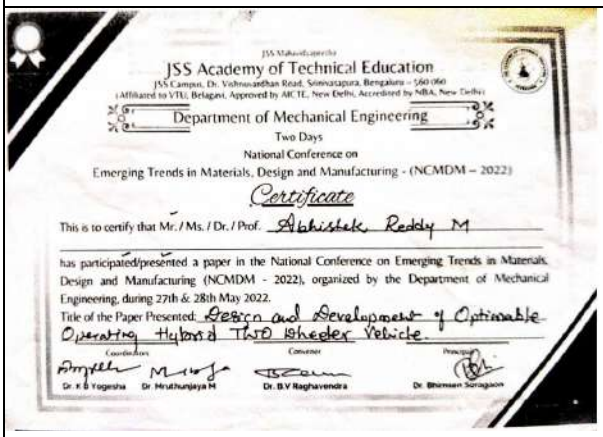
Certificate

This is to certify that Mr. / Ms. / Dr. / Prof. ABHILASH G A HEMANTHKUMAR VR, KIRANKUMAR SB - SJCIT

has participated/presented a paper in the National Conference on Emerging Trends in Materials, Design and Manufacturing (NCMDM - 2022), organized by the Department of Mechanical Engineering, during 27th & 28th May 2022.

Title of the Paper Presented: DEVELOPMENT OF BATTERY OPERATED WEED REMOVER

Dr. K B Yogesha Dr. Mruthunjaya M Dr. B.V Raghavendra Dr. Bhimsen Soragaon


JSS Academy of Technical Education

Department of Mechanical Engineering

Two Days

National Conference on

Emerging Trends in Materials, Design and Manufacturing - (NCMDM – 2022)

Certificate

This is to certify that Mr. / Ms. / Dr. / Prof. Abhishek Reddy M

has participated/presented a paper in the National Conference on Emerging Trends in Materials, Design and Manufacturing (NCMDM - 2022), organized by the Department of Mechanical Engineering, during 27th & 28th May 2022.

Title of the Paper Presented: Design and Development of Optimable Operating Hybrid Two Wheeler Vehicle.

Dr. K B Yogesha Dr. Mruthunjaya M Dr. B.V Raghavendra Dr. Bhimsen Soragaon

The following student(s) Presented Technical paper during their program of study at SJCIT.

Sl. No.	Name of the Student	USN	Title	Date	Place
1	Darshan S	1SJ21ME004	FABRICATION OF REGENERATIVE BRAKING SYSTEM	24th May 2025	National Conference on "Innovations in Engineering Science and Technology" Manthana-2025 SJCIT Chickballapur-562101
	Ashoka N	1SJ22ME403			
	Sai Prathap T	1SJ22ME411			
2	Dhanush S	1SJ21ME005	SMART WASTE	24th	National

	Shaik Ziyauoddin	1SJ21ME010	SEGREGATION SYSTEM	May 2025	Conference on "Innovations in Engineering Science and Technology" Manthana-2025 SJCIT Chickballapur-562101
	Ganesh B G	1SJ22ME404			
	Nagarjun M N	1SJ22ME408			
3	Sudarshan S	1SJ21ME410	A comparative study of Al-Mg Alloy on microstructure and mechanical properties prepared by casting and extrusion process	24th May 2024	National Conference on "Innovations in Engineering Science and Technology" Manthana-2024 SJCIT Chickballapur-562101
	Chethan K	1SJ20ME006			
	Dhanush N N	1SJ21ME400			
	Likhith Chandu	1SJ21ME401			
4	Shashank MS	1SJ20ME032	Design, Development and analysis of hybrid composites made up of natural fibres.	24th May 2024	National Conference on "Innovations in Engineering Science and Technology" Manthana-2024 SJCIT Chickballapur-562101
	Shashank G	1SJ20ME007			
	Nithin A	1SJ20ME027			
	Rajashekhar Reddy M S	1SJ21ME412			
5	Adharsh M	1SJ20ME001	Automatic motorbike stand slider	24th May 2024	National Conference on "Innovations in Engineering Science and Technology" Manthana-2024 SJCIT Chickballapur-562101
	Nithish Kumar T M	1SJ20ME022			
	Mruthyunjaya R	1SJ20ME021			
	Mohammed Saif	1SJ20ME020			
6	Bharath T	1SJ20ME004	Study of vibrational characteristics of AL6061 reinforced with Aluminium oxide and silicon carbide	24th May 2024	National Conference on "Innovations in Engineering Science and Technology" Manthana-
	Deepika L	1SJ20ME008			
	Jayanth M	1SJ20ME012			
	Mohammad Nawaz	1SJ20ME017			

					2024 SJCIT Chickballapur-562101
7	Anirudh	1SJ19ME005	Semi-Automatc Manhole Cleaning Machine	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Kuruba Avinash	1SJ19ME025			
	Vivek B	1SJ19ME078			
	Pooja P	1SJ19ME049			
8	Sanjay S	1SJ19ME061	Design and Development of Ornithopter Drone	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Shrinidhi Kulkarni	1SJ19ME068			
	Tabrez Pasha	1SJ19ME074			
	Yashwanth K N	1SJ19ME079			
9	Sandeep B R	1SJ19ME059	Exhaust Gas Heat Resrortion System in Automobile	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Shailesh N	1SJ19ME064			
	Shreyas L	1SJ19ME067			
	Sudeep Gowda N	1SJ19ME072			
10	Nikhil K M	1SJ19ME044	Desingn and Fabrication of Limb Exoskeleton	24th May 2023	Conference on "Innovations in Engineering Science and Technology"
	Sreedhar A	1SJ19ME069			
	Sridhar Reddy B	1SJ19ME071			

	Swasthik K M	1SJ19ME073			Manthana-2023 SJCIT Chickballapur-562101
11	Rameshwar B M	1SJ19ME057	Speed Locking System for Two Wheelers	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	V S Monish	1SJ19ME076			
	Rahul M	1SJ19ME055			
12	Chadive Sathish Kumar Reddy	1SJ19ME008	Design and Development of Power Pod	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Kethireddy Hruday Reddy	1SJ19ME023			
	Pothurai Ravikumar Reddy	1SJ19ME050			
	Pulugura Manjunath Reddy	1SJ19ME052			
13	Chandan Gowda T N	1SJ20ME404	Design and Fabrication of Pedal Operated Power Generator	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Jayateertha C A	1SJ20ME409			
	Varshith Gowda L	1SJ20ME418			
	Abhilash K N	1SJ20ME404			
14	Chandan Gowda M	1SJ18ME017	Smart Helmet Control Vehicle	24th May 2023	National Conference on "Innovations in Engineering
	Bhavan.D	1SJ20ME403			
	G Chandan	1SJ20ME407			

	Nandakishor R	1SJ20ME413			Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
15	Jahnavi Krupa A	1SJ19ME018	Solar base Grass Cutter	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Mohith K V	1SJ19ME040			
	Chandan N Gowda	1SJ20ME405			
	Deepak N	1SJ20ME406			
16	Balaji N	1SJ19ME006	Fabrication of Chainless Bicycle	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Chethanraj D N	1SJ19ME010			
	Madhu K	1SJ19ME029			
	Akshay M	1SJ19ME003			
17	Ajay Kumar G	1SJ20ME401	Development and Fabrication of Manually Operated Seed	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Ashoka C	1SJ20ME402			
	Harshith A	1SJ20ME408			
	Pradeep N	1SJ20ME415			
18	Keerthana B K	1SJ19ME022	The Development	24th	National

	Kumar S	1SJ19ME024	and Analysis of Heating System by using	May 2023	Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Prabhakar Y V	1SJ19ME051			
	Sagar T A	1SJ19ME058			
19	Nithin M	1SJ19ME045	Design and Development of 360 degree Portable Robotic	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Punith D S	1SJ19ME053			
	Rahul A	1SJ19ME054			
	Santosh N	1SJ19ME062			
20	Chirag C	1SJ19ME011	Vertical Axis Wind Turbine to generate Electric Power	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Kushal Y S	1SJ19ME026			
	Mohan H V	1SJ19ME038			
	Mohankrish N	1SJ19ME039			
21	Bhuvan Athresh S	1SJ19ME007	Development of Automatic Water Dispenser	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-
	Nandan H	1SJ19ME042			
	Jashwanth J	1SJ19ME019			
	Akarsh M	1SJ19ME002			

					562101
22	Ganesh U	1SJ19ME015	Design and Fabrication of Thermo-Electric Cooler	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Manjunath C	1SJ19ME031			
	Manohar H K	1SJ19ME032			
	Nagendra Babu N P	1SJ19ME041			
23	Dhanush N	1SJ19ME013	Design and Fabrication of Reactor for the extraction of Fuel	24th May 2023	National Conference on "Innovations in Engineering Science and Technology" Manthana-2023 SJCIT Chickballapur-562101
	Harshith Gowda T L	1SJ19ME016			
	Madhu M N	1SJ19ME030			
24	GIRISH KUMAR S	1SJ18ME034	Design and Fabrication of Automated Quality Inspection System for R T Shell Component	24th May 2022	National Conference on "Innovations in Engineering Science and Technology" Manthana-2022 SJCIT Chickballapur-562101
	KISHAN DEEKSHITH	1SJ18ME051			
	MANJUNATH B	1SJ18ME054			
	MANJUNATH E	1SJ18ME053			
25	BHARATH G M	1SJ18ME012	Design of Voice Operated Motorized Exoskeleton Arm	24th May 2022	National Conference on "Innovations in Engineering Science and Technology" Manthana-2022 SJCIT Chickballapur-562101
	DHANUSH S	1SJ18ME028			
	CHANDAN B M	1SJ18ME016			
	BHARATH KUMAR G M	1SJ18ME013			
26	BHARATH G	1SJ18ME011	Design and	24th	National

	CHARAN KUMAR K	1SJ18ME021	Fabrication of Limb Exoskeleton	May 2022	Conference on "Innovations in Engineering Science and Technology" Manthana-2022 SJCIT Chickballapur-562101
	CHETHAN GOWDA M	1SJ18ME024			
	CHARAN KUMAR N	1SJ18ME022			
27	ANUREDDY J	1SJ18ME007	Design and Development of Hydrogen Powered Household	24th May 2021	National Conference on "Innovations in engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	GANGOTHRI V	1SJ18ME032			
	K ABDUL WASEEM	1SJ18ME042			
	KASIBOYANA ANJANI KUMAR	1SJ18ME045			
28	DURGA PRASAD G A	1SJ18ME030	Design and Fabrication of Paddy Transplanter Machine	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	KIRANKUMAR S	1SJ18ME049			
	LIKHITH S	1SJ18ME052			
	PAVAN YADAV H N	1SJ18ME068			
29	GIRIDHARSHAN K V	1SJ18ME033	Design and Development of Coin Sorting Machine	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	HEMANANTH KUMAR D	1SJ18ME038			
	JAGATHKUMAR C	1SJ18ME041			
	KARTHIK M	1SJ18ME043			
30	HARISH G R	1SJ19ME406	Modeling and Fabrication of Emergency Hand Brake System	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-
	KEMPARAJU K U	1SJ19ME407			
	NIRMAL C M	1SJ19ME413			
	RAGHAVENDRA K	1SJ19ME415			

					2021 SJCIT Chickballapur-562101
31	MOHAN KUMAR B S	1SJ18ME058	Manually Operated Seed Sowing Machine	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	BHARGAV REDDY K R	1SJ18ME014			
	NANDISH P C	1SJ18ME061			
	NAVEEN N	1SJ18ME062			
32	KEERTHI U	1SJ18ME047	Development of Areca Nut Tree Climbing and Harvesting	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	KIRAN I M	1SJ18ME048			
	MANOJ B G	1SJ18ME055			
33	RAHUL S	1SJ18ME076	Development and Fabrication of Hybrid Wind and Hydro	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	RAJU N HEERAPUR	1SJ18ME079			
	ROHAN R	1SJ18ME083			
	YERASI SHIVA JAGAN YADAV	1SJ18ME107			
34	NAYAZ B	1SJ18ME064	Design and Development of Drilling Machine using PLC	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	SHAKSHA A N	1SJ18ME091			
	ZAMEER PASHA C	1SJ18ME110			
	SANGAMESHWAR	1SJ18ME087			
35	SAGAR V	1SJ18ME085	Design and Fabrication of Shaft Driven Hybrid	24th May 2021	National Conference on "Innovations
	VISHWAS S	1SJ18ME104			

	NITHIN M	1SJ18ME067	Bicycle		in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	PRATHIK S	1SJ18ME073			
36	RAJDEEP SHAW	1SJ18ME077	Design and Fabrication of Mecanum Wheel for Pesticide	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	SANJAY L	1SJ18ME088			
	SURAJ M	1SJ18ME099			
	RANJITH M	1SJ18ME082			
37	ROHITH MAHADEV HONAKATTI	1SJ18ME084	Mechanically Automativ Drainage Cleaner	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	YUVARAJREDDY B N	1SJ18ME109			
38	ANIL	1SJ19ME402	Design and Fabrication of Solar Powered Air Purifier	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	BHANU PRAKASH	1SJ19ME403			
	MAHESH M	1SJ19ME409			
	ARUN KUMAR K R	1SJ19ME421			
39	ABHISHEK REDDY M	1SJ18ME006	Design and Development of optional operating hybrid two wheeler vehicle.	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-
	ATTAR SAIFULLA	1SJ18ME009			
	FAIZAN AHMAD KHAN	1SJ18ME031			
	KATTEL DURGA	1SJ18ME046			

	PRASAD				562101
40	MANOJ S	1SJ19ME410	Automation of Bending Sequence using Pneumatic Drives	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	SANDEEP C M	1SJ19ME418			
	VIJAY KUMAR H M	1SJ19ME420			
41	ABHISHEK C	1SJ18ME005	Design and fabrication of Wireless Robotic Fire Extinguisher	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	HARISHA G N	1SJ18ME035			
	YASHWANTH G K	1SJ18ME105			
	MUREVARI MANOJKUMAR REDDY	1SJ18ME059			
42	ABHISHEK KUMAR	1SJ17ME003	Modelling And Fabrication Of Boat For Collecting Floating Debris In Lakes	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	LINGAM YASHWANTH DURGA	1SJ17ME031			
	MALLESH R	1SJ17ME035			
	MOHAMMED HASSAN Z	1SJ17ME038			
43	RAHUL S	1SJ17ME050	Modelling and fabrication of Peltier based refrigeration system	24th May 2021	National Conference on "Innovations in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	S BALAKOTIREDDY	1SJ17ME060			
	SUHAS S	1SJ18ME428			
	SYED SHAKEEB	1SJ18ME431			
44	DHANUSH S	1SJ18ME407	Modification and fabrication of road cleaning machine	24th May 2021	National Conference on "Innovations
	GOUTHAM T K	1SJ18ME408			

	SHRIDAR K	1SJ18ME425			in Engineering Science and Technology" Manthana-2021 SJCIT Chickballapur-562101
	BABU B	1SJ16ME014			

Table B.4.6.2

SJC INSTITUTE OF TECHNOLOGY
Chickballapur - 562 101, Karnataka

CERTIFICATE OF PARTICIPATION

This certificate is awarded to Mr. Anirudh bearing USN 1SJ19ME005
of Mechanical Engineering Department, for exhibiting / presenting the
project entitled Semi - Automatic Manhole cleaning Machine
guided by Dr. Mallavadhya H.M in the Project Open House and National Conference on "Innovations in Engineering, Science & Technology", Manthana - 2023 at SJC Institute of Technology, Chickballapur on 24th May 2023.

Dr. G Narayana, Prof. & HoD - CED, Convenor
Dr. G T Raju, Principal, Organizing Chair

SJC INSTITUTE OF TECHNOLOGY
Chickballapur - 562 101, Karnataka

CERTIFICATE OF PARTICIPATION

This certificate is awarded to Mr. Kushal Y.S. bearing USN 1SJ19ME026
of Mechanical Engineering Department, for exhibiting / presenting the
project entitled Vertical Axis wind turbine to generate electric power
guided by Prof. Venkatraj M. in the Project Open House and National Conference on "Innovations in Engineering, Science & Technology", Manthana - 2023 at SJC Institute of Technology, Chickballapur on 24th May 2023.

Dr. G Narayana, Prof. & HoD - CED, Convener
Dr. G T Raju, Principal, Organizing Chair

Fig. Sample Project Exhibition photos.

