

BIRLA INSTITUTE OF TECHNOLOGY

SELF ASSESSMENT REPORT(TIER - I) FOR Mechanical Engineering

Part A : Institutional Information

1 Name and Address of the Institution

BIRLA INSTITUTE OF TECHNOLOGY,
BIRLA INSTITUTE OF TECHNOLOGY, MESRA

2 Type of the Institution:

☐ Institute of National Infortance	☐ Autonomous
☐ University	☐ Any other(please specify)
☐ Deemed University	

3 Year of establishment of the Institution:

1955

4 Ownership Status:

☐ Central Government	☐ Any Other(Please Specify)
☐ State Government	
☐ Government Aided	
☒ Self financing	

5 Name and Address of Affiliating University(if any)

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

Name of Institutions	Year of Establishment	Programs of Study	Location

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

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Mechanical Engineering	PG	1964	1964	24	No	24	Not eligible for accreditation	--	--		2
Mechanical Engineering	UG	1955	1955	120	No	120	Granted accreditation for 3 years for the period (specify period)	2023	2026		4
Bachelor of Architecture	UG	1993	1993	40	No	40	Not eligible for accreditation	--	--	No	5
Bachelor of Technology (Chemical Engineering)	UG	2011	2011	60	Yes	120	Granted accreditation for 3 years for the period (specify period)	2026	2028	No	4
Bachelor of Technology (Biotechnology)	UG	2002	2002	60	No	60	Granted accreditation for 3 years for the period (specify period)	2026	2028	0	4
Bachelor of Technology (Food Engineering and Technology)	UG	2023	2023	30	No	30	Not eligible for accreditation	--	--	0	4
Master of Computer Applications	PG	1984	1984	60	Yes	160	Granted accreditation for 3 years for the period (specify period)	2020	2023	0	2
Sanctioned Intake for Last Five Years for the Master of Computer Applications											
Academic Year				Sanctioned Intake							
2025-26				160							
2024-25				160							
2023-24				60							
2022-23				60							
2021-22				60							
2020-21				60							
Master of Technology (Biotechnology)	PG	2010	2010	18	No	18	Granted provisional accreditation for two years for the period(specify period)	2016	2018	0	2
Master of Technology (Aerospace Engineering)	PG	1968	1968	12	Yes	24	Eligible but not applied	--	--	0	2
Sanctioned Intake for Last Five Years for the Master of Technology (Aerospace Engineering)											
Academic Year				Sanctioned Intake							
2025-26				24							
2024-25				24							
2023-24				24							
2022-23				24							
2021-22				12							
2020-21				12							

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Bachelor of Technology (Artificial Intelligence and Machine Learning)	UG	2022	2022	60	No	60	Not eligible for accreditation	--	--	0	4
Bachelor of Technology (Civil Engineering)	UG	1957	1957	60	No	60	Granted accreditation for 3 years for the period (specify period)	2026	2028	0	4
Master of Technology (Civil Engineering)	PG	2024	2024	30	No	30	Not eligible for accreditation	--	--	0	2
Bachelor of Technology (Computer Science and Engineering)	UG	1983	1983	60	No	180	Granted accreditation for 3 years for the period (specify period)	2026	2028	0	4
Master of Technology (Computer Science and Engineering)	PG	1999	1999	16	Yes	30	Granted accreditation for 3 years for the period (specify period)	2020	2023	0	2
Sanctioned Intake for Last Five Years for the Master of Technology (Computer Science and Engineering)											
Academic Year				Sanctioned Intake							
2025-26				30							
2024-25				30							
2023-24				30							
2022-23				30							
2021-22				16							
2020-21				16							
Master of Technology - Computer Science and Engineering (Artificial Intelligence & Machine Learning)	PG	2021	2021	18	Yes	30	Eligible but not applied	--	--	0	2
Sanctioned Intake for Last Five Years for the Master of Technology - Computer Science and Engineering (Artificial Intelligence & Machine Learning)											
Academic Year				Sanctioned Intake							
2025-26				30							
2024-25				30							
2023-24				30							
2022-23				30							
2021-22				18							
2020-21				18							
Master of Technology (Electrical Engineering)	PG	2022	2022	30	No	30	Eligible but not applied	--	--	0	2
Master of Technology (Electronics and Communication Engineering)	PG	2022	2022	30	No	30	Eligible but not applied	--	--	0	2
Master of Urban Planning	PG	2007	2007	20	No	20	Not eligible for accreditation	--	--	0	2

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Bachelor of Hotel Management and Catering Technology	UG	2003	2003	60	Yes	30	Eligible but not applied	--	--	0	4
Sanctioned Intake for Last Five Years for the Bachelor of Hotel Management and Catering Technology											
Academic Year				Sanctioned Intake							
2025-26				30							
2024-25				30							
2023-24				30							
2022-23				30							
2021-22				60							
2020-21				60							
Master of Business Administration	PG	1980	1980	120	Yes	220	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	2
Sanctioned Intake for Last Five Years for the Master of Business Administration											
Academic Year				Sanctioned Intake							
2025-26				220							
2024-25				220							
2023-24				120							
2022-23				120							
2021-22				120							
2020-21				120							
Master of Pharmacy (Pharmaceutical Chemistry)	PG	1983	1983	6	Yes	15	Not eligible for accreditation	--	--	0	2
Master of Pharmacy (Pharmaceutical Quality Assurance)	PG	2011	2011	15	No	15	Not eligible for accreditation	--	--	0	2
Master of Pharmacy (Pharmacognosy)	PG	1998	1998	6	Yes	15	Not eligible for accreditation	--	--	0	2
Master of Pharmacy (Pharmacology)	PG	1998	1998	6	Yes	15	Not eligible for accreditation	--	--	0	2
Master of Pharmacy (Pharmaceutics)	PG	1983	1983	6	Yes	15	Not eligible for accreditation	--	--	0	2
Bachelor of Pharmacy	UG	1972	1972	60	No	60	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	4
Integrated Master of Science (Physics)	PG	2008	2008	40	Yes	30	Not eligible for accreditation	--	--	0	5
Integrated Master of Science (Mathematics and Computing)	PG	2011	2011	40	Yes	60	Not eligible for accreditation	--	--	0	5

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Integrated Master of Science (Quantitative Economics and Data Science)	PG	2021	2021	30	No	30	Not eligible for accreditation	--	--	0	5
Master of Science (Biotechnology)	PG	2014	2014	30	No	30	Not eligible for accreditation	--	--	0	2
Master of Science (Physics)	PG	2008	2008	15	No	15	Not eligible for accreditation	--	--	0	2
Master of Science (Geoinformatics)	PG	2006	2006	15	No	15	Not eligible for accreditation	--	--	0	2
Master of Science (Chemistry)	PG	2009	2009	15	No	15	Not eligible for accreditation	--	--	0	2
Master of Science (Environmental Science and Management)	PG	2024	2024	30	No	30	Not eligible for accreditation	--	--	0	2
Integrated Master of Business Administration	PG	2024	2024	60	No	60	Not eligible for accreditation	--	--	0	5
Master of Technology (Electric Vehicle Technology)	PG	2022	2022	30	No	30	Eligible but not applied	--	--	0	2
Bachelor of Science (Chemistry)	UG	2023	2023	30	No	30	Not eligible for accreditation	--	--	0	4
Diploma in Computer Engineering	Diploma	2002	2002	30	Yes	60	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	3
Sanctioned Intake for Last Five Years for the Diploma in Computer Engineering											
Academic Year				Sanctioned Intake							
2025-26				60							
2024-25				30							
2023-24				30							
2022-23				30							
2021-22				30							
2020-21				30							
Diploma in Electronics and Communication	Diploma	2001	2001	30	No	30	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	3
Diploma in Automobile Engineering	Diploma	2001	2001	30	Yes	60	Eligible but not applied	--	--	0	3
Diploma in Electrical and Electronics Engineering	Diploma	2010	2010	30	Yes	60	Eligible but not applied	--	--	0	3
Diploma in Mechanical Engineering	Diploma	2010	2010	60	Yes	90	Eligible but not applied	--	--	0	3

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Sanctioned Intake for Last Five Years for the Diploma in Mechanical Engineering											
Academic Year				Sanctioned Intake							
2025-26				90							
2024-25				90							
2023-24				90							
2022-23				90							
2021-22				60							
2020-21				60							
Diploma in Civil Engineering	Diploma	2025	2025	30	No	30	Not eligible for accreditation	--	--	0	3
Bachelor of Technology (Electrical and Electronics Engineering)	UG	1955	1955	60	Yes	90	Granted accreditation for 3 years for the period (specify period)	2023	2026	No	4
Sanctioned Intake for Last Five Years for the Bachelor of Technology (Electrical and Electronics Engineering)											
Academic Year				Sanctioned Intake							
2025-26				90							
2024-25				60							
2023-24				60							
2022-23				60							
2021-22				60							
2020-21				60							
Bachelor of Technology (Electronics and Communication Engineering)	UG	1960	1960	5	Yes	180	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	4
Sanctioned Intake for Last Five Years for the Bachelor of Technology (Electronics and Communication Engineering)											
Academic Year				Sanctioned Intake							
2025-26				180							
2024-25				180							
2023-24				180							
2022-23				120							
2021-22				120							
2020-21				120							
Bachelor of Technology (Production and Industrial Engineering)	UG	1964	1964	30	Yes	60	Granted accreditation for 3 years for the period (specify period)	2023	2026	0	4

Name of Program	Program Applied level	Start of year	Year of AICTE approval	Initial Intake	Intake Increase	Current Intake	Accreditation status	From	To	Program for consideration	Program for Duration
Master of Technology (Production and Industrial Engineering)	PG	1992	1992	25	Yes	12	Granted accreditation for 3 years for the period (specify period)	2017	2020	0	2
Sanctioned Intake for Last Five Years for the Master of Technology (Production and Industrial Engineering)											
Academic Year				Sanctioned Intake							
2025-26				12							
2024-25				12							
2023-24				12							
2022-23				12							
2021-22				25							
2020-21				25							
Bachelor of Business Administration	UG	1998	1998	200	No	200	Not eligible for accreditation	--	--	No	4
Bachelor of Computer Applications	UG	1998	1998	200	No	200	Not eligible for accreditation	--	--	0	4
Master of Technology (Remote Sensing)	PG	1997	1997	10	Yes	24	Granted accreditation for 3 years for the period (specify period)	2023	2026	No	2
Sanctioned Intake for Last Five Years for the Master of Technology (Remote Sensing)											
Academic Year				Sanctioned Intake							
2025-26				24							
2024-25				24							
2023-24				24							
2022-23				24							
2021-22				18							
2020-21				18							

8 Programs to be considered for Accreditation vide this application:

S No	Level	Discipline	Program
1	Under Graduate	Engineering & Technology	Electrical & Electronics Engineering
2	Under Graduate	Engineering & Technology	Electronics & Communication Engineering
3	Under Graduate	Engineering & Technology	Mechanical Engineering
4	Under Graduate	Engineering & Technology	Production & Industrial Engineering

Table No. A8.2

S No	Name of the Department	Name of the Program	Name of Allied Departments/Cluster	Name of Allied Program
No record exist(s)				

.....