4.6.3 Participation in Inter-Institute events by the students of the program of Study. (10)

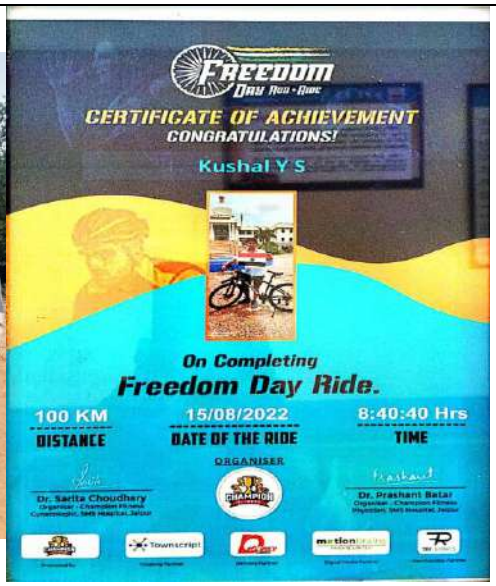
The following are the student(s) participate in Inter-Institute events during the program of study

Sl. No.	Name of the Student	USN	Title	Date	Place
1.	Bharath N	1SJ23ME004	VTU Bengaluru North Division Kabaddi MEN Championship 2025	12/04/2025	Acharya IT jkl Bengaluru
2.			VTU State Level Kabaddi	17-18/04/2025	Vidyavardhaka College of Engineering Bangalore
3.	Khushal Reddy N	1SJ24ME015	VTU Bengaluru State level Hand Ball (Men) Championship 2025	10-11/06/2025	MIT, Mysore
4.	Khushal Y S	1SJ19ME024	Particiapated in Feesom Day Ride-100km	15/08/2022	Champion Fitness Cynecologist SMS Hospital Jaipur
5.	Bhavan D	1SJ20ME403	Winners in the Inter Engineering Collegiate Volleyball Tournament	01/06/2022 to 03/06/2022	RV College of Engineering Bengalure
6.	Naveen N	1SJ18ME062	Participated Five day Skill	04/04/2022 to	BIT Bangalore

			Development program on "Python Programming-Tutorial for Begineers"	08/04/2022	
7.	Bhavan D	1SJ20ME403	Fourth place in Volley ball inter Zone competition VTU	13/12/2021 to 14/12/2021	SIT Tumkur
8.	Bhavan D	1SJ20ME403	Runner up place in Volley Ball	29/11/2021 to 30/11/2021	Inter-College Zonal Tournament VTU Belagavi
9.	Suhas S Vidhyadhara D Suhas S and Srinatha C V	1SJ17ME068 1SJ17ME077 1SJ17ME0691SJ17ME067	Design and Development of FDM based Foldable 3D Printer	20/7/2021	State level student project Exhibition & Competition (SPEC2021) BIT, Bengaluru
10.	Jagath Kumar C	1SJ18ME041	Silver Medal, Judo	2021	VTU State Level Inter Collegiate Events - 2021-2022 SJCIT Chickballapur
11.	Chandan Gowda T N	1SJ20ME404	Bronze Medal, Wrestling	2021	VTU State Level Inter Collegiate Events - 2021-2022 SJCIT Chickballapur
12.	Chethan M	1SJ19ME404	Gold Medal , Wrestling	2021	VTU State Level Inter Collegiate Events - 2021-2022 SJCIT Chickballapur
13.	Girish Kumar	1SJ18ME034	Bronze Medal, Wrestling	2021	VTU State Level Inter Collegiate Events - 2021-2022 SJCIT Chickballapur

Table B.4.6.3a


ACHARYA INSTITUTE
OF TECHNOLOGY
VTU INTER-COLLEGIATE
BENGALURU NORTH DIVISION


FREEDOM
Run • Run • Run
CERTIFICATE OF ACHIEVEMENT
CONGRATULATIONS!
Kushal Y S
On Completing
Freedom Day Ride.
100 KM
DISTANCE
15/08/2022
DATE OF THE RIDE
8:40:40 Hrs
TIME
ORGANISER
Dr. Sarita Choudhary
Dr. Prashant Belur


Go, change the world
RV COLLEGE OF ENGINEERING
(Autonomous Institution affiliated to VTU, Belagavi)
RV Vidyaniketan Post, Mysuru Road, Bengaluru - 560 059
Merit Certificate
MOMENTUM - 22
This is to certify that Mr./Ms. BHAVAN D
of SJCIT, CHIKBALLAPUR has secured WINNERS
in the Inter Engineering Collegiate Volleyball Tournament held at RV College of Engineering, Bengaluru from 01st to 03rd June 2022.
Director
Physical Education
General Secretary
Department of Sports
Senior Manager
Estate & Facilities
Principal
RV College of Engineering


BANGALORE INSTITUTE OF TECHNOLOGY
Certificate of Participation
This is to Certify that
Dr./Mr./Ms./Mrs. NAVEEN N. N.
S J C INSTITUTE OF TECHNOLOGY, CHIKBALLAPUR
Participated in Five Day Skill Development Program on "PYTHON Programming-Tutorial for Beginners" organized by Skill Development Centre (SDC) & BIT-IWS Student Forum in association with Karnataka Science & Technology Academy, GoK, held on April 4th - 8th, 2022.
Mr. Yashas N.
Dr. Chandrashekar A.
Dr. T. V. Sreerama Reddy
Dr. Roopa K. M.
Dr. Aswath M. U.
"Education is not learning of facts, but the training of the mind to think."

Visvesvaraya Technological University

" Jnana Sangama ", Belagavi- 590 018, Karnataka, India.

Department of Physical Education & Sports

Inter Zone / Single Zone Tournament : 2021 - 2022

Certificate

This is to certify that Sri./ Kum. BHAVAN D

USN 1SJ20ME403 Representing SJCIT - CHICKBALLAPUR

has Secured Winners / Runners - up / Third / Fourth Place in VOLLEY BALL

Inter Collegiate / Inter Zone / Single Zone Tournament / Competition

held at SJIT - TUMKUR

from 13-12-2021 to 14-12-2021

Director of Physical Education, VTU, Belagavi | Principal, organizing college | Vice Chancellor, VTU, Belagavi

Visvesvaraya Technological University

" Jnana Sangama ", Belagavi- 590 018, Karnataka, India.

Department of Physical Education & Sports

Inter - Collegiate Zonal Tournament : 20 - 20

Certificate

This is to certify that Sri./ ~~Kum.~~ BHAVAN D

USN 1SJ20ME403 Representing SJC Institute of Technology

has Secured ~~Winners~~ / Runners - up Place in Volley Ball

Inter Collegiate Zone Tournament / Competition

held at SJC INSTITUTE OF TECHNOLOGY

from 29-11-21 to 30-11-21

Director of Physical Education, VTU, Belagavi | Principal, organizing college | Vice Chancellor, VTU, Belagavi

BANGALORE INSTITUTE OF TECHNOLOGY

IWS

Best Oral Presentation Award

is presented to

2

S J C INSTITUTE OF TECHNOLOGY
CHICKBALLAPUR

Title of Paper : Design and Development of FDM based Foldable 3D Printer

Authors : Vidhyadhara D., Suhas S., Suhas S. and Srinatha C. V.

Guide : Prof. Nagesh D.

Won 2 Prize under Oral Presentation category at State Level Student Project Exhibition & Competition(SPEC2021) organized by Professional Bodies Forum, Department of Mechanical Engineering, Bangalore Institute of Technology, Bengaluru, in association with Indian Welding Society held on 20th July 2021

Dr. Chandrashekar A. Co-Convener | Dr. T. V. Sreerama Reddy Convener | Mr. N. Rajasekaran Hon. Secretary IWS | Dr. Aswath M. U. Principal, BIT

PLANT TREES, SAVE EARTH

Fig. Sample photos of Sport activities.

The following are the student(s) participate in Institute events during the program of study

Sl. No.	Name of the Student	USN	Title	Date	Place
1	Ranjith M	1SJ18ME082	Sambhrama-2k22 Coordinator for an event Campus-EELS	24th Jun 2022	SJCIT
2	Ranjith M	1SJ18ME082	Sambhrama-2k22 Coordinator for an event Cassettes	24th Jun 2022	SJCIT
3	Nikhil M D	1SJ18ME065	Sambhrama-2k22 Coordinator for an event Flash ME	24th Jun 2022	SJCIT
4	Girish Kumar S	1SJ18ME034	Sambhrama-2k22 Coordinator for an event Rent a	24th Jun 2022	SJCIT

			Dumpster		
5	Yathish Gowda K R	1SJ18ME106	Sambhrama-2k22 Coordinator for an event Flash ME	24th Jun 2022	SJCIT
6	Sanjay L	1SJ18ME088	Sambhrama-2k22 Coordinator for an event Off the Hook Comedy	24th Jun 2022	SJCIT

SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)
SJC INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)
Accredited by NBA ICE, ME, CSE, ECE, ISE & AEI & NAAC:OS I-GUAGE (GOLD Rating)
SAMBHRAMA-2K22
WE CREATE...YOU CELEBRATE!

CERTIFICATE OF COORDINATION

Mr/Ms RANJITH , ME
We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event CAMPUS - EELS conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

Dr. NagendraKumar M Coordinator | Mr. Suresha J Registrar | Dr. G T Raju Principal

SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)
SJC INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)
Accredited by NBA ICE, ME, CSE, ECE, ISE & AEI & NAAC:OS I-GUAGE (GOLD Rating)
SAMBHRAMA-2K22
WE CREATE...YOU CELEBRATE!

CERTIFICATE OF COORDINATION

Mr/Ms RANJITH , ME
We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event CASSETTES conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

Dr. NagendraKumar M Coordinator | Mr. Suresha J Registrar | Dr. G T Raju Principal

SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)
SJC INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)
Accredited by NBA ICE, ME, CSE, ECE, ISE & AEI & NAAC:OS I-GUAGE (GOLD Rating)
SAMBHRAMA-2K22
WE CREATE...YOU CELEBRATE!

CERTIFICATE OF COORDINATION

Mr/Ms NIKHIL , ME
We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event FLASH ME conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

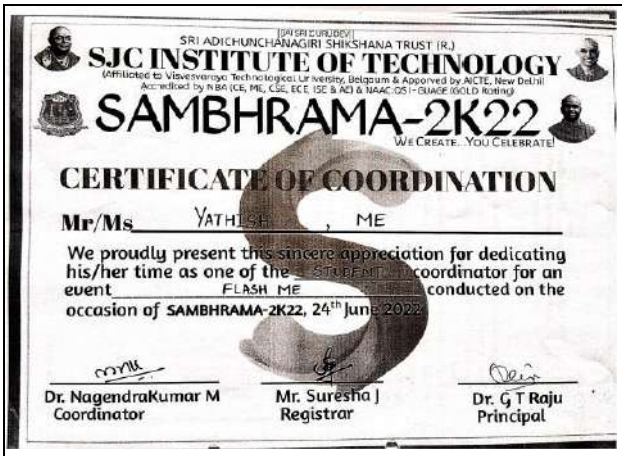
Dr. NagendraKumar M Coordinator | Mr. Suresha J Registrar | Dr. G T Raju Principal

SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)
SJC INSTITUTE OF TECHNOLOGY
(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)
Accredited by NBA ICE, ME, CSE, ECE, ISE & AEI & NAAC:OS I-GUAGE (GOLD Rating)
SAMBHRAMA-2K22
WE CREATE...YOU CELEBRATE!

CERTIFICATE OF COORDINATION

Mr/Ms GIRISH , ME
We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event RENT A DUMPSTER conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

Dr. NagendraKumar M Coordinator | Mr. Suresha J Registrar | Dr. G T Raju Principal


SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)

SJC INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)

Accredited by NBA (CE, ME, CSE, ECE, ISE & AE) & NAAC OSI - QUAGE (GOLD Rating)

SAMBHRAMA-2K22

WE CREATE.. YOU CELEBRATE!

CERTIFICATE OF COORDINATION

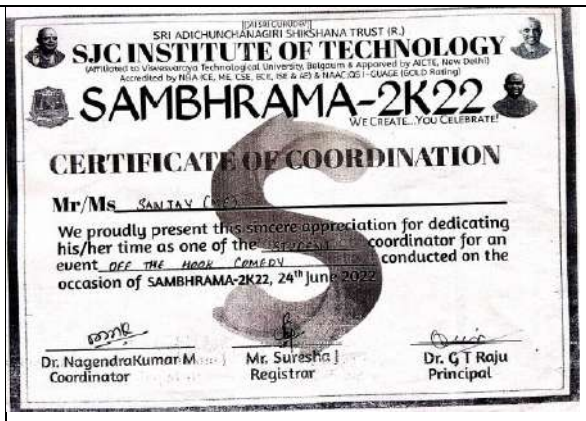
Mr/Ms YATHISH , ME

We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event FLASH ME conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

Dr. NagendraKumar M
Coordinator

Mr. Suresha J
Registrar

Dr. G T Raju
Principal


SRI ADICHUNCHANAGIRI SHIKSHANA TRUST (R.)

SJC INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University, Belgaum & Approved by AICTE, New Delhi)

Accredited by NBA (CE, ME, CSE, ECE, ISE & AE) & NAAC OSI - QUAGE (GOLD Rating)

SAMBHRAMA-2K22

WE CREATE.. YOU CELEBRATE!

CERTIFICATE OF COORDINATION

Mr/Ms SANJAY

We proudly present this sincere appreciation for dedicating his/her time as one of the STUDENT coordinator for an event OFF THE HOOK COMEDY conducted on the occasion of SAMBHRAMA-2K22, 24th June 2022

Dr. NagendraKumar M
Coordinator

Mr. Suresha J
Registrar

Dr. G T Raju
Principal

CRITERION 5	Faculty Information and Contributions	200

5. FACULTY INFORMATION AND CONTRIBUTIONS (200)

CAY[2024-25]																
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")	Nature of Association (Regular /Contract)
		Degree (highest degree)	University	Year of attaining higher qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years		
1	Dr. Thyagaraj. N. R	Ph. D	Visvesvaraya Technological University	2017	17.10	Professor	01/02/2024	01/08/2007	M.E	Machine Design	2	2	0	Y	R
2	Dr. Rukmangadha P	Ph. D	Visvesvaraya Technological University	2017	27	Professor	01/09/2017	17/06/1998	M.E	Alternative fuel	1	1	0	Y	R
3	Venkatraj M	M. Tech	Mangaluru University	2003	11.4	Associate Professor	10/01/2013	10/01/2013	M.E	Heat Power Engg.	0	0	0	N (31/10/2024)	R
4	Dr.YathishNarayana Ra o K. N	Ph. D	Kuvempu University	2020	11/10	Associate Professor	01/04/2017	16/01/2013	M.E	Production System Tech.	0	0	0	N (31/04/2025)	R

5.	Dr. Chandra Mohan. H .K	Ph. D	Visvesvaraya Technological University	2018	14.11	Associate Professor	10/07/2023	23/07/2010	M.E	Natural Composites	2	1	0	Y	R
6	Dr. Ravikumar T R	Ph. D	Visvesvaraya Technological University	2020	17.2	Associate Professor	01/12/2024	06/08/2008	M.E	Machine Design	0	0	0	Y	R
7	Dr. Manjunatha K N	Ph. D	Visvesvaraya Technological University	2020	15.4	Associate Professor	01/03/2025	22/02/2010	M.E	Machine Design	3	0	0	Y	R
8.	Palakshaiah	M. E	Bangalore University	2009	13.1	Assistant Professor	27/07/2012	27/07/2012	M.E	Thermal Sci & Engg	0	0	0	Y	R
9.	Sridhar .J	M. Tech	Visvesvaraya Technological University	2013	12.2	Assistant Professor	12/08/2013	12/08/2013	M.E	Thermal Sci & Engg.	0	0	0	Y	R
10	Nagesh Kumar R	M. Tech	Visvesvaraya Technological University	2013	0.9	Assistant Professor	02/09/2024	02/09/2024	M.E	Thermal Power & Engg.	1	0	0	Y	R
11	Vinod Kumar R	M. Tech	Visvesvaraya Technological University	2008	0.9	Assistant Professor	02/09/2024	02/09/2024	M.E	CIM	1	0	0	Y	R
12	Dr Praveen N	Ph. D	Visvesvaraya Technological University	2024	0.9	Assistant Professor	02/09/2024	02/09/2024	ME	Advanced Materials	2	1	0	Y	R

Table.B.5a

CAYm1[2023-24]																
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")	Nature of Association (Regular /Contract)
		Degree (highest degree)	University	Year of attaining higher qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years		
1.	Dr. T. Munikenchegowda	Ph. D	Bangalore University	2003	37.6	R&D Director	01/12/2004	08/12/1986	M.E	Non-Conventional Composites	1	0	0	31/12/2023	R
2.	Dr. Thyagaraj. N. R	Ph. D	Visvesvaraya Technological University	2017	16.10	Professor	01/02/2024	01/08/2007	M.E	Machine Design	1	0	0	Y	R
3.	Dr. Rukmangadha	Ph. D	Visvesvaraya Technological	2017	26	Professor	01/09/2017	17/06/1998	M.E	Alternative fuel	1	0	0	Y	R
4.	Venkatraj M	M. Tech	Mangaluru University	2003	10.4	Associate Professor	10/01/2013	10/01/2013	M.E	Heat Power Engg.	1	0	0	N	R
5.	Dr.YathishNarayana Rao K. N	Ph. D	Kuvempu University	2020	10.10	Associate Professor	01/04/2017	16/01/2013	M.E	Production System Tech.	1	0	0	N	R
6.	Dr. Chandra Mohan. H .K	Ph. D	Visvesvaraya Technological University	2018	13.11	Associate Professor	10/07/2023	23/07/2010	M.E	Natural Composites	2	0	0	Y	R

7.	Dr. Ravikumar T R	Ph. D	Visvesvaraya Technological University	2020	16.2	Assistant Professor	01/11/2011	06/08/2008	M.E	Machine Design	0	0	0	Y	R
8.	Dr. Manjunatha K N	Ph. D	Visvesvaraya Technological University	2020	14.4	Assistant Professor	01/11/2011	22/02/2010	M.E	Machine Design	1	0	0	Y	R
9	Yathishkumar .B. M	M. Tech	Visvesvaraya Technological University	2011	13.1	Assistant Professor	01/07/2013	25/07/2011	M.E	Machine Design	0	0	0	N (30/06/2024)	R
10.	Palakshaiah	M. E	Bangalore University	2009	12.1	Assistant Professor	27/07/2012	27/07/2012	M.E	Thermal Sci & Engg	1	0	0	Y	R
11.	Dr. Mallaradhya. H. M	Ph. D	Visvesvaraya Technological University	2020	11.1	Assistant Professor	16/08/2013	16/08/2013	M.E	Industrial Automation Engg	2	0	0	N (31/07/2024)	R
12.	Sridhar .J	M. Tech	Visvesvaraya Technological University	2013	11.2	Assistant Professor	12/08/2013	12/08/2013	M.E	Thermal Sci & Engg.	0	0	0	Y	R
13	Mahesh Mokshith M L	M. Tech	Visvesvaraya Technological University	2013	4	Assistant Professor	01/02/2017	01/02/2017	M.E	Machine Design.	0	0	0	Y	C

Table.B.5b

CAYm2[2022-23]																
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")	Nature of Association (Regular /Contract)
		Degree (highest degree)	University	Year of attaining higher qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years		
1.	Dr. T. Munikenchegowda	Ph. D	Bangalore University	2003	36.6	R&D Director	01/12/2004	08/12/1986	M.E	Non-Conventional Composites	1	0	0	Y	R
2.	Dr.Ranganatha R	Ph. D	Bangalore University	2016	23.5	Profes sor	1/02/2016	17/05/1999	M.E	Materials and Metallurgy	1	0	0	N 31/10/2022	R
3	Dr. Rukmangadha P	Ph. D	Visvesvaraya Technological University	2017	25	Professor	01/09/2017	17/06/1998	M.E	Alternative fuel	1	0	0	Y	R
4.	Dr. Thyagaraj. N. R	Ph. D	Visvesvaraya Technological University	2017	15.10	Professor	01/02/2024	01/08/2007	M.E	Machine Design	1	0	0	Y	R
5.	Venkatraj M	M. Tech	Mangaluru University	2003	9.4	Associate Professor	10/01/2013	10/01/2013	M.E	Heat Power Engg.	1	0	0	N	R
6.	Dr. Yathish Narayana Rao K. N	Ph. D	Kuvempu University	2020	9.10	Associate Professor	01/04/2017	16/01/2013	M.E	Production System Tech.	1	0	0	N	R

7.	Dr. Ravikumar T R	Ph. D	Visvesvaraya Technological University	2020	15.2	Assistant Professor	01/11/2011	06/08/2008	M.E	Machine Design	0	0	0	Y	R
8	Dr. Manjunatha K N	Ph. D	Visvesvaraya Technological University	2020	13.4	Assistant Professor	01/11/2011	22/02/2010	M.E	Machine Design	1	0	0	Y	R
9.	Dr. Chandra Mohan. H .K	Ph. D	Visvesvaraya Technological University	2018	12.11	Assistant Professor	01/11/2011	23/07/2010	M.E	Natural Composites	2	0	0	Y	R
10.	Yathishkumar .B. M	M. Tech	Visvesvaraya Technological University	2011	12.1	Assistant Professor	01/07/2013	25/07/2011	M.E	Machine Design	0	0	0	Y	R
11.	Palakshaiah	M. E	Bangalore University	2009	11.1	Assistant Professor	27/07/2012	27/07/2012	M.E	Thermal Sci & Engg	1	0	0	Y	R
12.	Dr. Mallaradhya. H. M	Ph. D	Visvesvaraya Technological University	2020	10.1	Assistant Professor	16/08/2013	16/08/2013	M.E	Industrial Automation Engg	1	0	0	Y	R
13.	Sridhar .J	M. Tech	Visvesvaraya Technological University	2013	10.2	Assistant Professor	12/08/2013	12/08/2013	M.E	Thermal Sci & Engg.	0	0	0	Y	R
14	Harish .S	M. Tech	Visvesvaraya Technological University	2011	11.1	Assistant Professor	01/11/2011	22/07/2011	M.E	Manufacturing Sci & Engg	0	0	0	N 30/05/2023	R
15	Umesh Ashok Chougala	M. Tech	Visvesvaraya Technological University	2011	4.8	Assistant Professor	01/02/2017	01/02/2017	M.E	Thermal Engg.	0	0	0	N 30/09/2022	R
16.	Bharath S Gowda	M. Tech	Visvesvaraya Technological University	2011	5.2	Assistant Professor	02/08/2017	02/08/2017	M.E	Machine Design	0	0	0	N 31/10/2022	R

Table B.5c

CAYm2[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")	Nature of Association (Regular /Contract)
		Degree (highest degree)	University	Year of attaining higher qualification							Research Paper Publications	Ph.D. Guidance	Faculty Receiving Ph.D. during the Assessment Years		
1.	Dr. T. Munikenchegowda	Ph. D	Bangalore University	2003	35.6	Principal & Professor	01/12/2004	08/12/1986	M.E	Non-Conventional Composites	1	0	0	Y	R
2	Dr.Ranganatha R	Ph. D	Bangalore University	2016	22.5	Profes sor	1/02/2016	17/05/1999	M.E	Materials and Metallurgy	1	0	0	Y	R
3.	Dr. Rukmangadha R	Ph. D	Visvesvaraya Technological University	2017	24	Professor	01/09/2017	17/06/1998	M.E	Alternative fuel	1	0	0	Y	R
4.	Dr. Thyagaraj. N. R	Ph. D	Visvesvaraya Technological University	2017	14.10	Associate Professor	01/04/2017	01/08/2007	M.E	Machine Design	1	0	0	Y	R
5.	Venkatraj M	M. Tech	Mangaluru University	2003	8.4	Associate Professor	10/01/2013	10/01/2013	M.E	Heat Power Engg.	1	0	0	N	R
6.	Dr. Yathish Narayana Ra o K. N	Ph. D	Kuvempu University	2020	8.10	Associate Professor	01/04/2017	16/01/2013	M.E	Production System Tech.	1	0	0	N	R

7.	Dr. Ravikumar T R	Ph. D	Visvesvaraya Technological University	2020	14.2	Assistant Professor	01/11/2011	06/08/2008	M.E	Machine Design	0	0	0	Y	R
8	Dr.Veeresh Chandra M S	Ph. D	Visvesvaraya Technological University	2018	12.3	Assistant Professor	01/07/2013	07/09/2009	M.E	Computer Integrate Manufacturing	1	0	0	Y	R
9	Dr. Manjunatha K N	Ph. D	Visvesvaraya Technological University	2020	12.4	Assistant Professor	01/11/2011	22/02/2010	M.E	Machine Design	1	0	0	Y	R
10.	Dr. Chandra Mohan. H .K	Ph. D	Visvesvaraya Technological University	2018	11.11	Assistant Professor	01/11/2011	23/07/2010	M.E	Natural Composites	2	0	0	Y	R
11.	Yathishkumar .B. M	M. Tech	Visvesvaraya Technological University	2011	11.1	Assistant Professor	01/07/2013	25/07/2011	M.E	Machine Design	0	0	0	Y	R
12.	Palakshaiah	M. E	Bangalore University	2009	10.1	Assistant Professor	27/07/2012	27/07/2012	M.E	Thermal Sci & Engg	1	0	0	Y	R
13.	Dr. Mallaradhya. H. M	Ph. D	Visvesvaraya Technological University	2020	9.1	Assistant Professor	16/08/2013	16/08/2013	M.E	Industrial Automation Engg	1	0	0	Y	R
14.	Sridhar .J	M. Tech	Visvesvaraya Technological University	2013	10.2	Assistant Professor	12/08/2013	12/08/2013	M.E	Thermal Sci & Engg.	0	0	0	Y	R
15	Nagesh H	M. Tech	Visvesvaraya Technological University	2013	7.10	Assistant Professor	13/08/2013	13/08/2013	M.E	Tool Engg.	0	0	0	Y	R
16.	Harish .S	M. Tech	Visvesvaraya Technological University	2011	10.1	Assistant Professor	01/11/2011	22/07/2011	M.E	Manufactu rin g Sci & Engg	1	0	0	Y	R
17	Umesh Ashok Chougala	M. Tech	Visvesvaraya Technological University	2011	3.8	Assistant Professor	01/02/2017	01/02/2017	M.E	Thermal Engg.	0	0	0	Y	R

18.	Bharath S Gowda	M. Tech	Visvesvaraya Technological University	2011	4.2	Assistant Professor	02/08/2017	02/08/2017	M.E	Machine Design	0	0	0	Y	R
19	Nagesh Kumar R	M. Tech	Visvesvaraya Technological University	2013	0	Assistant Professor	01/02/2022	01/02/2022	M.E	Thermal Power & Engg.	0	0	0	Y	C

Table B.5d

5.1 Student-Faculty Ratio (SFR) (20)

(To be calculated at Department Level)

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

No. of PG Programs in the Department (m): 1

No. of Students in UG 2nd Year= u_1**=34**

No. of Students in UG 3rd Year=**u_2=30**

No. of Students in UG 4thYear=**u_3=32**

No. of Students in PG 1st Year=**p_1=9**

2 No. of Students in PG 2nd Year=**p_2=9**

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 Teacher Ratio (STR) = S / F =18.96

Year	CAY(2024-25)	CAYm1(2023-24)	CAYm2(2022-23)
u1.1	30+4=34	30+0=30	30+2=32
u1.2	30+0=30	30+2=32	60+6= 66
u1.3	30+2= 32	60+6= 66	120+6=126
UG1	**96**	**128**	**224**
p1.1	9	9	9
p1.2	9	9	9
PG1	**18**	**18**	**18**
Total No. of Students in the Department **(S)**	**UG1 + PG1 =114**	**UG1 + PG1 =146**	**UG1 + PG1 =242**
No. of Faculty in the Department **(F)**	**F3=8**	**F3=8**	**F2=12**
Student Faculty Ratio **(SFR)**	**SFR3= S3/F3=14.25**	**SFR3= S3/F3=18.25**	**SFR2= S2/F2=20.17**
Average SFR	**SFR=(SFR1+SFR2+SFR3)/3= (14.25+18.25+20.17)/3 =17.56**		

Table B.5.1

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[2024-25]	12	-
CAY*m*1[2023-24]	13	1
CAY*m*2[2022-23]	16	1

Table B.5.1.1

5.2 Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

F1: Number of Professors required = 1/9 x 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 x 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 x Number of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (N) as per 5.1

Year	Professors		Associate Professors		Assistant Professors	
	Required F1	Available	Required F2	Available	Required F3	Available
CAY [2024-25]	1	2	2	5	6	5
CAY*m*1 [2023-24]	1	3	2	3	7	6
CAY*m*2 [2022-23]	2	3	4	3	12	10
Average Numbers	**RF1=1.33**	**AF1=2.67**	**RF2=2.67**	**AF2=3.67**	**RF3=8.33**	**AF3=7**

Table B.5.2

$$\text{Cadre Ratio Marks} = \left[\left(\frac{AF1}{RF1} \right) + \left(\frac{AF2 \times 0.6}{RF2} \right) + \left(\frac{AF3 \times 0.4}{RF3} \right) \right] \times 12.5$$

Cadre Ratio Marks= [2.6/1.33+(3.67x0.6/2.67)+(7x0.4/8.33)] x 12.5= 38.94 (25)

5.3 Faculty Qualification (25)

FQ =2.5 x [(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)

Years	X	Y	F	FQ=2.5 x [(10X +4Y)/F)]
CAY [2024-25]	7	5	9	**25**
CAYm1 [2023-24]	8	4	11	**21.82**
CAY*m*2 [2022-23]	9	7	18	**16.39**
Average Assessment				**21.07**

Table B.5.3

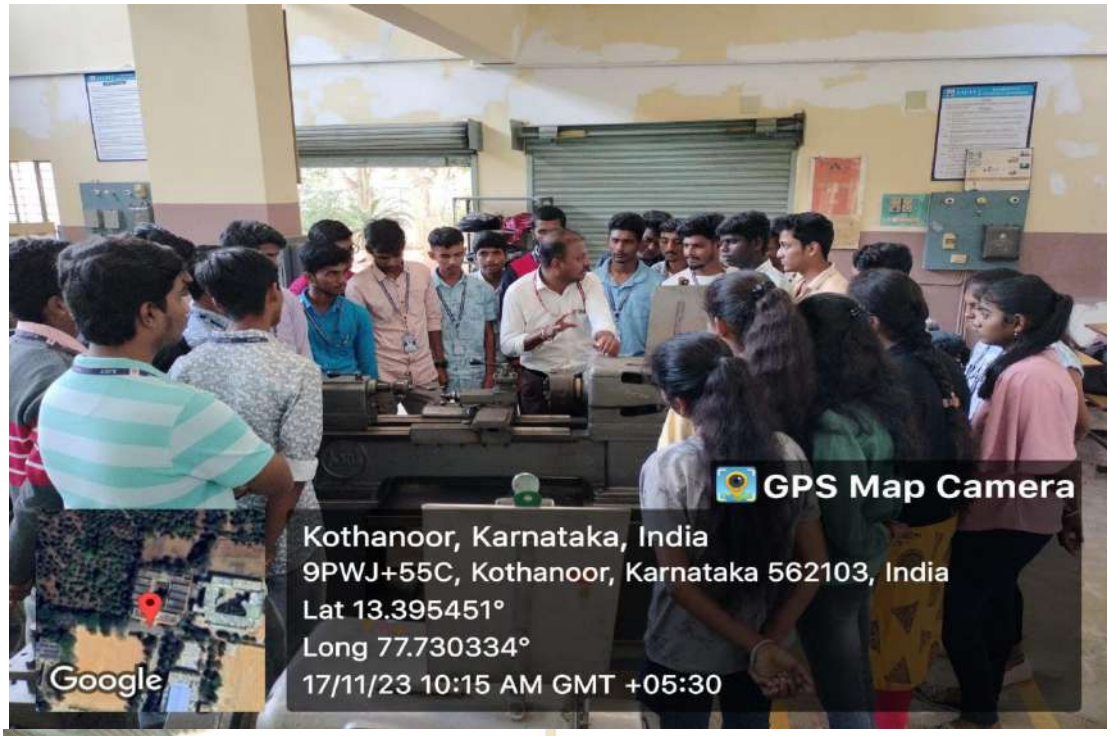
5.4 Faculty Retention (25)