9 Total Number of Faculty Members in Various Departments:

ID	Department Name	Number of faculty members in the Department (UG and PG)											
		2025-26 (CAY)				2024-25 (CAYm1)				2023-24 (CAYm2)			
		No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members	No. of Professors	No. of Associate Professors	No. of Assistant Professors	Total faculty members
1	Bioengineering & Biotechnology	8	2	10	20	5	4	11	20	5	4	11	20
2	Chemical Engineering	3	2	20	25	3	2	18	23	3	2	16	21
3	Civil and Environmental Engineering	1	4	9	14	5	5	8	18	7	5	6	18
4	Computer Science and Engineering	4	12	41	57	3	10	28	41	3	9	28	40
5	Electrical and Electronics Engineering	2	2	14	18	3	0	16	19	3	0	15	18
6	Electronics and Communication Engineering	5	3	21	29	4	5	20	29	5	5	18	28
7	Management	6	3	28	37	5	3	29	37	5	1	12	18
8	Mechanical Engineering	3	2	18	23	3	3	18	24	3	3	18	24
9	Pharmaceutical Science and Technology	5	3	12	20	5	4	13	22	6	4	11	21
10	Production and Industrial Engineering	3	4	9	16	2	4	10	16	2	4	11	17
11	Remote Sensing and Geoinformatics	2	4	1	7	2	4	1	7	3	4	1	8
12	Space Engineering and Rocketry	1	1	5	7	1	1	4	6	1	0	5	6

10 Total Number of Engineering Students in Various Departments:

ID	Deparment Name	Number of students in the Department (UG and PG)		
		2025-26 (CAY)	2024-25 (CAYm1)	2023-24 (CAYm2)
1	Bioengineering and Biotechnology	209	159	143
2	Chemical Engineering	479	462	404
3	Civil and Environmental Engineering	244	256	241
4	Computer Science and Engineering	1368	1215	1098
5	Electrical and Electronics Engineering	329	311	330
6	Electronics and Communication Engineering	824	733	650
7	Mechanical Engineering	533	528	504
8	Production and Industrial Engineering	205	195	180
9	Remote Sensing and Geoinformatics	12	15	14
10	Space Engineering and Rocketry	29	16	6

11 Vision of the Institution:

To become a globally recognized academic institution, striving for excellence in education, research, and technological service while aligning with social, economic, and ecological environments

12 Mission of the Institution:

- To educate students at Undergraduate, Post Graduate, Doctoral and Post Doctoral levels to perform challenging engineering and managerial jobs in industry
- To provide excellent research and development facilities to take up Ph.D programmes and research projects
- To develop effective teaching and learning skills and state-of-the-art research potential of the faculty
- To build national capabilities in technology, education and research in emerging areas
- To provide excellent technological services to satisfy the requirements of the industry and overall academic needs of society

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

Head of the Institution	
Name	Indranil Manna
Designation	Vice Chancellor
Mobile No.	8127884422
Email ID	vc@bitmesra.ac.in

☒ **NBA Coordinator, If Designated**

Name	Animesh Ghosh
Designation	Director IQAC
Mobile No.	9007175618
Email ID	dir.iqac@bitmesra.ac.in

PART B: Criteria Summary

Criteria No.	Criteria	Total Marks	Institute Marks
1	OUTCOME-BASED CURRICULUM	120	120.00
2	OUTCOME-BASED TEACHING LEARNING	120	120.00
3	OUTCOME-BASED ASSESSMENT	120	120.00
4	STUDENTS' PERFORMANCE	120	104.58
5	FACULTY INFORMATION	100	81.00
6	FACULTY CONTRIBUTIONS	120	83.11
7	FACILITIES AND TECHNICAL SUPPORT	100	100.00
8	CONTINUOUS IMPROVEMENT	80	80.00
9	STUDENT SUPPORT AND GOVERNANCE	120	120.00
	Total	1000	929

Part B : Criteria Summary

1 OUTCOME-BASED CURRICULUM (120)

1.1 Vision, Mission and Program Educational Objectives (PEOs) (35)

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

Vision of the institute	To become a globally recognized academic institution, striving for excellence in education, research, and technological service while aligning with social, economic, and ecological environments												
Mission of the institute	To educate students at Undergraduate, Post Graduate, Doctoral and Post Doctoral levels to perform challenging engineering and managerial jobs in industry To provide excellent research and development facilities to take up Ph.D programmes and research projects To develop effective teaching and learning skills and state-of-the-art research potential of the faculty To build national capabilities in technology, education and research in emerging areas To provide excellent technological services to satisfy the requirements of the industry and overall academic needs of society												
Vision of the Department	The Mechanical Engineering Department of Birla Institute of Technology, Mesra, Ranchi strives to be globally recognised for quality engineering education and research leading to well qualified engineers, academicians and researchers who are innovative, entrepreneurial and successful in achieving excellence in their field of study.												
Mission of the Department	<table><tr><th>Mission No.</th><th>Mission Statements</th></tr><tr><td>M1</td><td>To impart quality education to the students and enhancing their knowledge and skills to be globally competitive Mechanical Engineers.</td></tr><tr><td>M2</td><td>To maintain state of the art research facilities to provide its students and faculty to create, interpret, apply, and disseminate knowledge with an understanding of the limitations.</td></tr><tr><td>M3</td><td>To develop linkages and interaction with industry, R & D organization, and educational institution for excellence in consultancy practices, research, and teaching.</td></tr><tr><td>M4</td><td>To provide conducive environment for learning, creativity and problem-solving skill.</td></tr></table>			Mission No.	Mission Statements	M1	To impart quality education to the students and enhancing their knowledge and skills to be globally competitive Mechanical Engineers.	M2	To maintain state of the art research facilities to provide its students and faculty to create, interpret, apply, and disseminate knowledge with an understanding of the limitations.	M3	To develop linkages and interaction with industry, R & D organization, and educational institution for excellence in consultancy practices, research, and teaching.	M4	To provide conducive environment for learning, creativity and problem-solving skill.
Mission No.	Mission Statements												
M1	To impart quality education to the students and enhancing their knowledge and skills to be globally competitive Mechanical Engineers.												
M2	To maintain state of the art research facilities to provide its students and faculty to create, interpret, apply, and disseminate knowledge with an understanding of the limitations.												
M3	To develop linkages and interaction with industry, R & D organization, and educational institution for excellence in consultancy practices, research, and teaching.												
M4	To provide conducive environment for learning, creativity and problem-solving skill.												

1.1.2 State PEOs of the Program (5)

PEO No.	Program Educational Objectives Statements
PEO1	To provide a quality undergraduate education for students entering the mechanical engineering profession of seeking carriers in related fields.
PEO2	To advance scientific knowledge through basic and applied research through scholarly publication, conferences, and continuing education
PEO3	To enable to acquire knowledge of relevant technologies and multidisciplinary fields including broad social, ethical, and environmental issues within which the engineering is practiced.
PEO4	To develop problem solving approach using analytical abilities, effective communication skills and teamwork.
PEO5	To create awareness and understanding related to social issues, apart from developing a sense of commitment to the community and profession with sincere involvement.

1.1.3 Process of Defining Vision, Mission and PEOs (10)

The Department of Mechanical Engineering followed a systematic, inclusive, and consultative process for defining its Vision, Mission, and Programme Educational Objectives (PEOs). The process involved active participation from all internal and external stakeholders and was carried out in the following steps:

STEP I:

Several departmental meetings and brainstorming sessions were conducted with the active participation of all faculty members of the Department of Mechanical Engineering. During these deliberations, due consideration was given to the Institute's Vision and Mission as well as the guidelines prescribed by regulatory and accreditation bodies such as the National Board of Accreditation (NBA) and NAAC. After extensive discussions, a draft version of the Department Vision, Mission, and Programme Educational Objectives (PEOs) was prepared.

STEP II:

Feedback on the draft Vision, Mission, and PEOs was obtained from internal stakeholders, including:

- The Management of the Institute (Vice Chancellor, Dean – Academic Programmes, Dean – Faculty Affairs & Sponsored Research)
- All Faculty Members
- Support Staff
- Current Students

STEP III:

Feedback was also collected from external stakeholders, comprising:

- Alumni
- Employers and Industry Representatives
- Parents

STEP IV:

All feedback received from internal and external stakeholders was carefully analyzed and reviewed. Based on the inputs, a revised second draft of the Vision, Mission, and PEOs was prepared. This draft was further discussed and finalized by the Departmental Academic Committee (DAC). To ensure continuous improvement, industry relevance, and better alignment with current industrial standards, several new courses were introduced in the curriculum.

STEP V:

After final ratification by the Departmental Academic Committee (DAC), the revised Vision, Mission, and PEOs were placed before the Board of Studies (BoS) for approval. The BoS thoroughly reviewed the documents and formally accepted the same.

STEP VI:

The Vision, Mission, and PEOs approved by the Board of Studies were presented and discussed in the Academic Council meeting of the Institute. Upon approval by the Academic Council, the final Vision, Mission and PEOs of the Department of Mechanical Engineering were officially implemented and displayed on the institute website and other prominent locations.

Flowcharts (Figures 1.1.3.1 and 1.1.3.2) illustrating the complete process followed for defining the Vision, Mission, and PEOs of the Department of Mechanical Engineering are provided below:

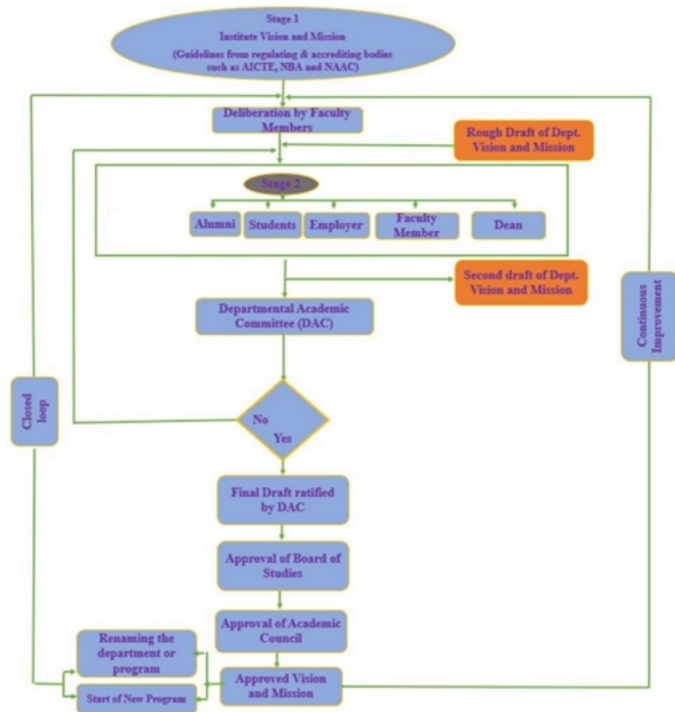


Figure 1.1.3.1: Flowchart showing the process followed for establishing the Vision and Mission.

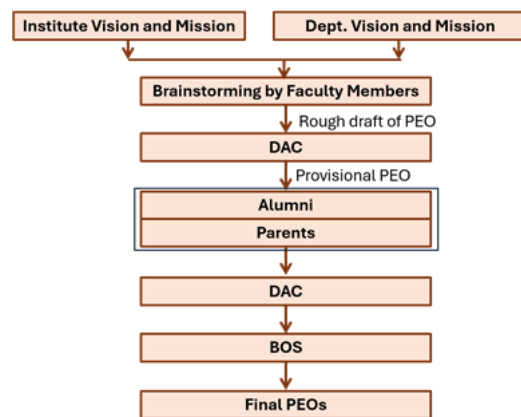


Figure 1.1.3.2: Flowchart depicting the process followed for establishing the PEOs.

The Vision, Mission, and PEOs are published in the Website of the University as well as in the Laboratories of the Department. Stakeholders are made aware of the Vision, Mission, and PEOs.

INTERNAL STAKE HOLDERS:

1. Management of the Institutes including Vice Chancellor, Dean Academic Programme, Dean Faculty Affairs and Sponsored Research
2. All Faculty
3. Support Staff
4. Students

EXTERNAL STAKE HOLDERS:

1. Alumni
2. Employers
3. Industries
4. Experts from other reputed institutions Posters, and Flyers are printed and disseminated as given in the following Table:

Medium/Location of publication	INSTITUTE		Department		
	Vision	Mission	Vision	Mission	PEO
Institute Website	Y	Y	Y	Y	Y
Department Notice Board	Y	Y	Y	Y	Y
Common areas-Corridors	Y	Y	Y	Y	Y
Staff rooms, labs, classrooms	Y	Y	Y	Y	Y

Following figures (figs. 1.1.4.1, 1.1.4.2, 1.1.4.3, 1.1.4.4, 1.1.4.5, 1.1.4.6) exhibit different locations where the CO, PO and PEOs are disseminated.



Figure 1.1.4.1: Display at HOD cabin and office

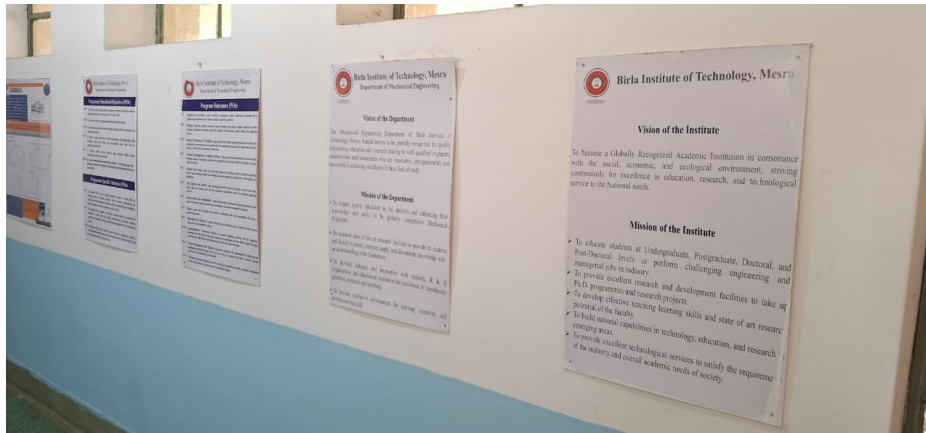


Figure 1.1.4.2: Display at Mechanical Wing



Figure 1.1.4.3: Display at IC Engine laboratory



Figure 1.1.4.4: Display at DOM laboratory

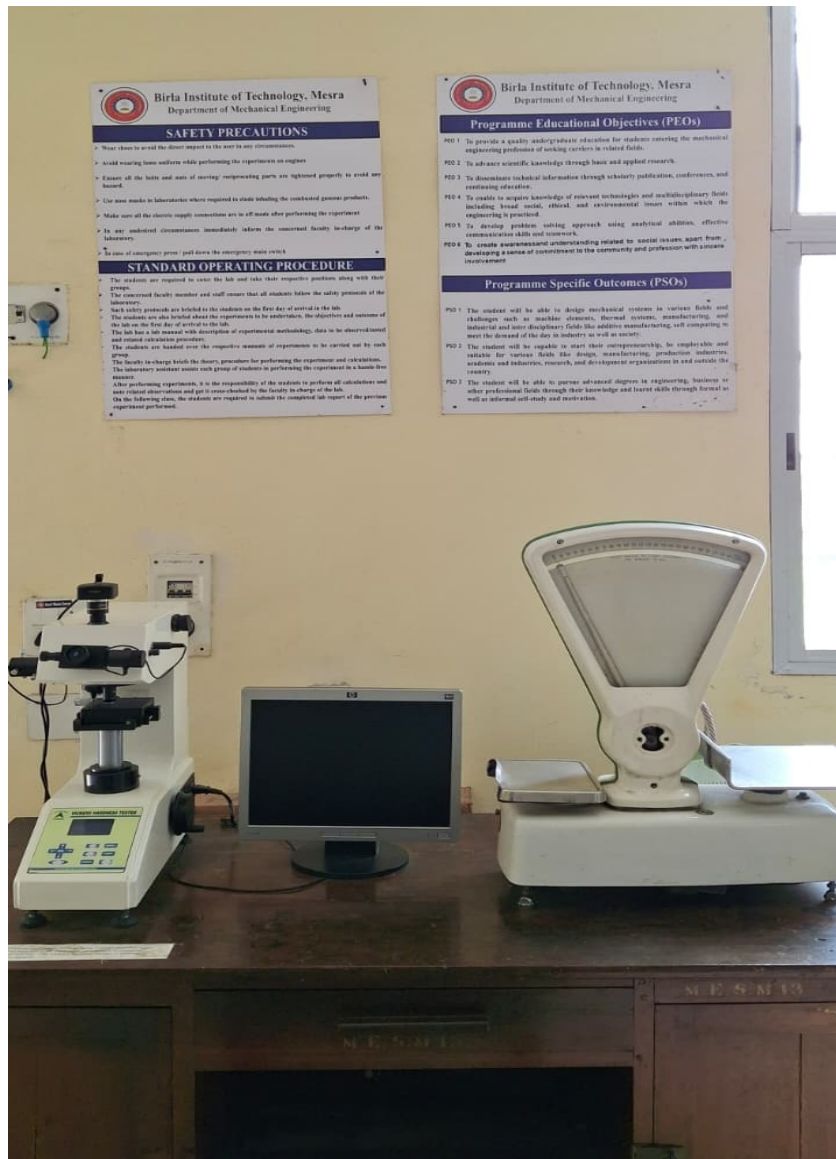


Figure 1.1.4.5: Display at SOM laboratory

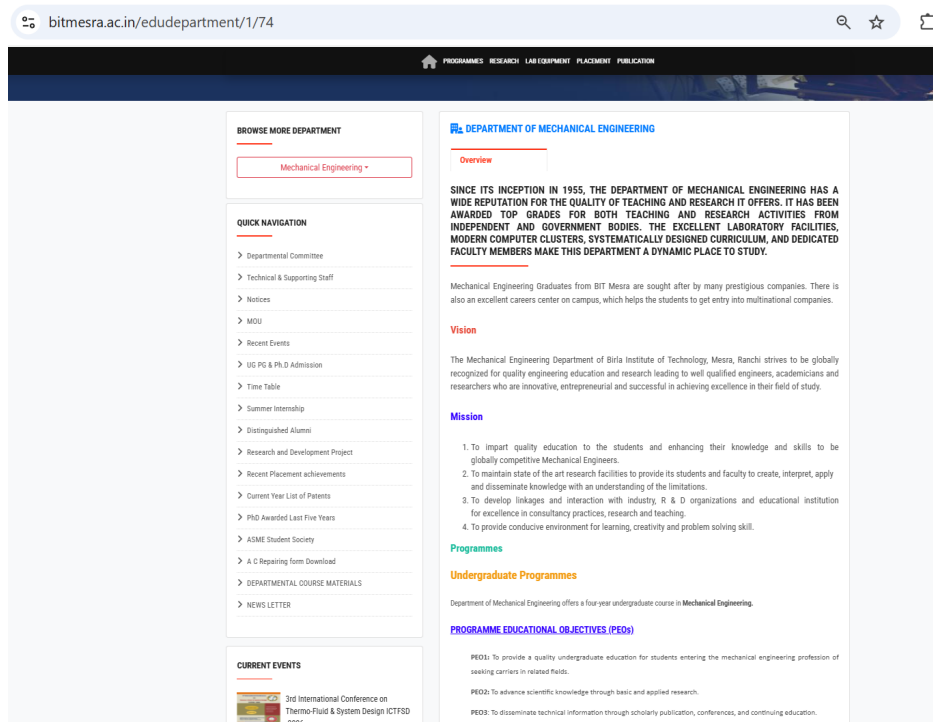


Figure 1.1.4.6: Display at Institute website department page

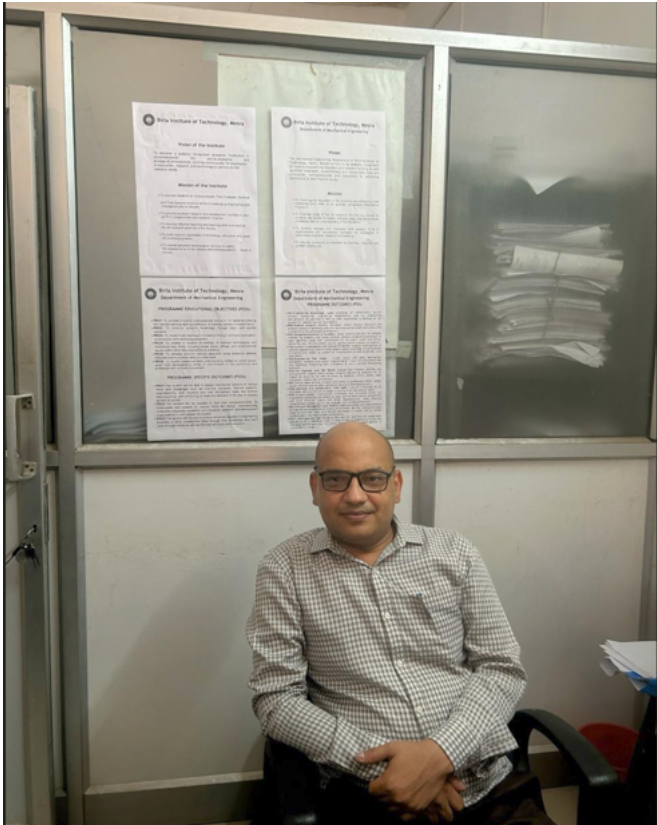


Figure 1.1.4.7: Display at staff room

1.1.5 Mapping of PEOs with Mission (10)

PEO Statements	M1	M2	M3	M4
To provide a quality undergraduate education for students entering the mechanical engineering profession of seeking carriers in related fields.	3 ▼	2 ▼	2 ▼	3 ▼
To advance scientific knowledge through basic and applied research through scholarly publication, conferences, and continuing education	2 ▼	3 ▼	3 ▼	2 ▼
To enable to acquire knowledge of relevant technologies and multidisciplinary fields including broad social, ethical, and environmental issues within which the engineering is practiced.	2 ▼	3 ▼	3 ▼	2 ▼
To develop problem solving approach using analytical abilities, effective communication skills and teamwork.	3 ▼	2 ▼	2 ▼	3 ▼
To create awareness and understanding related to social issues, apart from developing a sense of commitment to the community and profession with sincere involvement.	3 ▼	3 ▼	3 ▼	2 ▼

Justification / Rationale for Mapping of Programme Educational Objectives (PEOs) with Departmental Missions

The mapping between the Programme Educational Objectives (PEOs) and the Departmental Missions of Mechanical Engineering has been carried out thoughtfully, considering the alignment of each PEO with the stated missions. The rationale for the assigned mapping levels (on a scale of 1 to 3) is detailed below:

PEO1:

Mission M1 strongly supports this PEO by imparting quality education and enhancing students' knowledge and skills, thereby preparing them to become globally competitive mechanical engineers. **Mission M2** contributes to this objective by providing access to modern research facilities and advanced learning resources that enrich students' academic experience and technical competence. **Mission M3** supports this PEO through interactions with industry, R&D organizations, and educational institutions, which expose students to current engineering practices and improve their employability. **Mission M4** complements this objective by providing a conducive learning environment that encourages academic excellence, creativity, and continuous self-improvement, enabling graduates to succeed in their professional careers.