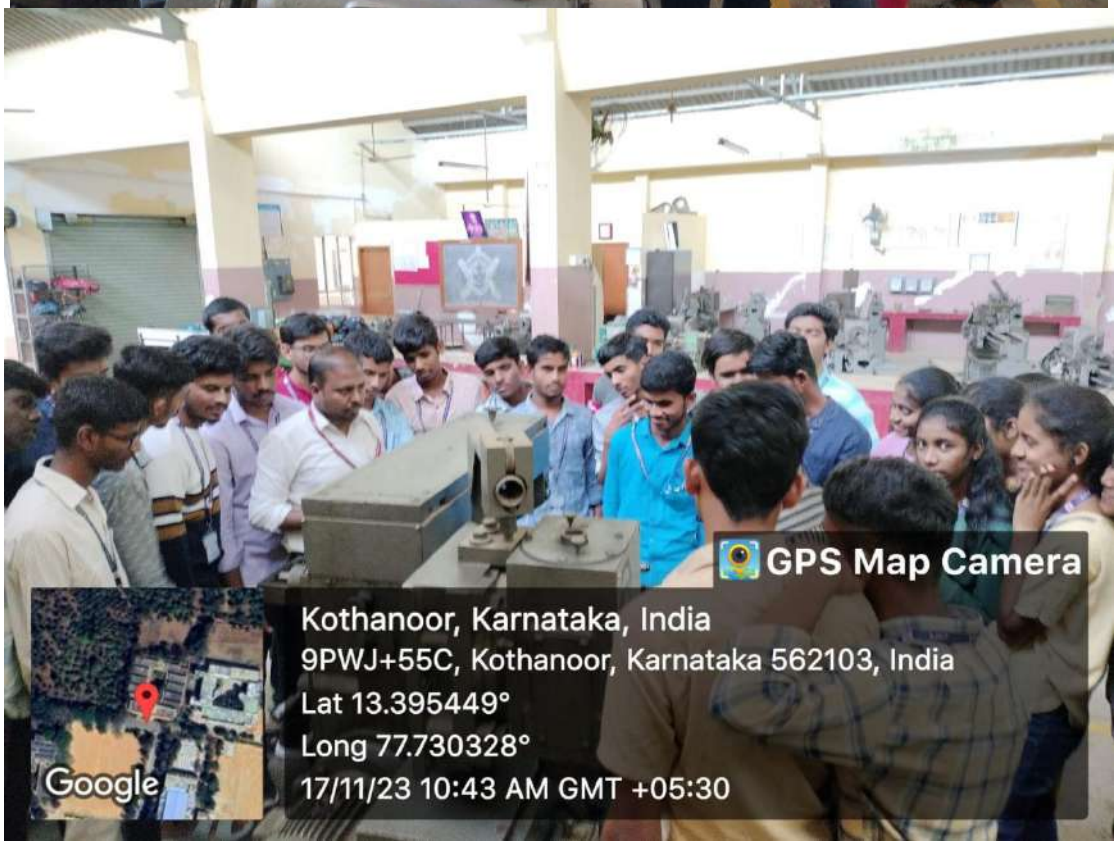
Retention Details	CAYm2 [2024-25]	CAYm1 [2023-24]	CAY [2022-23]
Number of Faculties Retained	10	13	16
Number of Faculties in the Base Year [2021-2022]	12	16	19
Percentage of Retained	**83%**	**82%**	**84%**
Average Percentage Faculty Retention	**83%**		

Table B.5.4

5.5 Innovations by the Faculty in Teaching and Learning (20)

- Utilization of physical models at the time of teaching class.
- Faculties have conducted group discussion among the students with respect to the current affairs like Economy, Technological advantages and disadvantages and Mechanical Innovations.
- Interacting on specific topics beyond the syllabus as seminar by the student.
- Video on topics as per the syllabus for process operations.
- Conduction of quiz
- Active learning assignments
- Subject specific mini projects


GPS Map Camera
Kothanoor, Karnataka, India
9PWJ+55C, Kothanoor, Karnataka 562103, India
Lat 13.395451°
Long 77.730334°
17/11/23 10:15 AM GMT +05:30
Google


GPS Map Camera
Kothanoor, Karnataka, India
9PWJ+55C, Kothanoor, Karnataka 562103, India
Lat 13.395449°
Long 77.730328°
17/11/23 10:43 AM GMT +05:30
Google


GPS Map
Camera Lite
Mechanical Department, Chikkaballapur, Kothanoor, Karnataka 562103, India
Latitude
13.39571953°
Longitude
77.73103129°
Local 12:05:24 PM
GMT 06:35:24 AM
Altitude 917 meters
Tuesday, 02.07.2024


Computerized Subsonic Wind Tunnel
GPS Map
Camera Lite
Mechanical Department, Chikkaballapur, Kothanoor, Karnataka 562103, India
Latitude
13.3955068°
Longitude
77.7311475°
Local 12:16:44 PM
GMT 06:46:44 AM
Altitude 917 meters
Tuesday, 02.07.2024

5.6 Faculty as participants in Faculty development/training activities/STTPs (15)

Sl. No.	Name of the Staff	Max. 5 per Faculty		
		CAYm1 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022- 23)
1.	Dr. T. Munikenchegowda			
2.	Dr. Ranganatha R			5
3.	Dr. Rukmangadha P	5	5	5
4.	Dr Thyagaraj. N. R	5	5	5
5.	Venkatraj M		5	5
6.	Dr Yathish Narayana Rao K. N	5	5	5
7.	Dr Ravikumar T R	5	5	5
8.	Dr Manjunatha K N	5	5	5
9.	Dr. Chandra Mohan. H .K	5	5	5
10.	Palakshaiah	5	5	5
11	Sridhar J	5	5	5
12	Nagesh Kumar R	5		
13	Vinod Kumar R	5		
14	Dr. Praveen N	5		
15	Dr. Mallaradhya H M		5	5
16	Harish .S			5
17	Yathish Kumar B M		5	5
Sum		**32**	**28**	**29**
***RF*= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1**				
Assessment= 3*(sum/0.5 RF)				

Average Assessment over three years (Marks Limited to 15)	

Table B.5.6

5.7. Research and Development (30)

5.7.1 Academic Research (10)

Academic Year 2024-2025

Paper Published by the faculty members in Journals

Scopus Indexed Journals					
Sl. No	**Name of The Faculty**	**Description / Title of the Paper**	**Name of Journal**	**ISBN/ISSN**	**Date Of Publication**
1.	K N Manjunath	Influence of fiber ratio and Chemical Treatment on the properties of hybrid epoxy composites reinforced with areca and banana fibre	Springer	Volume 22, pages 218–226, (2025)	28/04/2025
2.	Thaygaraj N R	Experimental Study on Thrust Force and Torque on Post-drilling of Hybrid Glass/Kevlar FRP Laminates	Springer	978-981-97-3654-6	16/7/2024
3	Rukmangadha P	Development of Power Generation unit using dual Renewable energy Source	IJSR	2457-0435	22-05-2024
4	Mallaradhya H M	Enhancing Wear Resistance of UHMWPE Composites with Micro MoS2 and Nano Graphite: A Taguchi-DOE Approach	ACS Omega	ACS Omega 2025 *9* (14), 16743-16758	March 30, 2024
5.	Palakshaiah	Thermo Hydraulic Performance of Double pipe Heat Exchanger Affected by Triangular and Semicircular Protrusion Insert on Twisted Tape	CFD Letters	2180-1363	31-05-2025

6	N Praveen	Effect of CNC Turning Parameters on MRR, Cutting Force and Surface Roughness for Ternary Shape Memory Alloys (SMAs)	Elsevier	26 (2025) 104876	27-03-2025
7	Thaygaraj N R	Pressure Distribution Analysis of Leaded Tin Bronze Hydrodynamic Journal Bearing under Different Lubrication Conditions	Journal of Bio-and Tribo-Corrosion	Volume 11, article number 34, (2025)	23-01-2025

Academic Year 2024-2025

Papers published by the faculty members in Journals

Scopus Indexed Journals					
Sl. No	**Name of The Faculty**	**Description / Title of The Paper**	**Name of Journal**	**ISBN/ISSN**	**Year of Publication**
1.	N Praveen	Effect of CNC Turning Parameters on MRR, Cutting Force and Surface Roughness for Ternary Shape Memory Alloys (SMAs)	Elsevier	https://doi.org/10.1016/j.rineng.2025.104876	2025
2	Thyagaraj N R	Pressure Distribution Analysis of Leaded Tin Bronze Hydrodynamic Journal Bearing under Different Lubrication Conditions	Journal of Bio-and Tribo-Corrosion	https://doi.org/10.1007/s40735-025-00956-3	2025
3	Palakshaiah	Thermo Hydraulic Performance of Double pipe Heat Exchanger Affected by Triangular and Semicircular Protrusion Insert on Twisted Tape	CFD Letters	2180-1363	2025
4	K N Manjunath	Influence of fiber ratio and Chemical Treatment on the properties of hybrid epoxy composites reinforced with areca and banana fibre	Springer	https://doi.org/10.1007/s13196-025-00376-3	2025
5	Chandra Mohan H K	Comparative Study on Mechanical and Tribological Properties od Alkali- Treated and Untreated Sida acuta Fiber-Reinforced Composite	MDPI	https://doi.org/10.3390/eng6070143	2025

6	Chandra Mohan H K	Influences of the Sintering Temperature on Microstructure and Mechanical Properties of Spark Plasma Sintered Al 4.5 wt.% Cu alloy Ball Milled Powder	Physics of Metals and Metallography	ISSN:0031-918X, ISSN ONLINE: 1555-6190	2025
7	Thyagaraj N R	Microstructural Characterization and Wear Studies of T6 Heat-Treated A6082 Composite Reinforced with Yttria-Stabilized Zirconia	Journal of Advanced Manufacturing System	https://doi/10.1142/S0219686724500124 ISSN (print): 0219-6867	2024
8	Thyagaraj N R	Microstructural Characterization and Wear Studies of T6 Heat-Treated A6082 Composite Reinforced with Yttria-Stabilized Zirconia	Journal of Advanced Manufacturing System	https://doi/10.1142/S0219686724500124 ISSN (print): 0219-6867	2024
9	Thyagaraj N R	Study on the influence of aluminium nitride particulates on the dry sliding wear behavior and mechanical properties of aluminium 6061 alloy developed using stir casting method	Materials Technology Report	Vol. 2 No. 2 (2024) eIssn: 3029-2646	2024
10	Thaygaraj N R	Experimental Study on Thrust Force and Torque on Post-drilling of Hybrid Glass/Kevlar FRP Laminates	Springer	https://link.springer.com/chapter/10.1007/978-981-97-3654-6_20.	2024
11	Rukmangadha P	Development of Power Generation unit using dual Renewable energy Source	IJSR	https://doi.org/10.32628/IJSRMME24837	2024

12	K N Manjunath	Bio based and biodegradable Polymers and Natural fibers: Emerging materials for an Environmentally green planet	Futuristic Trends in Mechanical Engineering Volume 3 Book 5	https://www.doi.org/10.58532/V3BDME5P1CH11	2024

Academic Year 2023-2024

Papers published by the faculty members in Journals

Scopus Indexed Journals					
Sl. No	**Name of The Faculty**	**Description / Title of The Paper**	**Name of Journal**	**ISBN/ISSN**	**Year of Publication**
1.	Dr. Mallaradhya H M	Enhancing Wear Resistance of UHMWPE Composites with Micro MoS2 and Nano Graphite: A Taguchi-DOE Approach	ACS Omega	ACS Omega 2024,9,16743−16758	2024
2	Dr. Mallaradhya H M	Conceptual Design of Loiter Munition UAV	Tuijin Jishu/Journal of Propulsion Technology	https://www.propulsiontechjournal.com/index.php/journal/article/view/4330	2023
3	Dr. Mallaradhya H M	Aerodynamic Design, Analysis and Optimization of Transonic Axial Compressor Blade with the combination of NACA 65 Double Circular Arc (DCA) and Multiple Circular Arc Airfoil (MCA)	Tuijin Jishu/Journal of Propulsion Technology	https://www.propulsiontechjournal.com/index.php/journal/article/view/4328	2023

4	Dr. Chandramohan H K	Microstructural and Mechanical Property Evaluation of Al-10 MgSi Alloy Processed Through Additive Manufacturing Technique	Engineering Headway, Trans Tech Publications ltd, Switzerland	2813-8333, Vol. 1, pp 91-95	2023
5	Dr. Mallaradhya H M	Characterization of Al 5052 Based Metal Matrix Composites Reinforced with SiC and Al2o3	Tuijin Jishu/Journal of Propulsion Technology	https://www.propulsiontechjournal.com/index.php/journal/article/view/1914	2023
6	Dr. Thyagaraj N R and Dr. Mallaradhya H M	Thermal Analysis of Novel Pebble Absorber Based Solar Thermal Collector	Tuijin Jishu/Journal of Propulsion Technology	https://propulsiontechjournal.com/index.php/journal/article/view/1156	2023
7	Dr. Chandramohan H K	Densification, Microstructure and Mechanical Properties of Al-4.5 wt.% Cu Alloy Powder Sintered Through Spark Plasma Sintering Process	Springer Metallography, Microstructure, and Analysis	Volume 12, pages 779–787, (2023)	2023
8	Dr. Mallaradhya H M	Optimization of Geometric Parameters For Impeller Design In An Axial Flow Pump	European Chemical Bullatien	258816289	2023
9	Dr. Thyagaraj N R and Dr. Mallaradhya H M	Assessment of Fire Resistance Characteristics and Theoretical Modeling and Numerical Investigation of Fiber Reinforced Green Composite	European Chemical Bullatien	https://doi.org/10.48047/ecb/2023.12.si5.110	2023

10	Dr. Thyagaraj N R and Dr. Mallaradhya H M	Experimental Investigation on Flexural Strength and Fracture Toughness of Hybrid Hemp and E-Glass Composites	European Chemical Bullatien	https://doi.org/10.48047/ecb/2023.12.si5.111	2023
11	Dr. Thyagaraj N R	Process Parameters Studies on Density and Hardness of AlSi7Mg Alloy Developed by DMLS Method	Engineering Headway, Trans Tech Publications ltd	2813-8333 Vol 1, pp 83-90	2023
12	Dr. Thyagaraj N R	Studies of Al2219-SiC Composite Using Liquid Metallurgy: Effect of Mechanical and Wear Properties	Engineering Headway, Trans Tech Publications ltd	2813-8333 Vol 1, pp 49-59	2023
13	Dr. Mallaradhya H M	Studies on the Wear Characteristics of Ultra High Molecular Weight Polyethylene (UHMWPE) Polymer Nanocomposites containing Nano Zinc Oxide	International Journal of Mechanical Engineering,	Volume 5, Issue 1, Part 3, 2018, Pages 2619-2626	2023

Paper presented by the faculty in National/ International conferences

Sl. No	Name of the faculty	Title of the paper	Conference title	National / International	Venue and Date
1.	Prof. Sridhar J	Strength and Surface Morphology of Al.4wt% Ni Alloy Synthesized by centrifugal casting Technique.	First International Conference on Emerging Trends in Engineering and Applied Sciences-2023	International	SJCIT 19/10/2023

Academic Year 2022-2023

Papers published by the faculty members in Journals

Scopus Indexed Journals					
Sl. No	**Name of The Faculty**	**Description / Title of The Paper**	**Name of Journal**	**ISBN/ISSN/DOI**	**Year of Publication**
1.	Dr. Chandramohan H K	Comparative study of Grain size and Mechanical Properties of Die-cast and Spray Formed AL-4.5wt.%Cu Alloys Deposit	Metallography, Microstructure and Analysis, Springer	https://doi.org/10.1007/s13632-022-00839-w,	2022
2	Dr. Chandramohan H K	Mechanical and Tribological properties Correlations of Die Cast and Spray Formed Aluminum 2.5wt.% Cu-2.5wt% Mg-5wt% Zn Alloy	Solid State Phenomena, Trans Tech Publications Ltd Switzerland	ISSN: 1882-9779, Vol 340, pp71-81	2022
3	Dr. Chandramohan H K	Aluminum 4.5wt.% Copper Alloy Powder Sintering Temperature Effect on Microstructure and Mechanical Properties of Spark Plasma Sintered Compact	Key Engineering Materials, Trans Tech Publications Ltd Switzerland	ISSN: 1662-9795, Vol 937. Pp47-54	2022
4	Dr.Manjunatha K N	Development and mechanical characterisation of Al-4.5%Cu alloy prepared using spark plasma sintered method	Advances in Materials and Processing Technologies,	http://dx.doi.org/10.1080/2374068X.2020.1801251	2022
5	Dr.Manjunatha K N	The manufacture and characterisation of short banana fibre-reinforced polymer composites	Advances in Materials and Processing Technologies,	http://dx.doi.org/10.1080/2374068X.2020.1833403	2022

6	Dr.Manjunatha K N	High speed machining of titanium Ti 6Al4V alloy components: study and optimization of cutting parameters using RSM	Advances in Materials and Processing Technologies,	DOI:10.1080/2374068X.2020.1806684	2022
7	Dr. Mallaradhya H M	Optimization of Parameters And Prediction Of Response Values Using Regression And Ann Model In Resistance Spot Welding Of 17-4 Precipitation Hardened Stainless Steel	Journal of Advanced Manufacturing Systems	http://dx.doi.org/https://doi.org/10.1142/S0219686722500111	2022

Academic Year 2021-2022

Papers published by the faculty members in Journals

Scopus Indexed Journals					
Sl. No	**Name of The Faculty**	**Description / Title of The Paper**	**Name of Journal**	**ISBN/ISSN/DOI**	**Year of Publication**
1.	Dr. Chandra Mohan H K,	Conventional sintering of copper powder with and without addition of different weight percentage of aluminium powder	Journal of Mines, Metals & Fuels	ISSN 0022-2755, Vol.69, No.12A, pp 8-13	April 2022
2	Dr. Mallaradhya H M	Study of Wear Characteristics of Ultra High Molecular Weight Polyethylene Nano Composite reinforced with Nano Al2O3	International Journal of Mechanical Engineering.	DOI : https://doi.org/10.56452/0128	December 2021
3	Dr.Thyagaraj N R	Effect of surface treatment on tensile and buckling characteristic of natural fibre based hybrid composites	Materials today proceedings	DOI: 10.1016/j.matpr.2021.08.198	2022
4	Dr. Mallaradhya H M	Optimization of parameters and predictions of response values using regression and ANN model in resistance spot welding of 17-4 precipitation hardened stainless steel	Journal of advanced manufacturing systems world scientific publishing company	DOI: 10.1142/S0219686722500111	2022

5	Dr. Ranganatha R	Effect of Retrogression and re-aging on tensile mechanical properties in transverse direction of extruded rods from aluminium alloy AA 7049	Material Science and Heat Treatment.	Volume 62, No.1 pp 40-46	June 2021
6	Dr. Chandra Mohan H K	Mechanical and Moisture Absorption Behaviour of Alkali Treated Sida Acuta Composite	Trans. Indian Institute of Metals (TIIM).	Vol 24, Issue 8	August 2021
7	Dr. Chandra Mohan H K	Free Vibration and moisture absorbtion bevaviour of Sida Acuta fibre composite	Energy material research.	10(1), pp 1-11	March 2021
8	Dr. Chandra Mohan H K	Microstructural and Mechanical Characterization of spark plasma sintered Al-4.5 wt% Cu alloy powder	Journal of Materials Engineering and Performance.	30(4), pp 2433–2438	March 2021
9	Dr.Mallaradhya H M	Microstructure analysis of 17-4 precipitation hardened stainless steel at welded spots in resistance spot welding	Journal of advanced manufacturing systems world scientific publishing company.	DOI:10.1142/S0219686721500189	2021
10	Dr. Chandra Mohan H K,	Effect of Macroalloying Element Addition of Aluminum on pure copper	Metallography Microstructure and Analysis.	10(1), pp 36–45	January 2021
11	Dr. Ranganatha R	Influence of RRA Treatment on inter granular corrosion resistance and exfoliation corrosion resistance in AA7010 Aluminium alloy	ASTM Materials Performance & Characterization	ISSN: 2379-1365	January 2021

UGC Approved Journals					
Sl. No	**Name of The Faculty**	**Description / Title of The Paper**	**Name of Journal**	**ISBN/ISSN/DOI**	**Year of Publication**
1.	Palakshaiah	Design and Development of Municipal Solid Waste Briquette Making Machine	IRJET	2395-0056	03-03-2021

Books published by the faculty members

Sl. No	Title of books	Name of the authors	Publications	Year of publication
1	An Overview of 3D-Printed Smart Polymers and Composites	Dr. N R Thyagaraj, Dr. H M Mallaradhya,	IGI Global	2023
2	Bio Based And Biodegradable Materials Polymers And Natural Fibres: Emerging Materials For An Environmentally Green Planet	Dr. K N Manjunath	IIP Book, Series, Futuristic Trends in Mechanical Engineering	2023

Ph.D. guidance and Details of Ph. D. awardees at BGS R & D Centre

Sl. No.	Guide Name	Name of Ph.D students	University	Field	Year of Registration	Status
1.	Dr. D. Madhu	G. B.Krishnappa	VTU, Belgaum	Thermal	2003	Awarded the Doctorate during 2011-12
		P.Rukmangadha	VTU, Belgaum	I.C. Engines	2003	Awarded the Doctorate during 2016-17
2.	Dr.T.Munikenche Gowda& Dr.S.Raja	K. VenkataRao	VTU, Belgaum	Composite	2005	Awarded the Doctorate during 2015-16
3.	Dr. N Chickkanna.	Thirtha Prasad H.P	VTU, Belgaum	Materials	2007	Awarded the Doctorate during 2012-13
4.	Dr. K. S. Keerthi Prasad	M. Ravi Kumar	VTU, Belgaum	Composite	2011	Awarded the Doctorate during 2017-18
5.	Dr. G. V. Gnanendra Reddy	Babu. E. R	VTU, Belgaum	Thermal	2011	Awarded the Doctorate during 2017-18
		H. K. Chandramohan	VTU, Belgaum	Composite	2012	Awarded the Doctorate during 2017-18

Details of Ph.D. Registrants at BGS R & D Centre

Sl. No.	Guide Name	Name of research scholar	University	Year of Registration	USN	Status
1.	Dr. G. V. Gnanedra Reddy	Ravi Kumar T R	VTU Belgaum	2013	1SJ13P MN01	Completed
		Madhusudhana S V	VTU Belgaum	2013	1SJ13P MN02	Completed
2	Dr. G B Krishnappa	Manjunath K N	VTU Belgaum	2013	1SJ13P MN03	Completed
3.	Dr. R Keshav Murthy	Harish S	VTU Belgaum	1SJ15PMJ03	2014	Comprehensive viva Completed
5.	Dr. S Devaraj	Shashikanth G S	VTU Belgaum	2016 - 17	1SJ16PMJ01	Completed
		Adarsh Reddy	VTU Belgaum	2016 - 17	1SJ16PMJ02	Completed
6.	Dr.Chowde Gowda	Prakruthi N Gowda	JNTU AP	2013 - 14	13PH1205	Completed
7.	Dr. S Rajanna	Akash Deep B N	VTU Belgaum	2016 - 17	1SJ16PMJ03	Comprehensive viva Completed
8	Dr.Ranganatha R	Arjun S	VTU Belgaum	2016 - 17	1SJ17PMA02	Thesis submitted
		Rajaneesh.M.K	VTU Belgaum	2016 - 17	1SJ17PMA04	Comprehensive viva Completed
		Saravanakumar	VTU Belgaum	2019-20	1SJ19PME01	
9	Dr.Thyagaraj N R	Harish C	VTU Belgaum	2021-22	1SJ21PME01	Comprehensive viva Pending
10	Dr.Madhusudhana S V	Sreevidya N	VTU Belgaum	2022-23	1SJ22PME01	---
11	Dr.Chandra Mohan H K	Sridhar J	VTU Belgaum	2022-23	1SJ23PME02	--
12	Dr.Thyagaraj N R	Koushik B V	VTU Belgaum	2022-23	1SJ23PME01	---
		Bhargav K		2024-25		
		Arunkumar V		2024-25		

Details of Ph.D Candidates registered at outside Institution

Sl No.	Guide Name	Name of research scholar	University	Year of Registration	USN	Status
1.	Dr. K Mohamed Kaleemulla	Yathish Narayan Rao K N	VTU Belgaum	2012	4UB12PMN02	Completed
2	Dr. Chikkanna N	Veeresh Chandra M S	VTU, Belgaum	2012	5VX12PMN17	Completed
		Thyagaraj N R	VTU, Belgaum	2013	5VX13PMN33	Completed
3.	Dr. S H Manjunath	.Nagesh D	VTU Belgaum	2013	1SG13PMN01	Completed
4	Dr. N Sandhya	Suma S	VTU, Belgaum	2015	1NC15PBJ03	Completed
5	Dr. Vijay Kumar M	Mallaradhya H M	VTU, Belgaum	2016	1JS16PMJ07	Completed

5.7.2 Sponsored Research (5)

Funded research :(Provide a list with Project Title, Funding Agency, Amount and Duration)

Sl. No	Title of the project	Period	Funding Agency	Amount Sanctioned INR	Duration
1	Design, Development and Analysis of Hybrid Composites Made-up Conventional and Non Conventional Fibers for Automobiles	2023-24	VGST	10 Lakhs	
2	Cellulose Fiber Networked Sida fiber Particle based Bio Composite	2023-24	SERB-TARE	15 Lakhs	
3	Design, Development and Commercialization of a low cost exoskeleton for people suffering from Knee Osteoarthritis	2023-24	MSME	15 Lakhs	
4	EV Technologies	2023-24	VTU-CRC	12 Lakhs	
5	Design, Development and Commercialization of a low cost exoskeleton for people suffering from Knee Osteoarthritis	2023-24	MSME	15 Lakhs	
6	Spray Atomization and Deposition Process	2021-22	VGST – K-FIST	10 Lakhs	
7	Fabrication and Characterization of Natural Fibre Reinforced Hybrid Composite for House Hold Applications	2021-22	VTU Research Grant Scheme	10 Lakhs	
8	Development of Areca nut tree climbing and harvesting machine with pesticide sprayer	2021-22	KSCST	8,000.00	

9	Soft robotics based voice controlled prosthetic hand	2021-22	KSCST	7,000.00	
TOTAL				**82.62 Lakhs**	
TOATAL MARKS =5					

5.7.3 Development activities (10)

The following are the equipment's are purchased for BGS R&D Centre funded by different funding agency to carry out research and development activities and other Working models/charts/Instructional materials available.etc

Sl No	Equipment name / Instructional materials /Working models/charts	Descriptions
1	Fatigue UTM	It **is** to explain physical concept of HCF & LCF, tension, compression bending and shear forces. It is used for miniaturized samples taken from small objects
2	Semi automated Macro & Micro hardness testers	Hardness tester**s** are used for understanding the thermo mechanical processed condition of the material
3	Planetary Ball Mill	It is used for preparation of Nano particles
4	Optical emission spectrometer	spectrometer is used for quil analysis of materials for its compositions using optical radiation Principles
5	Instructional materials	Instruction manuals are available in all laboratory
6	Working models/charts	Working charts are available in all labs

5.7.4 Consultancy (from Industry) (5)

(Provide a list with Project Title, Funding Agency, Amount and Duration)

Sl.No	Title of the project	Period	Funding Agency		Amount Sanctioned INR
1.	**Testing Materials from BGS R&D centre**		**Fund generated from student and Industry**		
			Students	**Industries**	
		2024-2025	934779	6378	99857
		2023-2024	314241	--	314241

	(Mechanical)	2022-2023	140326	7830	148156
		2021-2022	32208	--	32208
TOTAL					**594462**

5.8. Faculty Performance Appraisal and Development System (FPADS) (30)

The Institution has a well defined faculty performance appraisal and development system. Each staff member submits annually in detail capturing all his/her activities in a prescribed format to head of the department. The head of the department evaluates and submits to the establishment section for further action. Further, this information would be submitted to the Principal for necessary recommendations.

Implementation and effectiveness

Overall performance of every faculty member is evaluated once in a year based on the following parameters.

- Student feedback
- Results in the respective subject handled
- Additional duties performed in that particular semester
- Participation in Training Programs / Faculty Development programs / Workshops
- University Examination related work
- Publication in conferences and journals
- Consultancy work
- Involvement in Research work
- Execution of funded projects

The process of performance evaluation is as follows:

- The Faculty fills the appraisal format and submits with necessary documents to the HOD.
- The HOD evaluates and submits to the establishment section for further action.
- The establishment section consolidates and submits it to the Principal.
- The principal makes recommendations and submit (case to case basis) to the Governing Council for further actions.
- The recommendation would be advising the faculty to participate in faculty

development programs to enhance knowledge, enhance qualifications, organize programs in the college, and submit project proposals to funding agencies.

5.9. Visiting/Adjunct/Emeritus Faculty etc. (10)

Name of the visiting faculty	Description
Dr. Veeresh Chandra M S	• He is working as Assistant professor in mechanical engineering department since from February 2017. • Work load assigned by department is about 16 units a week.
Dr. Nagesh Kumar R	• He is working as Assistant professor in mechanical engineering department since from September 2024. • Work load assigned by department is about 16 units a week.

CRITERION 6	Facilities and Technical Support	80

6. FACILITIES AND TECHNICAL SUPPORT (80)

6.1. Adequate and well equipped laboratories and technical manpower (30)

The Department of Mechanical Engineering has adequate number of laboratories with sufficient equipments and software's for conduction of experiments within the curriculum including project work. The laboratories are also well equipped to undertake training and testing. Details of the laboratory infrastructure are shown in Table B.6.1.

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)	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1	Computer Aided Engineering Drawing	30	**Computers** (Solid Edge Version 19 and Solid ST10)	13 batches x 2 hours = 26 hrs	1. Mr. Ramesh kumar N 2. Mr. Uday Venkatesh Y J	Mechanic Machinist	ITI Diploma

2	Work Shop Lab	NIL	**Bench vice Tools** • 12" Flat Rough file • 10" Smooth File • 6" Triangle File • 6" Half Round File • Try Square • Hack Saw Frame **Power hack saw** **Welding Transformer** • Air & oil cooled 3phase, 400 Ω and 80-100 volts • Oil cooled Transformer (two phase) **Soldering tools**	NIL	Mr. Venkatesh Kumar B. K	Welder	ITI
3	Computer Aided Machine Drawing	15	**Computers** (Solid Edge Version 19)	2 batches x 2 hours = 04 hrs	1. Mr. Ramesh N 2. Mr. Uday Venkatesh Y J	Mechanic Mechanic	ITI Diploma
4	Material Testing Lab	15	**Computerized - UTM** **Rockwell hardness tester** **Brinell hardness tester** **Impact testing machine** **Torsion testing machine** **Double disc polishing machine**	2 batches x 2 hours = 04 hrs	Mr. Anand Kumar	Mechanic	ITI

			Wear test pin & disc type **Computerised wear testing machine** **Computerised metallurgical microscope** **Ultrasonic flaw detector** **Magnetic crack detector**				
5	Foundry and Forging Lab	15	**Universal sand testing machine** **Permeability meter for determination of sand permeability test** **Cupola furnace** **Oven** **Sieve shaker with 10 numbers sieves** **Clay content tester** **Mould hardness tester** **Core hardness tester** **Moulding tools & accessories**	2 batches x 2 hours = 4 hrs	Mr. Venkatesh Kumar B. K	Welder	ITI

6	Metrology and Measurement Lab	15	**Measurement of temp. By using thermocouple** **Measurement of pressure** **Equipment to determine stress on cantilever beam with strain gauge** **LVDT** **Stroboscope** **Oscilloscope** **Load cell-50kg compression type** **Load cell 100kg tension type** **Profile projector** **Auto collimeter** **Optical flat** **Mitutoyo bevel protractor** **Tool makers microscope** **Sinebar** **Sine center**	2 batches x 2 hours = 04 hrs	Mr. Lokesh Raju C. V	Welder	ITI

			Measurement of pitch, anvil with micrometer **Electronic comparator with stand** **Electronic micrometer** **3 wire set** **Gear tooth vernier** **Thread pitch gauge** **Granite surface plate with stand** **Lathe tool dynamometer** **Slandered roller set**				
7	Machine Shop Lab	15	**Kirloskar lathe model 1330** **M M M lathe** **Anil lathe** **Sagar 24" shaping machine** **Blue Max tool & cutter grinder** **Universal milling machine** **Tools & accessories**	2 batches x 2 hours = 04 hrs	Mr. Uday Venkatesh Y J	Machinist	Diploma
8	Fluid Mechanics and Machinery Lab	15	**V-notch**	2 batches x 2 hours = 04 hrs	Mr. Mohan Kumar K	Mechanic	ITI