PEO2:

Mission M1 lays the foundation for research by equipping students with strong theoretical and technical knowledge. **Mission M2** directly supports this PEO by maintaining state-of-the-art research facilities and encouraging the creation, interpretation, application, and dissemination of knowledge through research activities. **Mission M3** further strengthens this objective by promoting collaboration with industries, R&D organizations, and academic institutions, thereby facilitating applied research, innovation, consultancy, and knowledge exchange. **Mission M4** contributes by fostering creativity, critical thinking, and problem-solving abilities that are essential for conducting meaningful research and pursuing lifelong learning.

PEO3:

Mission M1 contributes to this PEO by providing a comprehensive engineering education that exposes students to modern technologies and contemporary engineering practices. **Mission M2** supports the objective by encouraging research activities that often involve multidisciplinary approaches and emerging technologies. **Mission M3** strongly aligns with this PEO through collaborations with industry and other institutions providing opportunities to understand interdisciplinary applications and real-world engineering challenges. **Mission M4** further supports this objective by creating a learning environment that promotes awareness of societal, ethical, environmental, and technological issues, enabling students to develop a broader perspective on engineering practice.

PEO4:

Mission M1 supports this PEO by delivering quality education that develops analytical thinking, technical expertise, and communication skills among students. **Mission M2** contributes by engaging students in research and project activities that require systematic analysis and innovative problem-solving approaches. **Mission M3** strengthens this objective by facilitating industry interactions, collaborative projects, and consultancy activities that enhance teamwork, communication, and practical problem-solving abilities. **Mission M4** directly aligns with this PEO by fostering creativity, collaborative learning, and critical thinking which are essential for developing effective problem-solving skills and professional competence.

PEO5:

Mission M1 contributes to this PEO by promoting professional values and responsible engineering practices as part of the educational process. **Mission M2** indirectly supports this objective by encouraging research and innovation aimed at addressing societal and technological challenges. **Mission M3** enhances awareness of societal needs through interactions with industry, research organizations, and educational institutions, helping students understand the role of engineers in community development and national progress. **Mission M4** strongly supports this PEO by providing an environment that nurtures ethical values, social responsibility, leadership qualities, and a commitment to serving society and the engineering profession.

1.2 Curriculum Structure and Features (30)

1.2.1 State the Process for Developing/Revising the Program Curriculum (10)

The following systematic steps were adopted to review, revise, and align the B.Tech (Mechanical Engineering) curriculum with the desired Programme Outcomes (POs) and Programme Specific Outcomes (PSOs):

- I. Feedbacks from course teachers, industry experts, and alumni working in the mechanical engineering domain were collected regarding course content, relevance, and modifications.
- II. UGC/AICTE guidelines and National Education Policy (NEP-2020) were strictly followed during the syllabus revision. The detailed syllabus for each course was prepared by the concerned faculty members based on the objectives and expected course outcomes.
- III. Lecture plans and delivery schedules were prepared after finalization of the revised syllabus.
- IV. The Articulation Matrix was developed for each course, mapping individual Course Outcomes (COs) with Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) on a scale of 0 to 3 [0 = No Relation, 2 = Medium/Moderate, 3 = High/Substantial].
- V. Multiple departmental meetings were conducted to review the prepared documents and incorporate collective inputs from faculty members.
- VI. A committee comprising 3–4 senior faculty members was constituted to critically review the draft curriculum. Gaps in the courses and syllabus with respect to attainment of POs and PSOs were identified and necessary suggestions were suggested and incorporated.
- VII. All courses were compiled as per the new programme structure. The Course Articulation Matrices of individual courses were consolidated into the Programme Articulation Matrix.
- VIII. Any identified gaps in compliance were documented. Measures to bridge these gaps were incorporated through additional activities and clearly mentioned in the Course Information Sheet. Examples of such bridges include: Mini projects / Major projects, Industry expert / Guest lectures, Advanced laboratory experiments, Industrial visits, Summer / Internship training, Self-learning modules (NPTEL, MIT OpenCourseWare, SWA Simulations / Case studies).
- IX. The draft syllabus was thoroughly discussed and approved in the Departmental Meeting.
- X. The programme structure along with the complete syllabus was presented and approved in the meeting of the Board of Studies (BOS) of Mechanical Engineering.
- XI. The approved B.Tech (Mechanical Engineering) syllabus and course structure were placed before the Academic Council of BIT Mesra for approval. Subsequently, the final approved syllabus along with the course structure was placed before the Board of Governors (BOG) of BIT Mesra for final ratification.

1.2.2 Curriculum Structure (10)

[Edit](#)

ID	Course Code	Course Title	Classroom Instruction (CI) (in hours per semester)		Lab Instruction (LI) (in hours per semester)	Term Work (TW) and Self Learning (SL) (TW+ SL) (in hours per semester)	Total no. of Hrs per semester
			L	T	P	SL	
1	MA24101	Mathematics-I	42	14	0	64	120
2	PH24101	Physics	42	14	0	64	120
3	BE24101	Biological Science for Engineers	28	0	0	32	60
4	CS24101	Programming for Problem Solving	42	14	0	64	120
5	EE24101	Basics of Electrical Engineering	28	14	0	48	90
6	PH24102	Physics Laboratory	0	0	28	2	30
7	CS24102	Programming for Problem Solving Lab	0	0	28	2	30
8	HS24131	Communication Skills-I	0	0	42	3	45
9	MC 24 101/102/ 103/104/105	NCC/NSS/PT & Games/Creative Arts	0	0	28	2	30
10	MA24101	Mathematics-II	42	14	0	64	120
11	CH24101	Chemistry	42	14	0	64	120
12	CE24101	Environmental Science	28	0	0	32	60
13	ME24101	Basics of Mechanical Engineering	28	14	0	48	90
14	EC24101	Basics of Electronics and Communication Engineering	28	14	0	48	90
15	CH24102	Chemistry Laboratory	0	0	28	2	30
16	EC24102	Electronics and Communication Lab	0	0	28	2	30
17	ME24102	Engineering Graphics	0	0	56	4	60
18	MC 24 105/106/ 107/108	NCC/NSS/PT & Games/Creative Arts	0	0	28	2	30
19	ME24201	Thermodynamics	42	0	0	48	90
20	ME24203	Fluid Mechanics and Hydraulic Machines	42	0	0	48	90
21	ME24205	Strength of Materials	42	14	0	64	120

22	PE24201	Introduction to Materials Engineering	42	0	0	48	90
23	PE22297	Manufacturing Processes	42	0	0	48	90
24	MA24201	Numerical Methods	28	0	0	32	60
25	MT24131	UHV-II: Understanding Harmony	42	0	0	48	90
26	MA24202	Numerical Methods Lab	0	0	28	2	30
27	ME24202	Fluid Mechanics and Hydraulic Machines Lab	0	0	28	2	30
28	MC 24 201/202/ 203/204	NCC/NSS/PT & Games/Creative Arts	0	0	28	2	30
29	ME24207	Kinematics and Dynamics of Machines	42	14	0	64	120
30	ME24209	Thermal Energy Conversion Systems	42	14	0	64	120
31	ME24211	Machine Design	42	14	0	64	120
32	HS24211	Indian Knowledge System	0	0	0	0	0
33	ME24,215, 217, 219	Program Elective-I	42	14	0	64	120
34	XXXXXX /MO24201	Open Elective-I / MOOC-I	42	0	0	48	90
35	ME24210	Dynamics of Machines Lab	0	0	42	3	45
36	PE24298	Manufacturing Processes Lab	0	0	42	3	45
37	MC 24 206 / 207/208/209/210	NCC/NSS/PT & Games/Creative Arts	0	0	28	2	30
38	ME24301	IC Engines and Gas Turbines	42	14	0	64	120
39	ME24303	Mechanical Vibration	42	0	0	48	90
40	ME24305	Heat and Mass Transfer	42	0	0	48	90
41	ME24 313, 315, 317,	Program Elective-II	42	0	0	48	90
42	ME24 319 321 323	Program Elective-III	42	0	0	48	90
43	XXXXXX /ME24301	Open Elective-II / MOOC-II	42	0	0	48	90
44	ME24302	Heat Transfer Lab	0	0	28	2	30
45	ME24304	Internal Combustion Engines Lab	0	0	28	2	30
46	HS24133	Communication Skill - II	0	0	42	3	45

47	ME24300	Project - I	0	0	0	60	60
48	ME24307	Computer Aided Design	28	0	0	32	60
49	ME24309	Automobile Engineering	42	14	0	64	120
50	ME24311	Robotics Engineering	42	14	0	64	120
51	ME24, 331, 333, 329,	Program Elective-IV	42	0	0	48	90
52	ME24335, 337, 339	Program Elective-V	42	0	0	48	90
53	ME24345/ MO24303	Open Elective-III / MOOC-III	42	0	0	48	90
54	ME24306	Robotics and Automation Lab	0	0	42	3	45
55	ME24308	Automobile Engineering Lab	0	0	42	3	45
56	ME24350	Project - II	0	0	0	60	60
57	ME24310	Computer Aided Design & Drafting Lab	0	0	28	2	30
58	ME24401	Refrigeration and Air conditioning	42	14	0	64	120
59	ME24 403, 405, 407,	Program Elective-VI	42	0	0	48	90
60	ME24407/ MO24401	Open Elective-IV / MOOC-IV	42	0	0	48	90
61	ME24404	Refrigeration and air conditioning Lab	0	0	28	2	30
62	ME24400	Project - III	0	0	0	90	90
63	ME24400	Summer Training (Minimum Four Weeks / 160 Hrs)	0	0	0	120	120
64	MT24204	Constitution of india	0	0	0	0	0
65	EE24102	Electrical Engineering Laboratory	0	0	28	2	30
66	PE24102	Workshop Practice	0	0	28	2	30
67	ME24208	Basic Mechanical Engineering lab	0	0	28	2	30
68	ME24450/ ME24490	Project-IV / Industry Internship	0	0	0	180	180
69	ME24498	Comprehensive Viva	0	0	0	60	60
		Total	1456	238	784	2562	5040

1.2.3 Components of Curriculum (5)

Course Components	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total numbe
Basic Sciences	14.88	750.00	
Basic Engineering	11.31	570.00	
Humanities and Social Scie	3.57	180.00	
Program Core	38.69	1950.00	
Program Electives	13.1	660.00	
Open Electives	7.14	360.00	
Project(s)	7.73	390.00	
Internships/Seminars	2.38	120.00	
Any other (Please specify)	1.19	60.00	
Total number of Credits			

1.2.4 Strategies for Education Reforms (5)

The Department of Mechanical Engineering has implemented several key educational reforms in alignment with the National Education Policy (NEP 2020) to enhance learning flexibility, industry relevance, and multidisciplinary exposure. The following strategies have been adopted:

1.

Modification of Course Curriculum:

The B.Tech (Mechanical Engineering) curriculum has been comprehensively redesigned as per NEP 2020 guidelines. The new structure offers greater flexibility to students through a wide range of elective courses, open elect choice-based credit systems. Provisions for Minor degrees, Honours with in-depth specialization, and vocational/skill-oriented courses have been incorporated. Multiple entry and exit options have been introduced, allowing students to exit after completing the required credits with appropriate certifications: a Certificate after 1 year, a Diploma after 2 years, and a B.Sc. Engineering degree after 3 years. The curriculum strongly promotes interdisciplinary learning by integrating foundation courses such as Communication Skills, Indian Knowledge System, Universal Human Values (UHV), Ethics, and discipline-specific core courses.

2.

Provision of Project-Based Learning and Industrial Internship:

The curriculum emphasizes hands-on, experiential learning through project-based learning that encourages students to integrate knowledge from multiple disciplines to solve real-world mechanical engineering problems. A Summer Industrial Internship of 2 credits has been introduced. Additionally, students have the option to undertake their final year major project (6 credits) in the form of industry-sponsored or internship-based projects, thereby bridging the gap between academia and industry.

3.

Academic Bank of Credits (ABC) and APAAR:

In line with NEP 2020, the Academic Bank of Credits (ABC) has been implemented, enabling seamless credit transfer between recognized institutions and facilitating multiple entry-exit options. All credits earned by students are stored in the ABC, providing a transparent and flexible credit accumulation system. Each faculty is assigned a unique APAAR ID (Automated Permanent Academic Account Registry), which serves as a lifelong academic identity for tracking and managing their academic journey across institutions.

4.

Expected Outcomes:

Greater flexibility and personalized learning pathways for Mechanical Engineering students.
Promotion of multidisciplinary and interdisciplinary education in line with NEP 2020.
Enhanced student mobility through seamless credit transfer across institutions. Improved industry readiness and practical skills through project-based learning and mandatory internships.

1.3 PO, PSO and their Mapping with Courses (20)

1.3.1 POs and PSOs (5)

PSO1	
------	--

1.3.2 Mapping between the Courses and POs/PSOs (15)

PO Number	List of Courses
PO1	ME24101, ME24102, ME24104, ME24201, ME24203, ME24205, ME24202, ME24207, ME24209, ME24211, ME24215, ME24217, ME24219, ME24212, ME24208, ME24210, ME24301, ME24303, ME24305, ME24313, ME24317, ME24319, ME24321, ME24323, ME24325, ME24341, ME24343, ME24302, ME24304, ME24300, ME24307, ME24309, ME24311, ME24331, ME24333, ME24329, ME24335, ME24337, ME24339, ME24306, ME24310, ME24350, ME24401, ME24403, ME24405, ME24407, ME24404, ME24400, ME24450, ME24490, ME24498
PO2	ME24101, ME24102, ME24104, ME24201, ME24203, ME24205, ME24202, ME24207, ME24209, ME24211, ME24215, ME24217, ME24219, ME24212, ME24208, ME24210, ME24301, ME24303, ME24305, ME24313, ME24317, ME24319, ME24321, ME24323, ME24325, ME24341, ME24343, ME24302, ME24304, ME24300, ME24307, ME24309, ME24311, ME24331, ME24333, ME24329, ME24335, ME24337, ME24339, ME24306, ME24310, ME24350, ME24401, ME24403, ME24405, ME24407, ME24404, ME24400, ME24450, ME24490
PO3	ME24101, ME24102, ME24201, ME24203, ME24205, ME24207, ME24209, ME24211, ME24215, ME24217, ME24219, ME24301, ME24303, ME24305, ME24313, ME24315, ME24317, ME24319, ME24321, ME24323, ME24341, ME24343, ME24307, ME24309, ME24311, ME24331, ME24333, ME24329, ME24335, ME24337, ME24339, ME24401, ME24403, ME24405, ME24407, ME24300, ME24350, ME24400, ME24450
PO4	ME24202, ME24208, ME24210, ME24302, ME24304, ME24306, ME24308, ME24310, ME24404, ME24300, ME24350, ME24400, ME24450, ME24490
PO5	ME24102, ME24104, ME24212, ME24307, ME24310, ME24311, ME24329, ME24300, ME24350, ME24400, ME24450
PO6	ME24101, ME24301, ME24309, ME24401, ME24403, ME24407, ME24490
PO7	ME24300, ME24350, ME24400, ME24450, ME24490
PO8	ME24102, ME24104, ME24202, ME24208, ME24210, ME24302, ME24304, ME24306, ME24308, ME24310, ME24404, ME24300, ME24350, ME24400, ME24450, ME24490
PO9	ME24102, ME24104, ME24202, ME24208, ME24210, ME24302, ME24304, ME24306, ME24308, ME24310, ME24404, ME24300, ME24350, ME24400, ME24450, ME24490, ME24498
PO10	ME24300, ME24350, ME24400, ME24450, ME24490
PO11	ME24101, ME24102, ME24104, ME24201, ME24203, ME24205, ME24202, ME24207, ME24209, ME24211, ME24215, ME24217, ME24219, ME24212, ME24208, ME24210, ME24301, ME24303, ME24305, ME24313, ME24317, ME24319, ME24321, ME24323, ME24325, ME24341, ME24343, ME24302, ME24304, ME24300, ME24307, ME24309, ME24311, ME24331, ME24333, ME24329, ME24335, ME24337, ME24339, ME24306, ME24310, ME24350, ME24401, ME24403, ME24405, ME24407, ME24404, ME24400, ME24450, ME24490, ME24498

PO Number	List of Courses
PSO1	ME24101, ME24102, ME24104, ME24201, ME24202, ME24203, ME24205, ME24207, ME24208, ME24209, ME24210, ME24211, ME24212, ME24215, ME24217, ME24219, ME24223, ME24225, ME24300, ME24301, ME24303, ME24304, ME24305, ME24306, ME24307, ME24308, ME24309, ME24310, ME24311, ME24313, ME24315, ME24317, ME24319, ME24321, ME24323, ME24325, ME24329, ME24331, ME24333, ME24335, ME24339, ME24341, ME24343, ME24345, ME24350, ME24400, ME24401, ME24403, ME24404, ME24405, ME24407, ME24411, ME24413, ME24450, ME24490, ME24498
PSO2	ME24101, ME24102, ME24104, ME24201, ME24202, ME24203, ME24205, ME24207, ME24208, ME24209, ME24210, ME24211, ME24212, ME24215, ME24217, ME24219, ME24223, ME24225, ME24300, ME24301, ME24303, ME24304, ME24305, ME24306, ME24307, ME24308, ME24309, ME24310, ME24311, ME24313, ME24315, ME24317, ME24319, ME24321, ME24323, ME24325, ME24329, ME24331, ME24333, ME24335, ME24339, ME24341, ME24343, ME24345, ME24350, ME24400, ME24401, ME24403, ME24404, ME24405, ME24407, ME24411, ME24413, ME24450, ME24490, ME24498
PSO3	ME24101, ME24102, ME24104, ME24201, ME24202, ME24203, ME24205, ME24207, ME24208, ME24209, ME24210, ME24211, ME24212, ME24215, ME24217, ME24219, ME24223, ME24225, ME24300, ME24301, ME24303, ME24304, ME24305, ME24306, ME24307, ME24308, ME24309, ME24310, ME24311, ME24313, ME24315, ME24317, ME24319, ME24321, ME24323, ME24325, ME24329, ME24331, ME24333, ME24335, ME24339, ME24341, ME24343, ME24345, ME24350, ME24400, ME24401, ME24403, ME24404, ME24405, ME24407, ME24411, ME24413, ME24450, ME24490, ME24498

1.4 Course Outcomes and Course Articulation Matrix (30)

No. of Core Courses : 9	C2 : 4	C3 : 4	C4 : 1
-------------------------	--------	--------	--------

Note : Number of Outcomes for a Course is expected to be around 6.

Course Code :	ME24201	Semester :	3
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24201.1	Discuss the basic concepts of thermodynamics.
ME24201.2	Apply the laws of thermodynamics to various flow, non-flow and cyclic systems.
ME24201.3	Evaluate the performance different engineering devices.
ME24201.4	Develop thermodynamics relations for engineering practices.

Course Code :	ME24203	Semester :	3
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24203.1	Discuss the fundamental properties and behavior of fluids in static and dynamic conditions.
ME24203.2	Apply the principles of fluid kinematics and dynamics to solve engineering problems involving fluid flows.
ME24203.3	Analyse the problems related to fluid flow devices.
ME24203.4	Develop mathematical models and relations for fluid flow and hydraulic systems applicable in engineering practices.

Course Code :	ME24207	Semester :	4
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24207.1	Explain kinematic and dynamic principles of planar mechanism.
ME24207.2	Apply the basic principles into planar mechanisms for relevant applications.
ME24207.3	Analyse the acceleration and forces during the motion of machines and mechanisms.
ME24207.4	Evaluate the problems related to the motions of machines and mechanism.

Course Code :	ME24211	Semester :	4
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24211.1	Explain the principles of machine design and failure theories.
ME24211.2	Apply the design concepts on various joints and components of machines.
ME24211.3	Analyse the forces and strength of for different parts of the machine components.
ME24211.4	Evaluate different conditions problems associated to machine components.
ME24211.5	Create or design the components according to specific/special conditions.

Course Code :	ME24301	Semester :	5
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24301.1	Explain the working principle of various types of IC Engine and gas turbines.
ME24301.2	Apply the fundamental principles of thermodynamics, combustion and fluid flow in different engine and gas turbine processes.
ME24301.3	Examine the key factors involved in enhancing performance of engine and gas turbine.
ME24301.4	Solve numerical problems based on engine and gas turbine testing and performance.
ME24301.5	Explain design features and performance characteristics of SI and CI engines.

Course Code :	ME24303	Semester :	5
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24303.1	Explain the basic elements of vibration models.
ME24303.2	Analyze multi degrees of freedom systems.
ME24303.3	Solve the natural frequencies and mode shapes of a vibrating system.
ME24303.4	Analyse the vibration of continuous systems.
ME24303.5	Apply the knowledge of vibration in practical problems.

Course Code :	ME24309	Semester :	6
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24309.1	Understand the principles and applications of automobile engineering, including vehicle systems, components, and their interactions.
ME24309.2	Apply mechanical engineering principles to solve problems related to vehicle dynamics.
ME24309.3	Apply electrical and electronic engineering concepts to automotive systems.
ME24309.4	Solve complex issues related to Automobile, such as design challenges and improving system reliability.
ME24309.5	Investigate and integrate emerging technologies in automotive engineering

Course Code :	ME24311	Semester :	6
----------------------	----------------	-------------------	----------

Course Outcome	Statements
ME24311.1	Explain the fundamental concepts and mathematical foundations of Robotics Engineering, including degrees of freedom, transformation matrices, homogeneous coordinates, and Euler angle representation.
ME24311.2	Utilize the Denavit-Hartenberg representation and various kinematic approaches to solve problems in forward and inverse kinematics of serial robots.

ME24311.3	Evaluate the role of the Jacobian matrix in robot statics, velocity, and acceleration analysis, and solve gravity compensation problems in robotic systems.
ME24311.4	Derive equations of motion for serial robots using Lagrange-Euler and Newton-Euler formulations, and assess different control methods for trajectory following in manipulators.
ME24311.5	Design and implement control strategies for robotic systems, including feedback and closed-loop control, and integrate robotic systems into industrial applications such as PUMA and SCARA configurations.

Course Code :	ME24401	Semester :	7
---------------	---------	------------	---

Course Outcome	Statements
ME24401.1	Describe the fundamental principles of refrigeration and Air-conditioning, including the thermodynamic cycles.
ME24401.2	Apply the basic concepts in designing the refrigeration and air- conditioning systems for various applications, including commercial, industrial, and domestic use.
ME24401.3	Analyse the energy consumption of refrigeration and air conditioning systems and evaluate methods to improve energy efficiency.
ME24401.4	Solve complex issues related to refrigeration and air conditioning systems, such as optimizing performance, solving design challenges, and improving system reliability.