			Venturi meter **Orifice meter** **Losses in pipes** **Pelton wheel turbine** **Impact of jet** **Centrifugal pump** **Reciprocating pump(plunger pump)** **Francis turbine** **Multi stage centrifugal pump** **Air blower** **Air compressor** **Tools & accessories**				
9	Energy Conversion Lab	15	**Abel pensky** **Martin pensky** **Cleveland open type** **Red wood viscometer** **Say bolt viscometer** **Planimeter**	2 batches x 2 hours = 18 hrs	Mr. Venkatesh kumar B K	Welder	ITI

			Diesel engine with mechanical brake **Test rig** **Computerised variable** **Compression four stroke diesel engine** **Single cylinder petrol engine test rig with control panel** **Two stroke petrol engine test rig** **Computer controlled engine test rig** **Model 1020 single cylinder diesel engine** **Mores test on multicylinder engine** **Four stroke petrol (centrifugal pump)** **Engine test rig with hydraulic loading**				

			Bomb calorimeter with standard acceossories & backman thermometer for the above **Boy's gas callorimeter** **Cut section of two stroke petrol engine** **Tools & accessories**				
10	Computer Aided Modelling & Analysis Lab	15	**Computers** (ANSYS software)	2 batches x 2 hours = 4hrs	Mr. Ramesh N	Mechanic	ITI
11	Heat and Mass Transfer Lab	15	**Thermal conductivity of metal rod code ht-02** **Parallel flow/ counter flow heat exchanger** **Stefan Boltzmann apparatus** **Emissivity measure apparatus ht-09** **Heat transfer in natural convection** **Heat transfer in forced convection** **Refrigeration test rig**	2 batches x 2 hours = 18 hrs	Mr. Anand Kumar	Mechanic	ITI

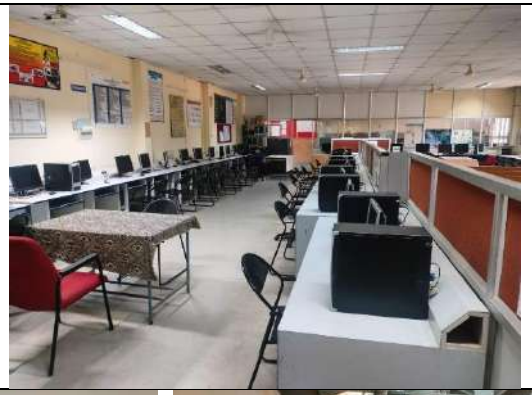
			Computerised vapour compression test rig **Computerised air conditioning test rig** **Pin-fin apparatus** **Boiling and condensation apparatus** **Boiling and condensation apparatus** **Composite wall** **Transient heat conduction** **Tools & accessories**				
12	Design Lab	15	**Transmission type polariscope** **Journal bearing apparatus** **Slider bearing test rig** **Weighing balance** **Motorized gyroscope** **Porter governor** **Hartnell governor** **Static & dynamic balancing**	2 batches x 2 hours = 4hrs	Mr. Lokesh Raju C. V	Welder	ITI

			Whirling of shaft **Universal vibration apparatus** **Strain gauge equipment** **Tools & accessories**				
13	Computer Integrated Manufacturing	15	**Computers** (CADEM & FANUC Software)	2 batches x 2 hours = 04hrs	Mr. Ramesh N	Mechanic	ITI

Table B.6.1 Details of major equipments, weekly utilization and technical man power support

Photos of the Laboratory

Sl. No.	Name of the Laboratory	Photographs
1	Computer Aided Engineering Drawing	 
2	Work Shop Lab	 

3	Computer Aided Machine Drawing	 
4	Material Testing Lab	 
5	Foundry and Forging Lab	 

6	Metrology and Measurement Lab	 
7	Machine Shop Lab	 
8	Fluid Mechanics and Machinery Lab	 
9	Energy Conversion Lab	

10	Computer Aided Modelling & Analysis Lab	 
11	Heat and Mass Transfer Lab	 
12	Design Lab	 

13	Computer Integrated Manufacturing	 

6.2. Additional facilities created for improving the quality of learning experience in laboratories (25)

Details of additional facilities created for improving the quality of learning experience in laboratories are given in Table B.6.2.

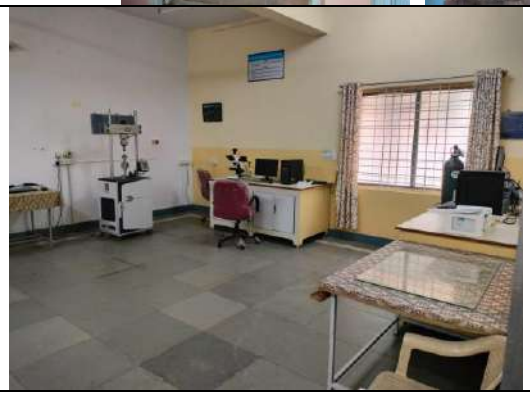
Sl. No.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students are expected to have enhanced learning	Relevance to POs/PSOs
1	Modeling Software tool	CATIA V6	Awareness and training about modern tools	Providing demonstration and training for the students	Solid modeling, Assembly modeling, Surface modeling	PO3, PO5, P08, PSO1, PSO2
2	Department Library	Having collection of Text Books, Reference Books Journals Project / seminar report.	• To meet the needs of the students • To provide reference facilities • To refer advanced information for seminar, laboratory, projects • To know about the past research activities undertaken by the students	Throughout the semester	Design Thermal Production Manufacturing Automation Automobile Drawing	PO6, PO9, PO11, PO12, PSO1
3	Research and Development lab	The Student's project (MMC and	• Real time application	For conducting research activity throughout	Innovation Creativity Skill development Entrepreneurship	PO1, PO3, PO4, PO5, PO11, PO12, PSO1, PSO2

		PMC) guided by the faculties. Solar energy Power Transmission Automation Technology	• To create innovative Ideas • To build the creative skills • Increase the interest in the field of Mechanical engineering	the semester	Ideas generation	
4	Sagar Planing Machine	1. Table size: 600X150mm 2. Traverse: x=600 mm y=150 mm	To show the process of different operations in the machine	Demo for students	To learn different machining operations	PO3, PO5, PO11, PSO1, PSO2
5	Slotting Machine	Bench type	To show the slotting operations in the machine	For 1st year students	To learn different machining operations	PO3, PO5, PO11, PSO1, PSO2
6	Universal Cylindrical Grinding Machine	Bench type	To show the surface grinding operations in the machine	For 1st year students	To learn surface finishing operations	PO3, PO5, PO11, PSO1, PSO2
7	Bench Drilling Machine	Bench type	To show the drilling operations in the machine	For 1st year students	To learn different drilling operations	PO3, PO5, PO11, PSO1, PSO2
8	Radial Drilling Machine	Universal type	To show the drilling operations in the machine	For 1st year students	To learn different drilling operations	PO3, PO5, PO11, PSO1, PSO2

9	Computerized Journal Bearing Test rig	Digital type	Students can able to study the characteristic curves of oils in bearing	For 7th semester students	To study pressure distribution in the journal bearings	PO5, PO11, PSO2
10	Well Ambience Digital Seminar Hall	Fully equipped shared seminar hall with Computer, Projector, Student Desk, White Board, Fan, Speaker, LED	To present technical talk/ project seminars/ research papers/ workshops/ industry interaction presentation.	Throughout the semester	• To bridge the band gap between academic and industry Curriculum. • To upgrade students to industry standard.	PO12, PSO2
11	CNC Turning and Milling	Star	Provide the practical exposure to the students on turning and milling operations.	For mechanical students	Practical experience in the field of Manufacturing Engg.	PO11, PO12
12	Centralized digital library	Having collection of Online Text Books, e-books, NPTEL Videos, e-journals	• To meet the needs of students to provide online facilities. • To refer advanced information for seminars, technical projects	Throughout the semester	Student learning process	PO10 PSO2

Table B.6.2 Details of additional facilities created for improving the quality of learning experience in laboratories

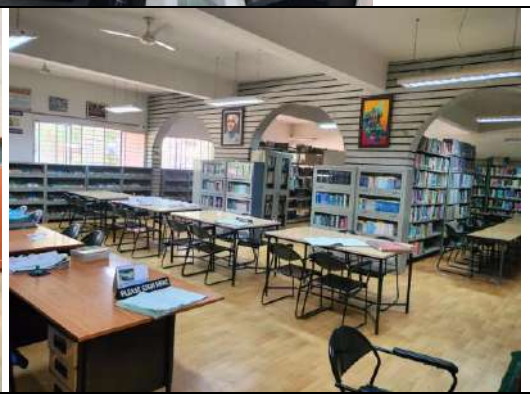
Photos of the Additional facilities

Sl. No.	Name of the facility	Photographs
1	Modeling Software tool	
2	Department Library	 
3	Research and Development lab	 

4	Sagar Planing Machine		
5	Slotting Machine		

6	Universal Cylindrical Grinding Machine		
7	Bench Drilling Machine		

8	Radial Drilling Machine	
9	Computerized Journal Bearing Test rig	
10	Well Ambience Digital Seminar Hall	 

11	CNC Turning and Milling	
12	Centralized digital library	 

13	Hydraulics and Pneumatics Lab	 
14	Artisan Training Center (Carpentry)	 
15	3-D Printing Machine	

6.3. Laboratories: Maintenance and overall ambiance (10)

Maintenance:

- Regular preventive maintenance of instruments and equipments is carried out before the commencement of the semester.
- Maintenance register is kept in the laboratories.
- Minor repairs are carried out by the laboratory instructor
- Major repairs are outsourced as per the procedure of the institute.

Overall ambiance:

- All laboratories are equipped with state of art equipments to meet the requirements of curriculum.
- Laboratories and equipments are kept clean and dust free with regular cleanliness maintenance.
- All laboratories have sufficient natural light, good ventilation with lighting and fan arrangement.
- The labs are sufficient to accommodate the mentioned number of students per batch.
- The labs have a separate cubicle for issue of components.
- Sufficient instructional area and teaching place for staff and students.

6.4. Project laboratory (5)

The Department of Mechanical Engineering has a project laboratory with carpet area of 30X30 sq.ft equipped with basic resources and software's for conduction of project works. The additional available facilities in the department are given in Table B.6.4.

Sl. No.	Laboratories	Facilities	Utilization
1.	Project Laboratory	• Workbench/Tools/Models/Sheet bending	Students and Faculty members utilize to develop models and analysis during their project/research work.
2.	Material testing lab	• Computerised UTM • FFT Analyzer • Stress corrosion cracking test set up • Computerised Wear testing machine • Spray Atomization equipment • Heat treatment and Melting furnace. • Centrifugal casting	
3.	Energy Conversion lab	• Computerised Engine test rig.	
4.	CAD/ CAM lab	• ANSYS, CATIA V6,CADEM	
5.	R&D lab	• Computerised Fatigue Testing UTM • Vicker's Hardness Testing machine	

		(Macro & Micro) • Optical Emission Spectrometer • Planetary Ball Mill • Optical Metallurgical Microscope • Spectro Polisher Sample Machine	
6.	Bosch Rexroth Centre of Competence	• PLC kits • Hydraulic and Pneumatic kits	

Table B.6.4 Project Laboratory facilities created

6.5. Safety measures in laboratories (10)

The safety measures taken in the laboratories are listed below:

- First aid box and fire extinguishers are kept in each laboratory.
- Students should wear Apron in the lab.
- Technical supporting staff monitors the labs at regular times.
- Laboratories are maintained in a clean and systematic manner.
- Appropriate storage areas are available.
- PCs are loaded with antivirus and Firewall software's.
- Students are restricted from carrying pen drives, CDs or any other storage devices into the laboratories to avoid data misuse and prevent systems from virus attacks.

The details of safety/disciplinary measures followed in laboratory are indicated in Table B.6.5.

Sl. No.	Name of the Laboratory	Safety measures
1	Computer Aided Engineering Drawing, Computer Aided Machine Drawing, CAMA and CIM Lab's	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layouts are displayed. • Provided antivirus software.
2	Machine Shop Lab	• First Aid Box • Fire Extinguisher • DO's, DON'Ts • Lab layout is displayed.
3	Work Shop Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.

4	Energy Conversion Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.
5	Foundry & Forging Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layouts are displayed.
6	Fluid mechanics & Machinery Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.
7	Heat & Mass Transfer Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.
8	Materials Testing Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.
9	Mechanical Measurements & Metrology Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed.
10	Design Lab	• First Aid Box • Fire Extinguisher. • DO's, DON'Ts • Lab layout is displayed

Table B.6.5 Safety Measures in laboratories

CRITERION 7	Continuous Improvement	50

7. CONTINUOUS IMPROVEMENT (50)

7.1.1 Actions taken based on the results of evaluation of each of the POs & PSOs (20)

POs & PSOs Attainment Levels and Actions for improvement

CAYm1 [2020-2024]			
POs	**Target Level (90%)**	**Attainment Level**	**Observations**
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	**2.46**	**2.35**	Target was not attained because the required set level was not met in the following courses C203, C205, and C304.
ACTION1: Bridge courses are planned for the observed courses to enhance the basic knowledge in engineering.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	**2.07**	**2.08**	Target was attained, but in the course C302 and C310 target is not achieved to the set level.
ACTION 1: Variety of numerical problems is solved in regular/ tutorial classes which improve students problem analyzing and solving capabilities.			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	**1.89**	**1.92**	Target was attained, but in few courses like C302, C310 and C204 target is not achieved to the set level.
ACTION1: Assisting the students to take up projects related to design and development of complex engineering problems. **ACTION2:** Planned to Conduct Workshops/ Seminars related to public health and safety.			
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.			
PO4	**1.80**	**1.82**	Target was attained, however in the few courses like C302, C310 and C204 target is not achieved to the set level.
ACTION1: In connection to the above, suggestions and guidance will be provided during project review process. **ACTION2:** To Conduct the Guest lectures and Training programs on thesis preparation and interpretation of data.			
PO5: 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.			

PO5	**2.03**	**2.20**	Target was achieved, but feedback given by the alumni and industry, skills in AUTOCAD, ANSYS, CFD, CATIA and MATLAB are more important.
ACTION1: Conventional lab facilities are modernized (computerized) and training is being provided for students in the stipulated time. **ACTION 2:** Modern tools like MATLAB, ARENA, CATIA, ANSYS WORKBENCH etc., will be introduced to improve the technical skills.			
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.			
PO6	**1.53**	**1.93**	Target was achieved as per the curriculum, but improvements can be done through following action.
ACTION1: Motivating the students to take-up the projects related to the problems faced by the community.			
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.			
PO7	**1.80**	**2.15**	Target was attained, but improvements can be done through following action.
ACTION1: Encouraging students to participate in public forums with their projects related to agro and energy sustainability to obtain end user feedback for further improvements.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	**1.80**	**2.06**	Target was attained, even though we need to improve the set target level in the next academic year.
ACTION1: Conducting motivational talks and guest lecturers to improve their professional ethics and responsibilities.			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	**1.64**	**1.91**	Target was attained, even though we need to improve the set target level in the next academic year.
ACTION1: To coin and manage departmental clubs having engineering and social agendas. **ACTION2:** Promotion of Co-curricular and extracurricular activities.			
PO10: 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.			
PO10	**1.68**	**1.90**	Target was attained even though we need to improve the set target level in the next academic year.
ACTION1: Active participation of students in events organized by professional bodies like ISHRAE, SAE, ASM, IIF and IEI.			
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.			
PO11	**1.77**	**1.95**	Target was attained, even though we need to improve the set target level in the next academic year.
ACTION1: Students are encouraged during pre-final year to come up with innovative ideas which can be proposed in front of state and national level sponsoring bodies like KSCST, IEI and VGST.			

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.			
PO12	**1.48**	**1.68**	Target was attained, even though we need to improve the set target level in the next academic year
ACTION1: Offering latest subjects allotted by the universities as electives and facilitate competent faculty to guide, encourage and nourish students goal to pursue higher studies.			
PSO1: Graduates will be able to apply engineering skills in design, manufacturing and analysis of mechanical systems.			
PSO1	**1.97**	**2.09**	Target was attained, even though we need to improve the set target level in the next academic year.
ACTION1: Conducting certification programs on CATIA, ANSYS, Hydraulics and Pneumatics and HVAC for pre and final year students. **ACTION2:** Workshops and Conferences are conducted to acquire more knowledge in terms of conduction of experiments and analyze the required level.			
PSO2: Graduate will able to utilize modern technical tools to provide solution for various complex mechanical engineering problems.			
PSO2	**2.06**	**2.11**	Target was attained, even though we need to improve the set target level in the next academic year.
ACTION1: Students utilize modern equipment's available to solve problems for their academic projects and other assignments. . **ACTION 2:** Students are motivated to take up the real life problems during their project work so that they can design, analyze and find solution which gives exposure to latest technologies.			