1.4.2 Course Articulation Matrix (15)

1 . course name : C2ME24201

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C2ME24201.1	Discuss the	3 ▾	2 ▾	- ▾	- ▾	- ▾	- ▾	1 ▾	1 ▾	- ▾	- ▾	2 ▾
C2ME24201.2	Apply the la	3 ▾	2 ▾	- ▾	- ▾	- ▾	- ▾	1 ▾	1 ▾	- ▾	- ▾	2 ▾
C2ME24201.3	Evaluate th	3 ▾	2 ▾	1 ▾	1 ▾	- ▾	- ▾	1 ▾	1 ▾	- ▾	- ▾	2 ▾
C2ME24201.4	Develop the	3 ▾	2 ▾	- ▾	- ▾	- ▾	- ▾	1 ▾	1 ▾	- ▾	- ▾	2 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2 . course name : C2ME24203

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C2ME24203.1	Discuss the	3 ▾	2 ▾	- ▾	2 ▾	- ▾	- ▾	- ▾	- ▾	- ▾	- ▾	2 ▾
C2ME24203.2	Apply the p	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	- ▾	- ▾	1 ▾	2 ▾	- ▾	3 ▾
C2ME24203.3	Analyse the	2 ▾	3 ▾	3 ▾	2 ▾	2 ▾	- ▾	- ▾	2 ▾	2 ▾	2 ▾	2 ▾
C2ME24203.4	Develop m	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	- ▾	- ▾	1 ▾	2 ▾	2 ▾	3 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3 . course name : C2ME24207

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C2ME24207.1	Explain kin	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	2 ▾	2 ▾	1 ▾	2 ▾
C2ME24207.2	Apply the b	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	3 ▾	2 ▾	2 ▾	2 ▾	1 ▾	2 ▾
C2ME24207.3	Analyse the	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	2 ▾	2 ▾	1 ▾	2 ▾
C2ME24207.4	Evaluate th	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	2 ▾	2 ▾	1 ▾	2 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4 . course name : C2ME24211

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C2ME24211.1	Explain the	3 ▾	2 ▾	2 ▾	1 ▾	2 ▾	1 ▾	1 ▾	1 ▾	1 ▾	1 ▾	2 ▾
C2ME24211.2	Apply the d	3 ▾	2 ▾	3 ▾	2 ▾	3 ▾	1 ▾	1 ▾	2 ▾	1 ▾	2 ▾	2 ▾
C2ME24211.3	Analyse the	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	1 ▾	1 ▾	1 ▾	1 ▾	2 ▾	2 ▾
C2ME24211.4	Evaluate di	3 ▾	2 ▾	3 ▾	2 ▾	2 ▾	2 ▾	1 ▾	1 ▾	1 ▾	2 ▾	2 ▾
C2ME24211.5	Create or d	3 ▾	2 ▾	3 ▾	2 ▾	3 ▾	2 ▾	1 ▾	2 ▾	2 ▾	2 ▾	3 ▾

Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
---------	--	------	------	------	------	------	------	------	------	------	------	------

5 . course name : C3ME24301

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C3ME24301.1	Explain the	3 ▾	3 ▾	2 ▾	1 ▾	1 ▾	1 ▾	- ▾	1 ▾	- ▾	- ▾	3 ▾
C3ME24301.2	Apply the ft	3 ▾	3 ▾	2 ▾	2 ▾	1 ▾	1 ▾	- ▾	1 ▾	- ▾	- ▾	3 ▾
C3ME24301.3	Examine th	3 ▾	3 ▾	2 ▾	2 ▾	1 ▾	1 ▾	- ▾	1 ▾	- ▾	- ▾	2 ▾
C3ME24301.4	Solve nume	3 ▾	3 ▾	3 ▾	3 ▾	1 ▾	1 ▾	1 ▾	1 ▾	2 ▾	1 ▾	3 ▾
C3ME24301.5	Explain des	3 ▾	3 ▾	3 ▾	3 ▾	1 ▾	1 ▾	1 ▾	1 ▾	2 ▾	1 ▾	2 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

6 . course name : C3ME24303

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C3ME24303.1	Explain the	3 ▾	2 ▾	1 ▾	2 ▾	1 ▾	- ▾	- ▾	1 ▾	1 ▾	- ▾	2 ▾
C3ME24303.2	Analyze ml	3 ▾	3 ▾	2 ▾	2 ▾	3 ▾	1 ▾	1 ▾	2 ▾	2 ▾	1 ▾	2 ▾
C3ME24303.3	Solve the n	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	1 ▾	2 ▾	3 ▾	2 ▾	3 ▾
C3ME24303.4	Analyse the	3 ▾	2 ▾	3 ▾	3 ▾	2 ▾	3 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
C3ME24303.5	Apply the k	3 ▾	2 ▾	3 ▾	3 ▾	2 ▾	3 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

7 . course name : C3ME24309

Course	Statements	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
C3ME24309.1	Understand	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	2 ▾	2 ▾	3 ▾	3 ▾	3 ▾
C3ME24309.2	Apply mect	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
C3ME24309.3	Apply elect	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
C3ME24309.4	Solve comp	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
C3ME24309.5	Investigate	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	3 ▾	2 ▾	3 ▾	3 ▾	3 ▾	3 ▾
Average		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

8 . course name : C3ME24311

1 . Course Name : C2ME24201

Course
C2ME24201.1
C2ME24201.2
C2ME24201.3
C2ME24201.4

2 . Course Name : C2ME24203

Course
C2ME24203.1
C2ME24203.2
C2ME24203.3
C2ME24203.4

3 . Course Name : C2ME24207

Course
C2ME24207.1
C2ME24207.2
C2ME24207.3
C2ME24207.4

4 . Course Name : C2ME24211

Course
C2ME24211.1
C2ME24211.2
C2ME24211.3
C2ME24211.4
C2ME24211.5

5 . Course Name : C3ME24301

Course
C3ME24301.1
C3ME24301.2
C3ME24301.3
C3ME24301.4
C3ME24301.5

6 . Course Name : C3ME24303

Course
C3ME24303.1
C3ME24303.2
C3ME24303.3
C3ME24303.4
C3ME24303.5

7 . Course Name : C3ME24309

Course
C3ME24309.1
C3ME24309.2
C3ME24309.3
C3ME24309.4
C3ME24309.5

8 . Course Name : C3ME24311

Course
C3ME24311.1
C3ME24311.2
C3ME24311.3
C3ME24311.4
C3ME24311.5

9 . Course Name : C4ME24401

Course
C4ME24401.1
C4ME24401.2
C4ME24401.3
C4ME24401.4

1.5 Program Articulation Matrix (5)

Course Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
ME24201	3	2	1	1	PO5	PO6	1	1	PO9	PO10
ME24203	2.75	2.75	2.67	2.25	2.33	PO6	PO7	1.33	2	2
ME24205	3	2.5	2	2.25	2	PO6	PO7	PO8	PO9	PO10
PE24201	3	2.8	2.2	3	1.75	1.75	1	2.25	1.67	2
ME24297	2.6	2.6	2.2	1.4	2.2	1	1	1	1.4	1.6
MA24201	3	2.6	2	2.2	2.6	PO6	PO7	PO8	1	1
MT24131	PO1	PO2	2	1	1	3	3	2	2	1
MA24202	3	2.4	1.8	2.2	3	PO6	PO7	1	1	1.2
ME24202	3	3	3	3	3	2.25	2.25	2.25	2.25	1.25
ME24207	3	3	3	3	2	2.25	2	2	2	1
ME24209	3	2	2.25	1.25	PO5	PO6	PO7	1	PO9	PO10
ME24211	3	2.2	2.6	1.8	2.4	1.4	1	1.4	1.2	1.8
ME24215	3	2.75	2.25	1.75	1.5	2.25	1.5	1.75	2.25	1.25
ME24217	3	2.5	2	1.5	2	2.75	1	1	1.25	1.75
ME24219	3	2.75	2.5	2	2	2	PO7	PO8	2	PO10
ME24208	3	3	3	3	3	2.25	2.25	2.25	2.25	1.25
ME24210	3	3	3	3	3	2.4	2.4	2.4	2.4	1.4
PE24298	2.6	2.4	2.8	2.4	2.6	1	1	1.6	1.6	1.6
ME24301	3	3	2.4	2.2	1	1	1	1	2	1
ME24303	3	2.4	2.4	2.6	2.2	2.25	1.5	2.2	2.4	2.25
ME24305	3	3	3	1.75	1.25	1	1	2	1.75	1.5
ME24313	2.75	2	2	2.5	2.5	1.67	PO7	PO8	2	PO10
ME24315	3	3	1.6	2.6	2.33	1.5	1	1	1	1
ME24317	3	2.75	2.75	2.75	2.75	1	PO7	PO8	1	PO10
ME24319	3	3	2	2	1.6	PO6	1	1	PO9	PO10
PE24313	2.8	2.2	2.4	1.5	2.4	1.8	1	1.33	1	1.33
ME24321	3	3	3	3	2.2	PO6	PO7	PO8	PO9	PO10
ME24323	3	2.75	2.75	2.5	3	PO6	PO7	PO8	2.25	PO10
ME24325	3	2.75	2.25	1.75	1.75	1.25	PO7	PO8	PO9	PO10
PE24315	2.2	2.2	2.4	2	2.4	1	1	PO8	1	1
ME24302	3	3	3	3	3	2.25	2.25	2.25	2.25	1.25

ME24304	2.25	1.5	1.75	1.25	1.75	1.75	1.75	2	1.5	1.5
ME24307	2.25	2.25	2.25	2	2.67	1.25	1	PO8	1	PO10
ME24309	3	3	3	3	3	2.6	2	2.8	3	3
ME24311	2.4	2.8	2.4	2.4	2.4	1.8	1.2	1.6	2.6	2.2
ME24329	3	3	3	3	1.8	PO6	PO7	PO8	1.25	PO10
ME24331	2.75	2.75	2.75	2.5	1.75	2.5	2	2.5	2.5	3
ME24333	3	3	3	3	2	2	PO7	2	3	PO10
PE24335	3	3	3	1	2	3	1	2	2	3
ME24335	3	2.75	2.5	2.5	2.75	1.5	1	1.75	2.25	1.25
ME24337	3	3	3	3	1.8	PO6	PO7	PO8	1.25	PO10
ME24339	3	3	3	3	2	2	PO7	2	3	PO10
PE24345	3	2.6	2.2	1.5	3	1	1	2	PO9	2.6
ME24306	2.5	2.5	2.5	2	2.5	1	1	2.25	2.25	1.75
ME24308	3	3	3	3	3	2.5	2	2.75	3	3
ME24310	3	2.8	2.8	2.8	3	2	PO7	2	1.2	PO10
ME24401	2.75	2.75	2.25	2.25	2.25	2	1	1	1	1.67
ME24403	2.6	2.4	2.6	2	2.33	2.2	1.67	1.2	1.6	2.2
ME24405	3	2.75	2.25	2.5	2.75	1.75	1	1	1	1.5
ME24407	3	2.75	2.25	2.25	2	1.5	1	PO8	1	1
PE24407	3	3	3	2.2	1	PO6	PO7	PO8	PO9	3
MT24204	2	2	1	2	1.4	2	2	2	1.8	1.6
ME24404	3	2.6	2.2	2.4	2.8	2	1	1	1	1.67
ME24450	2	2.4	2.2	2.2	2.2	1.6	1.6	1.6	1.8	2

Course Code	PSO1	PSO2	PSO3
MA24201	2.4	1.4	2.2
MA24202	3	2.4	2.6
ME24201	2.75	2	2.5
ME24202	3	2.25	3
ME24203	2.75	2	2.5
ME24205	2.5	1.25	2
ME24207	2	2	3
ME24208	3	2.25	3

ME24209	3	2.25	2
ME24210	3	2.4	3
ME24211	3	2.6	2.2
ME24215	3	1	2
ME24217	2.75	2.5	2.25
ME24219	3	2.25	2
ME24297	3	2.6	2.2
ME24301	2	1	1
ME24302	3	2.25	3
ME24303	3	2.8	2.4
ME24304	2	2	2
ME24305	3	2	2
ME24306	2.75	2.75	2.75
ME24307	2.5	1.75	2
ME24308	3	3	3
ME24309	3	3	3
ME24310	2.6	2.6	3
ME24311	2.6	2.6	2.6
ME24313	2.5	1.75	2
ME24315	3	2	2
ME24317	3	2.75	3
ME24319	3	2.6	3
ME24321	3	1.4	3
ME24323	3	2.25	2
ME24325	3	2.25	2
ME24329	3	1.8	1.8
ME24331	3	3	3
ME24333	3	3	3
ME24335	3	2.5	2.5
ME24337	3	1.8	1.8
ME24339	3	3	3
ME24401	2.75	2.75	3

ME24403	2	3	3
ME24404	3	2.4	3
ME24405	3	2.5	3
ME24407	3	2.75	3
ME24450	2.4	2.4	2.8
MT24131	1	2	2
MT24204	1	1.6	2.4
PE24201	2.6	2.4	2.8
PE24298	3	2.2	1.6
PE24313	3	2.2	2
PE24315	3	2	2
PE24335	3	2	2
PE24345	3	2	2.8
PE24407	3	2.2	2

2 OUTCOME-BASED TEACHING LEARNING (120)

2.1 Describe Processes Followed to Ensure Quality of Teaching & Learning (20)

ADHERANCE TO ACADEMIC CALENDER

1. The Academic Calendar for an Academic year is planned and announced before the beginning of the year.
2. In the Academic Calendar following points are considered: - Dates for first and second quizzes, Mid Semester and End Semester Examination. The assignment submission dates and all extra-curricular activities like Sports, Cultural festivals etc. are marked. The display date of shortage of attendance of students is also specified.
3. Each faculty prepares lecture plan for their respective course.
4. Timetable of each programme is prepared by timetable coordinator of each Department in consultation with central time-table coordinator. Then it is modified and finalized centrally by Central timetable coordinator and approved by HOD of each department, Office of Dean (UGS) and Dean (PGS).
5. Attendance of students is recorded online in ERP system. The shortage of attendance is displayed before the beginning of End Semester Exams.

IMPROVEMENT IN INSTRUCTIONAL METHOD

1. Individual faculty members prepare a lecture plan for their respective courses.
2. The attendance of students is uploaded/recorded online in the ERP system.
3. All classrooms are equipped with audio visual facilities and internet connections that aid the course delivery
4. The lectures can be uploaded through the intranet and accessed in the classroom and hostels. The lecture notes of various subjects are uploaded in department website and Microsoft teams.
5. Faculty members are encouraged to attend pedagogical training, and consistently make effort to improve instruction methods including Collaborative learning, Problem based learning, Project based learning etc.
6. Institute has a policy to take online faculty feedback through ERP from students on COs of subjects and on Faculty delivery at the end of each semester. The feedback can be accessed by Faculty and Management. Based on this feedback, faculty identifies shortcomings, and plans improvement in teaching for the next semester. This is documented in course file.
7. Expert lectures, Industrial visits, Alumni lectures, Seminars, student presentations are organized to fill the Gaps.

IMPROVEMENT IN LABORATORY EXPERIENCE

1. On the first day students are briefed about the laboratory experiments to be conducted in the laboratory courses. They are also supplied with the list of experiments.
2. For each laboratory experiment instructions about materials required, steps of the experiments, and result/observations recording and analysis are briefly described by the faculty to the students followed by actual performance by students. Efforts are made to improve the quality of experience of students in conducting the experiments.
3. Each practical class consists of 40 students, and each group has 4 students so that they can handle the equipment turn wise and perform experiment individually.
4. Students are encouraged to ask questions about any difficulty while conducting the experiment to improve the quality of experience. They are also encouraged to use modern tools for data analysis.
5. Detailed instruction manuals are prepared for each laboratory experiment depicting Aim, principles, procedures, observation tables, equations for data analysis, details of graphs to be made and schematic figures of the setup.
6. Students are instructed to write the findings of each experiment along with calculations, graphs etc. in a laboratory record file with all details and submit in the subsequent classes.
7. Faculty conducting the labs evaluate and correct student files in subsequent classes.
8. All experimental facilities are maintained in good working conditions.

SPECIAL CONSIDERATIONS FOR WEAK STUDENTS AND BRIGHT STUDENTS

1. Slow learners are identified, once, at the beginning of the semester based on CGPA of earlier semester and later based on the evaluations in mid semester examination.
2. Faculty of the Department of Mechanical Engineering take personal efforts to take extra classes for the weak students which are organized in available class rooms/faculty rooms/Departmental seminar room.
3. Weak students are taken special care in tutorial classes.
4. Lectures by Alumni/Senior students are organized during the Students Chapter activity for the weak students, which is very effective.
5. Bright students are identified by their academic performance. Extra Assignments &/or sessional are designed for them to boost their knowledge.
6. Bright students are encouraged to take up Non-Credit projects throughout the course.
7. Bright students are guided to write technical papers and participate in Seminars and conferences organized by other Institutes.

8. Efforts are made to keep students engaged through various activities like quizzes, seminars, NPTEL videos, inter/departmental visits, debate on technical topics, discussion on startups, mini projects, group discussion, career counselling, alumni interactions etc.
9. The continuous assessment of assignments/tutorials/experiments/project work is done to analyze the performance of the students.
10. In every laboratory course, the students are allowed to do experiments other than the scheduled classes.

2.2 Quality of Student Capstone Project (25)

The Bachelor of Technology (BTECH) curriculum emphasizes quality undergraduate (UG) projects. Projects are allotted to VII Semester students named Minor project where they have only three credits to fulfill, and in VIII semester, they carry out project work named as Major project of ten credits with no theory subjects. The students conduct projects under the guidance of faculty members of the Department. The projects are classified as Experimental, Modeling, Simulation, Design, and Internship in nature. The Department extends all the facilities for the project work. The students are also permitted and encouraged to conduct a UG Project in Industry or other Institute of repute, under an external guide from that organization and an internal guide from the Department of Mechanical Engineering.

PROJECT SELECTION/ALLOTMENT:

1. Each faculty proposes multiple project ideas.
2. Project ideas are also invited from students.
3. The students applying for a project in Industry or other Institutes also submit their proposal and are allotted an internal guide for monitoring of the project.
4. A panel consisting of faculty of the Department analyze all the proposals considering the relevance of Environment, safety, and ethics, and availability of experimental and computational facilities in the Department and finalize the list of Projects.
5. The list is notified, and students' choices for the project are asked for.
6. A group of 3-4 students is allotted in a project, considering their choice and CGPA.

CONTINUOUS MONITORING OF THE PROJECT

1. The students conducting projects in the Department of Mechanical Engineering are required to be regularly present and take leave from the project guide if leaving the station.
2. The project guide monitors the project by regular discussions.
3. The UG project coordinators and Department Project Evaluation Committee (DPEC) of the Department organizes Midterm evaluation of the project, during which the students are required to present project progress seminar in the department, and submit a project progress report to the department.

END SEMESTER EVALUATION

1. The End semester evaluation is conducted at the end of the final (VIII) semester by external examiner from other reputed institutes or Industry, as approved by the Vice Chancellor.
2. The students are required to submit hard copies of the project at the end of the semester, duly certified by the guides, along with a plagiarism report.
3. The students are required to present their work in an open seminar and face a Comprehensive viva by the External Expert, in the presence of DPEC, Guide and other faculty members.
4. The students are evaluated based on parameters such as, clarity of the project report, Innovation, presentation, Project Outcome, and Project-specific Outcomes addressed. The Marking system is given as follows:
 - End Sem Examination :50
 - Mid Term Examination: 50

The process of analysis and evaluation of the UG Projects conducted in the Department are given below:

Examination Regulations from 2021 onwards

UG PROJECT:

Project work can be carried out, preferably independently or by a group of students not exceeding four (4). More than four students in a group shall be discouraged. Internships shall be independent. Project evaluation shall be as follows:

- i. External Examiner: 50%
- ii. Project Guide (s): 25 %
- iii. DPEC: 25 %

TOTAL 100%

UG Project based on INTERNSHIP

In the VII semester, all students carry out their Minor project within the department. In the VIII semester, students choose the Major projects of within the department/institute or internship projects in various companies, reputed research organizations, and university of repute in India and abroad. The internship evaluation is the same as the Major project evaluations, where the internship students are evaluated in the

Mid-semester and End semester examinations.

PROJECT EVALUATION

There are four stages through which project allotment and evaluation takes place:

1. Project identification

Each student puts choice of project topics which are displayed on notice board/email from the department. At least three choices are taken from every student. Out of which one is selected by the project committee of the department on the basis of CG

2. Allotment: Guides are allotted as per his/her expertise and identified domain of the students. Table A shows the process of guide allotment. List of the projects and corresponding name of students are displayed on notice board/email

Table a: Allotment of Guide

Roll No.	Name	Domain	Topics	Guide	Category (Application/ Product/ Research/ Review etc.)	Parameters (Environment, Safety, Ethics, Cost, Standards)	PO & PSOs Mapping				Justification
							PO		PSO		
							No	Level	No	Level	

3. Continuous assessment of project progress is carried out by respective guides and by mid-term progress evaluation.

4. End semester evaluation

Project evaluation consists of the following components

1. Progressive evaluation-- based on the seminar presentation progress of work is judged and necessary recommendations and suggestions to carry out further work is given to the students by guide(s), committee and faculty members at the mid of first semester

2. End semester Evaluation- Based on the report submitted and seminar presentation on the work done by the students' marks are given by External examiner, guide and DPEC. External examiner is either faculty invited from other reputed institute or Industry expert

Table b: COs of Project evaluation

CO1 Apply knowledge of engineering design and analysis techniques to solve engineering problems.

CO2 Analyse and evaluate engineering designs and solutions

CO3 Design and develop engineering solutions to real-world problems.

CO4 Develop new engineering concepts and principles.