POs & PSOs Attainment Levels and Actions for improvement

CAYm2 [2022-2023]			
POs	**Target Level (85%)**	**Attainment Level**	**Observations**
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	**2.32**	**2.36**	Target was attained.
ACTION1: Bridge courses are planned for the above observed courses to enhance the basic knowledge in engineering.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	**1.97**	**2.04**	Target was attained.
ACTION 1: Variety of numerical problems is solved in regular/ tutorial classes which improve students problem analyzing and solving capabilities.			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	**1.77**	**1.89**	Target was attained.

ACTION1: Assisting the students to take up projects related to design and development of complex engineering problems. **ACTION2:** Planned to Conduct Workshops/ Seminars related to public health and safety.			
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.			
PO4	**1.67**	**1.79**	Target was attained.
ACTION1: In connection to the above, suggestions and guidance will be provided during project review process. **ACTION2:** To Conduct the Guest lectures and Training programs on thesis preparation and interpretation of data.			
PO5: 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.			
PO5	**1.91**	**2.16**	Target was attained.
ACTION1: Conventional lab facilities are modernized (computerized) and training is being provided for students in the stipulated time. **ACTION 2:** Modern tools like MATLAB, ARENA, CATIA, etc., will be introduced to improve the technical skills.			
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.			
PO6	**1.45**	**1.91**	Target was attained.
ACTION1: Motivating the students to take-up the projects related to the problems faced by the community.			
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.			
PO7	**1.64**	**2.08**	Target was attained.
ACTION1: Encouraging students to participate in public forums with their projects related to agro and energy sustainability to obtain end user feedback for further improvements.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	**1.70**	**2.02**	Target was attained.
ACTION1: Conducting motivational talks and guest lecturers to improve their professional ethics and responsibilities.			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	**1.55**	**1.86**	Target was attained.
ACTION1: To coin and manage departmental clubs having engineering and social agendas. **ACTION2:** Promotion of Co-curricular and extracurricular activities.			
PO10: 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.			
PO10	**1.59**	**1.88**	Target was attained.
ACTION1: Active participation of students in events organized by professional bodies like ISHRAE, SAE, ASM, IIF and IEI.			

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.			
PO11	**1.67**	**2.00**	Target was attained.
ACTION1: Students are encouraged during pre-final year to come up with innovative ideas which can be proposed in front of state and national level sponsoring bodies like KSCST, IEI and VGST.			
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.			
PO12	**1.40**	**1.69**	Target was attained.
ACTION1: Offering latest subjects allotted by the universities as electives and facilitate competent faculty to guide, encourage and nourish students goal to pursue higher studies.			
PSO1: Graduates will be able to apply engineering skills in design, manufacturing and analysis of mechanical systems.			
PSO1	**1.84**	**2.04**	Target was attained.
ACTION1: Conducting certification programs on CATIA, ANSYS, hydraulics and pneumatics and HVAC for pre and final year students. **ACTION2:** Workshops and Conferences are conducted to acquire more knowledge in terms of conduction of experiments and analyze the required level.			
PSO2: Graduate will able to utilize modern technical tools to provide solution for various complex mechanical engineering problems.			
PSO2	**1.95**	**2.12**	Target was attained.
ACTION1: Students utilize modern equipment's available to solve problems for their academic projects and other assignments.			

POs & PSOs Attainment Levels and Actions for improvement

CAYm3 [2021-2022)			
POs	**Target Level (70%)**	**Attainment Level**	**Observations**
PO1: Engineering knowledge: To Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	**2.19**	**2.44**	Target was attained.
ACTION1: Bridge courses are planned for the above observed courses to enhance the basic knowledge in engineering.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			
PO2	**1.84**	**2.14**	Target was attained.
ACTION 1: Variety of numerical problems are solved in regular/ tutorial classes which improve students problem analyzing and solving capabilities.			
PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate considerations for the public health and safety, and the cultural, societal, and environmental considerations.			
PO3	**1.68**	**1.98**	Target was attained.
ACTION1: Assisting the students to take up projects related to design and development of complex engineering problems.			

ACTION2: Planned to Conduct Workshops/ Seminars related to public health and safety.			
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.			
PO4	**1.6**	**1.93**	Target was attained.
ACTION1: Conduct the Guest lecture and Training programs on thesis preparation and interpretation of data.			
PO5: 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.			
PO5	**1.8**	**2.16**	Target was attained.
ACTION1: Include additional software based experiments in lab courses like MATLAB and CFD.			
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.			
PO6	**1.36**	**1.89**	Target was attained
ACTION1: Higher target level may be considered for the next academic year.			
PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.			
PO7	**1.6**	**2.12**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	**1.6**	**2.05**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	**1.46**	**1.96**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
PO10: 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.			
PO10	**1.5**	**1.96**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
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.			
PO11	**1.57**	**2.04**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
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.			
PO12	**1.13**	**1.73**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			
PSO1: Graduates will be able to apply engineering skills in design, manufacturing and analysis of mechanical systems.			

PSO1	**1.76**	**2.17**	Target was attained.
ACTION1: Higher target level may be considered for the next academic year			
PSO2: Graduate will able to utilize modern technical tools to provide solution for various complex mechanical engineering problems.			
PSO2	**1.83**	**2.25**	Target was attained
ACTION1: Higher target level may be considered for the next academic year			

Identification of GAP

The process used to identify the extent of compliance of university **curriculum** is through getting feedback on gaps from different stakeholders. It includes,

1. Taking input from the teachers handling the course.
2. Taking input from industry experts
3. Collecting feedback from placement cell/ Employers
4. Collecting alumni feedback

The Figure7.1.2 & Figure7.1.3 shows the process of Curriculum Gap analysis and process for assessment on gap analysis.

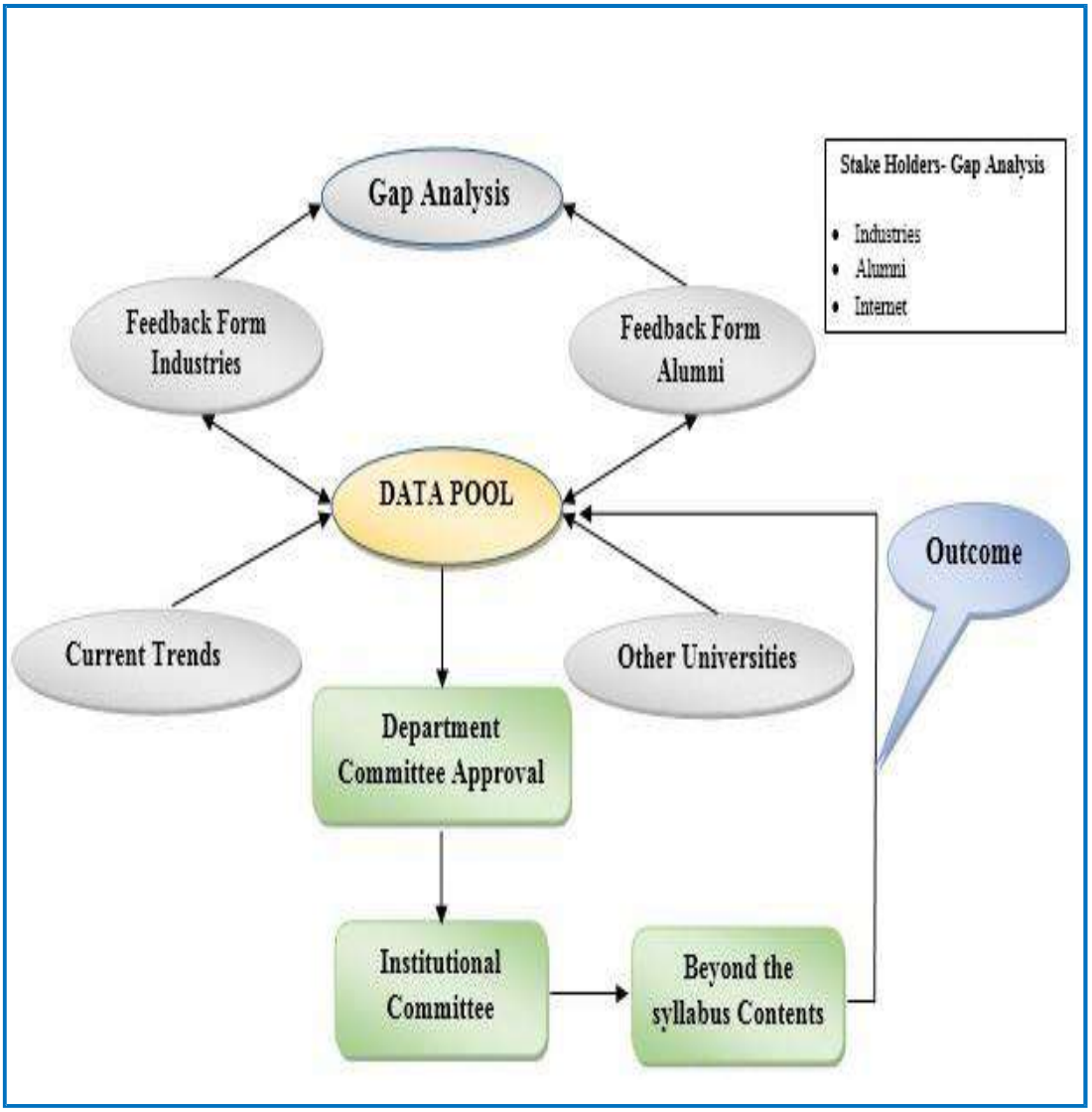


Figure 7.1.2: Process to identify the Curriculum Gaps

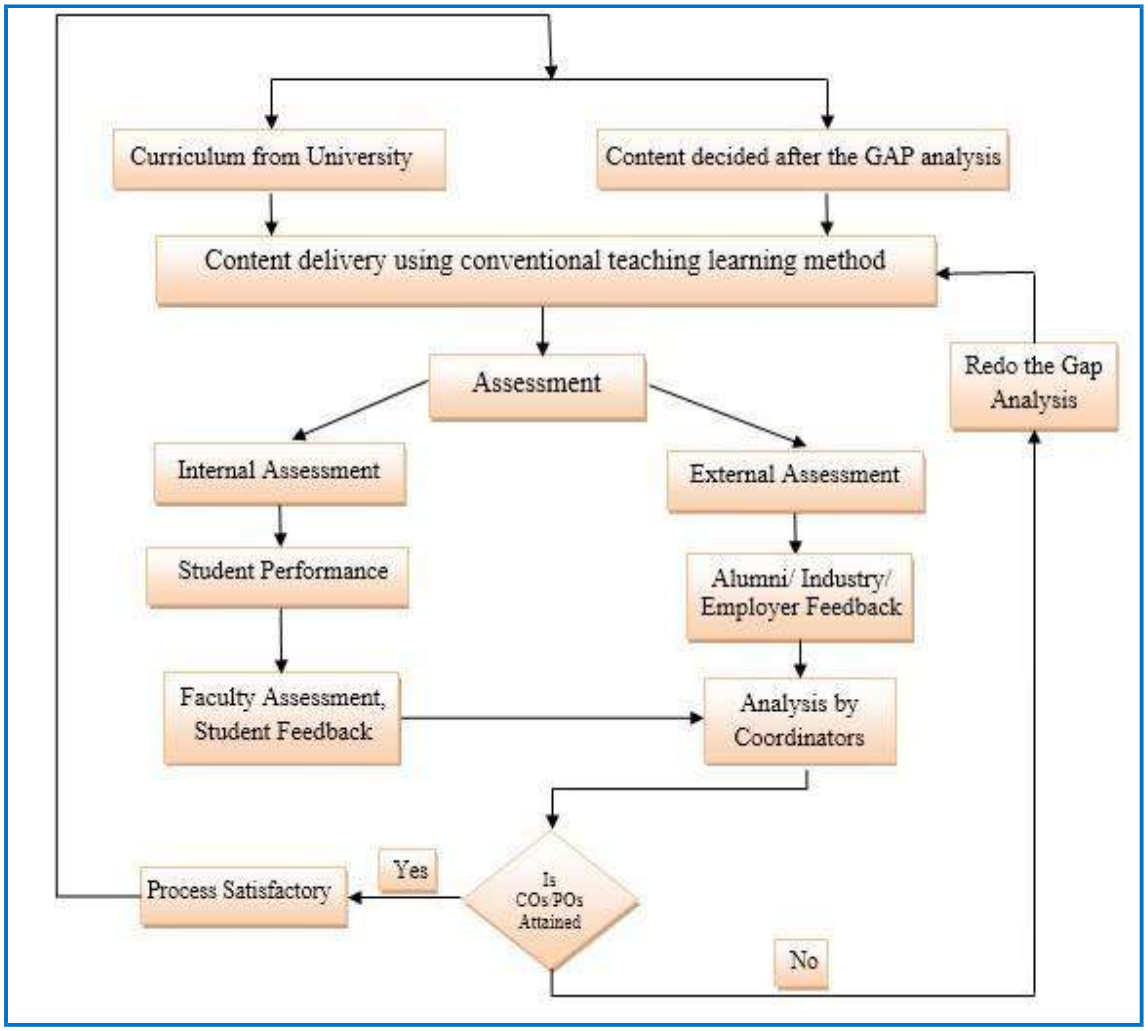


Figure 7.1.3. Process for Assessment on Gap Analysis

Table 7.1 : Course wise gaps and their relevance to POs

Subject Code/ Subject Name	Gap	Resource Person	Steps Taken	Relevance to POs and PSOs

7.2. Academic Audit and actions taken thereof during the period of Assessment (10)

The Department of ME, SJCIT is the backbone where trifocal activities such as teaching, research and training. An academic audit reviews the processes and procedures used by departments to enhance the quality of their Programs in terms of Program Educational Objectives and ensure Program Outcomes (Graduate Attributes) as defined by NBA are achieved against the stipulated targets for which standard practices and processes need to be put in place.

Objective: The primary aim in the ME Department Program is academic audit. The main objective of an academic audit is to ascertain departments that have put in place adequate and effective quality assurance mechanisms in terms of strategies, procedures, that ensures quality inputs and consequently quality outputs, their agility in ensuring continuous improvements along with review of available resources, their optimal utilization, additional resource requirements for providing quality education.

SJCIT- IQAC

The institution has established Internal Quality Assurance Cell (SJCIT-IQAC) during 2017-18 in order to conduct academic audit. The SJCIT-IQAC has put in place an institute wide academic quality management framework to gather evidence-based information on the quality of its programmer and graduates and to encourage a culture of continuous self-improvement through self-reflection of processes and best practices of Programe through Academic Audits. The CO, PO and PSO attainments computed are the quality indicators used in the academic audit of the institution. The Management through IQAC coordinator will decide the main guidelines of academic audit indicating special reference to investigation to be made about the various practices being followed by the departments. The emphasis would remain on teaching, research and services. All attempts will be made to ensure that continuous growth of all major parameters related to quality of education is achieved. The achievement with specific reference to the plan of action related to PEOs and POs/PSOs will be monitored. The IQAC coordinator has authorized SJCIT- IQAC to conduct the audit and collect information through various records that may include the following:

- Department action plan and targets
- Minutes of Departmental meetings of various committees
- Record of content delivery through lectures, practical etc. and
- Result analysis semester (three years) of courses in relation to set targets.
- Results and interpretation of indirect assessment
- Corrective action envisaged
- Recommendations of department Advisory Committee
- Any other evidential material

Roles of SJCIT- IQAC

1. To develop strategies to improve quality.
2. To set quality performance indicators in Teaching, Research and Administration pertaining to departments/programs and other units of the Institution.
3. To develop strategies to evaluate quality performance indicators
    - ✓ To evolve and implement self-evaluation proforma for faculty members
    - ✓ To evolve and implement stakeholders feedback assessment
    - ✓ To facilitate periodic academic and administrative audit

Requirements

- ✓ Involvement of all the stakeholders to evaluate the set quality performance indicators.
- ✓ Feedback collection, analysis and dissemination of relevant information citing concerns where improvement measures should be taken.
- ✓ Facilitate accreditation and review processes involving external agencies- NBA/NAAC

Entities Involved in Continuous Improvement:

Faculty, Course Coordinators, Program Coordinators, HOD, Department Advisory Board, College Advisory Board.

Documents to be submitted for Audit: The following records of the faculty members are verified during the internal academic audit.

1) Calendar of Events
2) Appointment order
3) Copy of marks cards and degree
4) Timetable
5) Syllabus
6) Lesson Plan
7) Lecture notes
8) Attendance Register
9) Teachers Work Diary
10) Assignment Questions
11) Question Bank
12) Internal Question Paper and Scheme of Evaluation
13) Internal Test Marks
14) Previous Year Question Papers
15) Special Class Records (if conducted)
16) Teacher- Appraisal Feedback
17) Exam Related Work
18) UG/PG Projects guided
19) Project Proposals submitted
20) Contents beyond Syllabus
21) FDPs/STTPs attended or organized
22) CO-PO Matrix and COs attainment Levels

In addition, the following parameters are audited with respect to each department.

- Teaching, Learning Process:
    a) Lesson Plan, Lecture notes Result Analysis & Evaluation
    b) Counselling & Mentoring
    c) Co-curricular activities: Seminar/Conference/workshop/Guest Lecture conducted and attended
    d) Research Activities: Publications
    e) Value Added Programs
- Results, Placements, Internships, R&D Projects and Higher Studies Statistics

Process:

- ✓ Defining intended Course and Program Outcomes
- ✓ Identifying Curricular Gaps and strategy (actions) to bridge the gaps
- ✓ Designing effective teaching-learning processes
- ✓ Developing evaluation schemes for assessment of COs and POs
- ✓ Analysing the attainment levels of COs and POs
- ✓ Reviewing of the COs, POs and PEOs
- ✓ Assuring implementation of quality education along with other activities such as research and services, co-curricular and extracurricular to support attainment of POs

Approach

Institution has formed various committees for conduct and review of activities related to academic audit at the institution and department levels. The composition and functions of these committees are as follows:

1. Institution level Academic Audit / Advisory Board (Internal):

Chairman: Dr.G.T. Raju, Principal

External Expert – Academia / Industry

Functions

- ✓ Contribute to preparation of SAR especially information related to institutional and finance.
- ✓ Seek timeline and action plan from each department for Direct and Indirect assessment of COs and POs and ensure their compliance.
- ✓ Interact with employers/industries/alumni for requirements analysis
- ✓ Conduct analysis of results and attainment of COs, POs and PSOs for all Departments
- ✓ Taking corrective actions and additional inputs for meeting COs/POs/PSOs
- ✓ Assessment and revision of COs/PEOs. Review of Departmental Vision and Mission statements
- ✓ Present the analysis of all departments to the Management

- ✓ Develop faculty appraisal system and assess faculty performance annually, report to BOM (Board of Management).

Frequency of Meetings

The committee shall meet once a month, with agenda and action taken record

2. Institution level Academic Audit / Advisory Board (External):

Chairman: Dr. G T Raju, Principal

Members:

Two External Experts – Academia / Industry preferably professors with sufficient academic and administrative background.

VTU Nominee

Functions

- ✓ Assessment on institutional achievements and giving corrective actions for meeting POs, PEOs and Mission
- ✓ Review of Institutional Vision and Mission statements

Frequency of Meetings

The committee shall meet once a year, with agenda and action taken record

3. Department Level Committees

a. Department Advisory Board:(DAB)

Composition:

Chairman: HOD

Convener: Program Coordinator

Members:

Faculty

Alumni,

Parents
External Expert – Academia/Industry.

Functions

- ✓ Review on assessment of Course Outcomes and their relationship with POs/PSOs
- ✓ Validating the actions for continuous improvements of COs, POs and PEOs
- ✓ Review on COs, PEOs and Mission statements
- ✓ Presenting report to IQAC with resource and academic

requirements Frequency of Meetings

The committee shall meet once a year, with agenda and record the action taken.

b. Program Assessment Committee (PAC):

Composition:
Chairman: HOD
Convener: Program Coordinator
Members: Course Coordinators 2 or 3 Senior Faculty member
(Professors, Associate Professors, Assistant Professors)

Functions

- ✓ Prepare and finalize the COs, PSOs, and PEOs in line with the Mission and record the process of development of COs, PSOs and PEOs
- ✓ Assessment of COs, POs and PSOs
- ✓ Recommendations and suggestions to come out with implementable actions for continuous improvements of COs, POs, PSOs and PEOs
- ✓ Conduct assessment of curriculum and resources available to meet the developed COs, PEOs and PSOs, decide additional course contents, electives to bridge the gaps and inform the shortfalls in resources to the Institutional Committee which will evaluate the needs and present the additional requirement to the management
- ✓ Conduct assessment of placement record for ensuring PEOs attainments or revision if required
- ✓ Supervises the COs and their alignment to POs, assignments, tests, quiz, activities, Bloom's Taxonomy and ensures targets set by faculty are realistic.
- ✓ Develop common Performance Indicators for respective Courses aligned to the PO and ensures the faculty develop activities, tests, quiz, assignments related to the common performance indicators as well as for their course specific indicators
- ✓ Monitors progress periodically
- ✓ Develop a description of the process with questionnaires and tools required for continuous assessment
- ✓ Develop faculty self-appraisal questionnaire and student feedback questionnaire
- ✓ Decide frequency of assessment of POs – internal and external
- ✓ Obtain COs from respective faculty for concerned PO along with their alignment with PO, Bloom's Taxonomy and target of expected achievements
- ✓ For direct assessment collects the student results for respective courses aligned to the PO and analyse the average achievement of performance
- ✓ Hold discussions with concerned faculty on shortfalls for the achievement of pre-set targets.
- ✓ Collects recommendations for improvements
- ✓ Prepare and conduct indirect assessment and prepare report
- ✓ Record the results and presents to the IQAC on direct and indirect assessment.

- ✓ Maintain statistics and update on website

Frequency of Meetings

The committee shall meet twice a Semester with agenda and record the action taken.

Reporting:

The purpose of academic audit is not judgmental but to cause development to happen. The SJCIT-IQAC prepares a report that describes the strengths and weaknesses of each department's efforts to improve academic quality of their programs and identify plans for improvements. The main components of the report would be:

- Recognition of Good practices
- Recognition of well performing departments
- Recommendations for improvements

The audit report is presented to the Management and made available to the departments to respond to the issues raised in the report. The responses of the departments are going to be part of the final audit report.

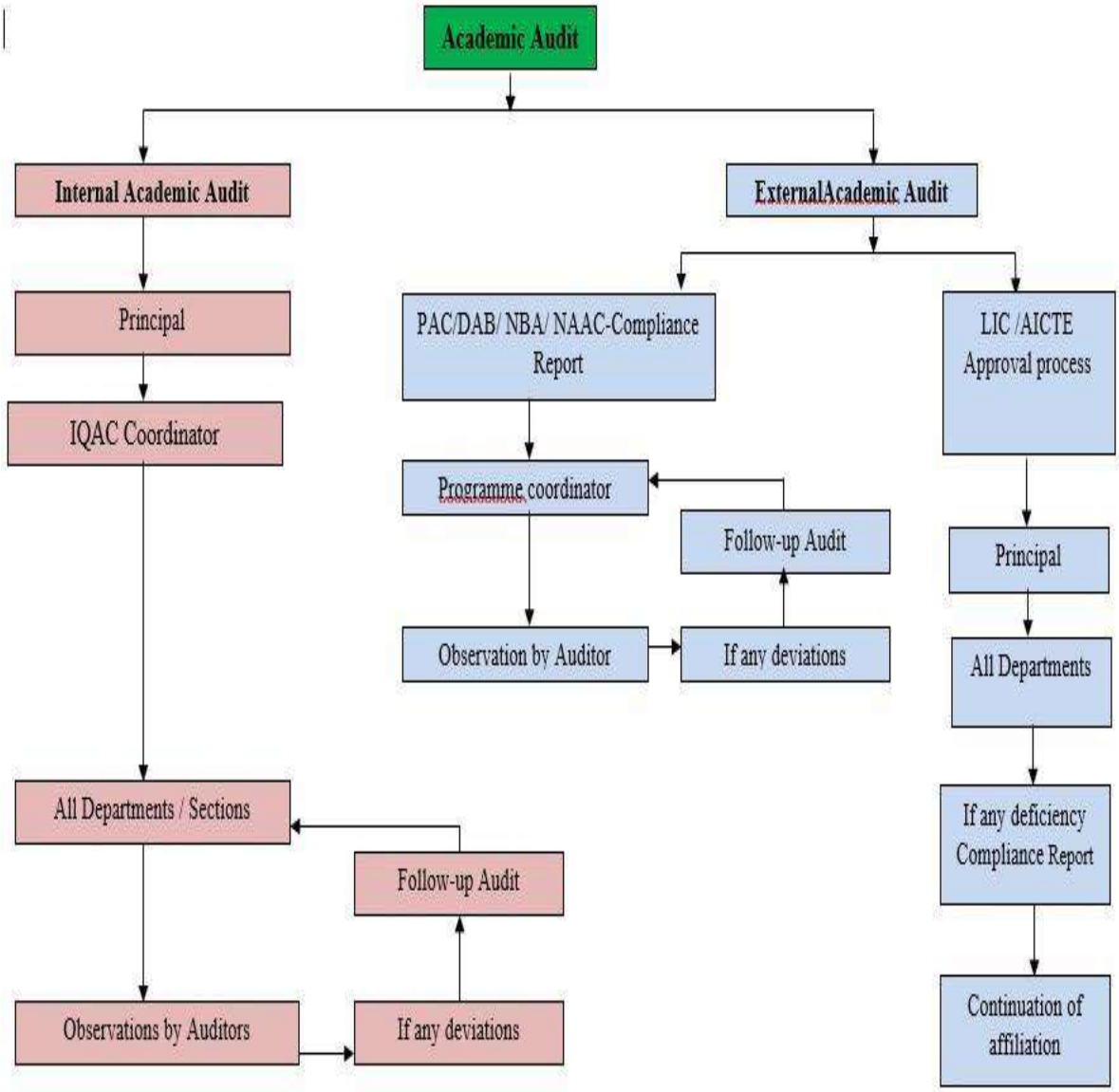
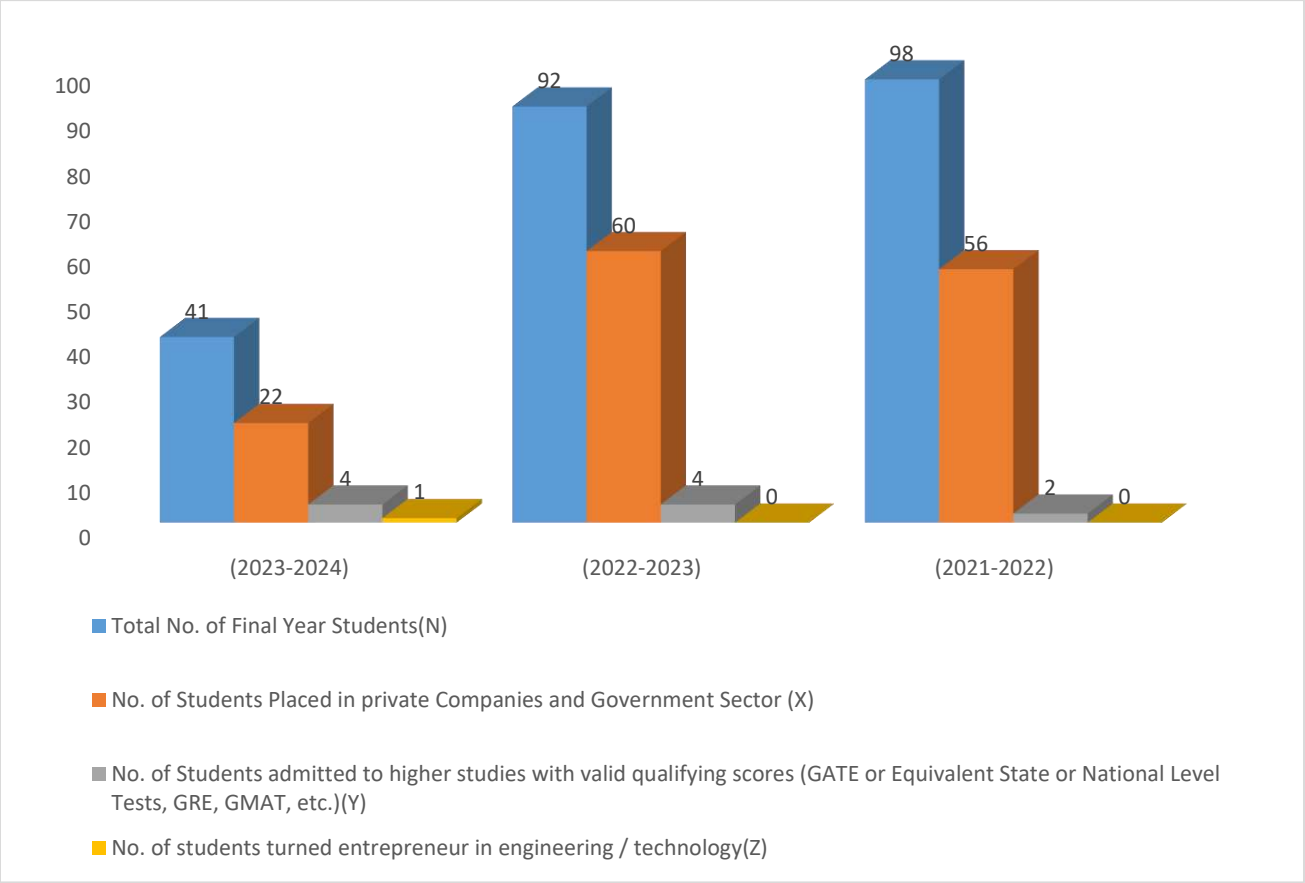


Figure7.2 Academic Audit Process

7.3. Improvement in Placement, Higher Studies and Entrepreneurship (10)



Graph: States that Placement, Higher Studies and Entrepreneurship

Item	CAYm1 (2023-2024)	CAYm2 (2022-2023)	CAYm3 (2021-2022)
Total No. of Final Year Students(**N**)	41	92	98
No. of Students Placed in private Companies and Government Sector (**X**)	22	60	56
No. of Students admitted to higher studies with valid qualifying scores (GATE or Equivalent State or National Level Tests, GRE, GMAT, etc.)(**Y**)	04	04	02
No. of students turned entrepreneur in engineering / technology(**Z**)	01	-	-
Placement Index: (**X**+**Y**+**Z**)	27	64	58
Placement Index: (**X**+**Y**+**Z**)/**N**	**0.659**	**0.696**	**0.592**
Average placement	**0.649**		

7.4. Improvement in the quality of students admitted to the program (10)

Item		CAY (2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
National Level Entrance Examination, COMED-K	**No. of Students admitted**	-------	------	------
	Opening Score/Rank	-------	-------	-------
	Closing Score/Rank	-------	-------	-------
State/University/ Level Entrance Examination/ Others (Name of the Entrance Examination) KCET	**No. of Students admitted**	04	08	03
	Opening Score/Rank	67610	50953	148213
	Closing Score/Rank	177830	168153	170109
Name of the Entrance Examination for Lateral Entry or Lateral entry details KCET (DIPLOMA)	**No. of Students admitted**	4	6	5
	Opening Score/Rank	4130	4612	5187
	Closing Score/Rank	10073	14555	14348
Average CBSE/Any other Board Result of admitted students(Physics, Chemistry & Mathematics)		81.66	77.88	59.22

a) National Level Entrance Examination (COMED-K)

Year	Opening Score/Rank	Closing Score/Rank	Number of Students Admitted
2024	---------	--------	-------
2023	-------	-------	-------
2022	-------	------	--------

b) State/University level entrance Examinations/others (CET)

Year	Opening Score/rank	Closing score/rank	Number of the students admitted
2024	67610	177830	04
2023	50953	168153	08
2022	148213	170109	03

c) Entrance examination for Lateral Entry or Lateral Entry details (Diploma CET)

Year	Opening Score/Rank	Closing Score/Rank	Number of Students Admitted
2024	4130	10073	04
2023	4612	14555	06
2022	5187	14348	05