CO5 Communicate the results of engineering analyses

Table c: Project report evaluation rubrics

Performance Indicators	Excellent (Full Marks)	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)	Max Marks
------------------------	---------------------------	-----------------------------	----------------------------------	-----------

Problem Identification & Objectives	Fully adhered (10)	Partially adhered (7)	Not adhered (5)	10
Technical Knowledge & Application	Well defined & clear (10)	Few chapters clear (7)	Not clear (5)	10
Methodology & Experimentation / Simulation	All details described (20)	Few details described (12)	Poorly described (8)	20
Project Management & Teamwork	Well discussed (10)	Discussed (7)	Poorly discussed (5)	10
Total Marks				50

Table d: Viva-vocational examination rubrics

Performance Indicators	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)	Max Marks	COs
Application & Reasoning Ability	Some application ability, partly correct reasoning (12)	Unable to apply knowledge, incorrect reasoning (8)	20	3
Conceptual Understanding	Partial understanding, explains some aspects (7)	Poor understanding, unable to explain key aspects (5)	10	5
Communication & Confidence	Adequate but lacks fluency/clarity, moderate confidence (12)	Weak communication, unclear explanations, low confidence (8)	20	

Table e: CO-PO/PSO Attainment matrix

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3		2				2				1		1		2
CO2	3	3	3	2		2	1	2	1	1	1	1			
CO3	3		3	1	2	2	2	1	1	1	1	1	3	2	
CO4	3		2		1	1	2	2	2	2	3	1		3	2
CO5	3				2	3	3	3	1	2	3	3	1	3	3

2.3 Internship/Industrial Training (10)

The industrial training/internship is an integral part of the Mechanical Engineering curriculum, designed to bridge theoretical knowledge with practical exposure. Thus, students must undergo Industrial training and internship during summer/winter break industries, research laboratories/and academic institutes. With effect from the academic year 2018, the institute made industrial training/internship compulsory for all 6 - semester students. A major change was introduced in 2024 with the implementation of the National Education Policy (NEP), wherein the credits were raised from 2 to 4.

Students undertake training in a wide range of domains, including industrial establishments, national research laboratories and reputed academic institutions. The duration of the training typically ranges from four to eight weeks, subject to the requirements of the host organization.

The institute's Training & Placement cell assists students in securing internships with industries and organizations. The department has a dedicated faculty coordinator which provides mentorship in identifying suitable organizations and facilitates the necessary administrative approvals. The selection of internships is guided by student interest, alignment with career objectives, and the availability of opportunities.

The students also have an opportunity to participate in the Immersive Summer Research Experience (ISRE) program, which was started in 2017 at Illinois Institute of Technology-Chicago. Under this program, BIT Mesra students visit top US universities such as Illinois Institute of Technology, Chicago, and Carnegie Mellon University, Pittsburgh to pursue summer internships.

As per the institute regulations effective from MO-2021, students will have to prepare a report duly certified by the Summer Training Organisation, after the completion of the summer training. The Head of the Department constitutes Evaluation Committee to conduct the Viva-Voce of the students. The breakup of marks shall be:

- a. Progressive evaluation (50%): Based on Summer Training Report
- b. End-semester Evaluation (50%): Based on Viva-Voce conducted in the Department by respective Committee. The following table presents a category-wise summary of summer internships undertaken by students over the last three academic years:

The following table presents the list of organizations and institutes where students have undertaken summer internships over the past several years:

Sl. No.	Category	Name of the Organisation
1.	Industries	Tata Motors Limited
		Jindal Power and Steel Limited
		SAIL, Bokaro Steel Plant
		Indian Oil Corporation Limited
		Reliance Industries Limited
		Tata Steel Ltd.
		Coal India Limited
		Maruti Suzuki India Limited
		Hindalco Industries
		MECON Ltd.
		Oil and Natural Gas Corporation Ltd.
		Visakhapatnam Steel Plant
		National Thermal Power Corporation
		Steel Authority of India Limited
2.	IITs / Other Institutes	IIT, Guwahati
		IIT, Kharagpur
		NIT, Jamshedpur

The summer internship/industrial training significantly contributes to the attainment of the following POs/PSOs: PO-1, PO-2, PO-3, PO-4, PO-5, PO-6, PO-7, PO-9, PO-10, PO-12, PSO-1, PSO-2, and PSO-3.

The Bachelor of Technology (BTECH) curriculum emphasizes quality undergraduate (UG) minor projects. Projects are allotted to VII Semester students named Minor project where they have three credits to fulfil.

The students conduct projects under the guidance of faculty members of the Department. The projects are classified as Experimental, Modelling, Simulation and Design in nature. The Department extends all the facilities for the research work.

PROJECT SELECTION/ALLOTMENT:

1. Each faculty proposes multiple project ideas/topics.
2. UG project coordinators analyze all the proposals considering the relevance of Environment, safety, and ethics, and availability of experimental and computational facilities in the Department and finalize the list of Projects.
3. The list is notified, and students' choices for the project are asked for.
4. A group of 3-4 students is allotted a project, considering their choice and CGPA.

CONTINUOUS MONITORING OF THE PROJECT

1. The students conducting minor projects are required to work as per the timetable and beyond the timetable as per the project requirement.
2. The project guide monitors the project by weekly and/or regular discussion.
3. The Project monitoring Committee of the Department organized the Midterm evaluation of the project, when the students are required to present the project progress in a departmental seminar.

END SEMESTER EVALUATION

1. The End semester evaluation is conducted by a panel of faculty members at the end of the semester.
2. The students are required to present their work in an open seminar.
3. The students are required to submit hard copies of the project at the end of the VII semester, duly certified by the guides, and with a plagiarism report.
4. The students are evaluated based on the clarity of the project report, completed work, Innovation, presentation, Project Outcome, and Project-specific Outcomes addressed.

Project work can be carried out, preferably independently or by a group of students not exceeding four (4). More than four students in a group shall be discouraged. Project evaluation shall be as follows:

- i. Progressive Evaluation: 50 %
- ii. End Semester Evaluation: 50 %

TOTAL 100%

Department Committee shall be appointed by the Head of the Department. The entire process of Project Identification, allotment, and Evaluation is discussed below:

PROJECT ALLOTMENT and EVALUATION

There are four stages through which project allotment and evaluation takes place:

1. Project identification

Each student puts choice of project topics which are displayed on notice board/email from the department. At least three choices are taken from every student. Out of which one is selected by the UG project coordinators and project committee of the department on the basis of CGPA.

2. Allotment: Guides are allotted as per his/her expertise and identified domain of the students. List of the projects and corresponding name of students are displayed on notice board/email. Table a shows the process of guide allotment

Table a: Allotment of Guide

Roll No.	Name	Domain	Topics	Guide	Category (Application/Product/Research/Review etc.)	Parameters (Environment, Safety, Ethics, Cost, Standards)	PO & PSOs Mapping				Justification
							PO		PSO		
							No	Level	No	Level	

3. Continuous assessment of project progress is carried out by respective guides through discussions and by midterm progressive evaluation

4. End semester evaluation

Project evaluation consists of the following components

1. Progressive evaluation-- Based on the seminar presentation progress of work is judged and necessary recommendations and suggestions to carry out further work is given to the students by guides and department faculty at the middle of the VII 50% marks are given during progressive evaluation.

2. End semester Evaluation-Based on the report submitted and seminar presentation on the work done by the students', marks are given by the guide(s) and department committee. 50% marks are assigned during End semester evaluation.

Table b: COs of Project evaluation

CO1 Apply knowledge of engineering design and analysis techniques to solve engineering problems.

CO2 Analyse and evaluate engineering designs and solutions

CO3 Design and develop engineering solutions to real-world problems.

CO4 Develop new engineering concepts and principles.

CO5 Communicate the results of engineering analyses

Table c: Project report evaluation rubrics

Performance Indicators	Excellent (Full Marks)	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)	Max Marks
Problem Identification & Objectives	Fully adhered (10)	Partially adhered (7)	Not adhered (5)	10
Technical Knowledge & Application	Well defined & clear (10)	Few chapters clear (7)	Not clear (5)	10
Methodology & Experimentation / Simulation	All details described (20)	Few details described (12)	Poorly described (8)	20
Project Management & Teamwork	Well discussed (10)	Discussed (7)	Poorly discussed (5)	10
Total Marks				50

Table d: Viva-vocational examination rubrics

Performance Indicators	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)	Max Marks	CO s
Application & Reasoning Ability	Some application ability, partly correct reasoning (12)	Unable to apply knowledge, incorrect reasoning (8)	20	3
Conceptual Understanding	Partial understanding, explains some aspects (7)	Poor understanding, unable to explain key aspects (5)	10	5
Communication Skills & Confidence	Adequate but lacks fluency/clarity, moderate confidence (12)	Weak communication, unclear explanations, low confidence (8)	20	1–5

Table e: CO-PO/PSO Attainment matrix

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3		2				2				1		1		2
CO2	3	3	3	2		2	1	2	1	1	1	1			
CO3	3		3	1	2	2	2	1	1	1	1	1	3	2	
CO4	3		2		1	1	2	2	2	2	3	1		3	2
CO5	3				2	3	3	3	1	2	3	3	1	3	3

2.5 Case Studies and Real-Life Examples (10)

Sl. No.	Roll No.	Name of Student	Guide	Title	POs / PSOs
1	BTECH/1049 8/21	Nishant Kumar	Dr. P. Mishra	To increase the Life Cycle of a Weigh Feeder Belt in a Lime Plant	PO1–7, PO9–10, PO12
2	BTECH/1066 5/21	Shubham Agrawal	Dr. P. Mishra	Auxiliary Equipment Performance (HT)	PO1–7, PO9–10, PO12
3	BTECH/1034 0/21	Lakshya Saini	Dr. P. Mishra	Product Planning for the Bina Dispatch Terminal at the BPCL Bina Refinery	PO1–7, PO9–10, PO12
4	BTECH/1072 2/21	Deepshikha Majumdar	Dr. A. K. Kadian	A Solution that prevents Fume Leakage from squeeze rolls window in rinse tanks	PO1–7, PO9–10, PO12
5	BTECH/1003 3/21	Ujjwal Aman	Dr. A.K. Kadian	To increase the efficiency and Reliability of a mill Bughouse	PO1–7, PO9–10, PO12

With effect from the academic year 2018, the institute has incorporated a structured framework for the inclusion of MOOC courses in the curriculum. As per the provision, students may opt for MOOC-1 and MOOC-2 in place of Open Elective-3 and Open Elective-4, respectively in seventh (7) semester. In 2020, the institute further revised the curriculum framework by permitting students to undertake four MOOC courses, one in each semester from 4 to the 7 semester, in place of the corresponding open electives. Each MOOC course carries weightage of 3-credits.

The institute has formulated guidelines for students regarding the selection of MOOC courses. Based on these guidelines, the department faculty MOOC coordinator advises students. The main features of the guidelines are:

1. Students may enroll in MOOC courses only offered by NPTEL through the Swayam Portal.
2. To fulfill the requirement of 3 credits, students must enroll in 12-week MOOC courses. Courses of shorter duration will not be eligible for credit transfer.
3. Credit transfer will be effected only upon the successful completion of the course and submission of the relevant certificate.

The following table presents a summary of MOOC courses completed by students over the last three academic years:

Sl. No.	Semester	Batch	Number of Student Registered / Certified
1	SP-22	2020	10
2	MO-22	2019	06
3	SP-23	2020	59
4	SP-23	2021	22
5	MO-23	2020	78
6	MO-23	2021	46
7	SP-24 (IV Sem)	2021	1
8	SP-24 (IV Sem)	2022	108
9	SP-24 (VI Sem)	2021	119
10	MO-24	2021	116
11	MO-24	2022	107
12	MO-24	2023	02
13	SP-25	2022	122
14	SP-25	2021	01
15	MO-25	2022	118
16	MO-25	2021	02

At the end of each semester, the Department faculty MOOC coordinator conducts an analysis in consultation with the Head of the Department. The analysis, particularly with respect to the POs/PSOs addressed, is documented and maintained in departmental records. A complete list of students who have successfully completed MOOC course, along with their certificates, is also kept in the departmental files.

2.7 Solving Complex Engineering Problems Incorporating Sustainability Goals (20)

Sl. No.	Roll No.	Name of Student	Guide	Title	POs / PSOs	SDG
1	BTECH/10498/21	Nishant Kumar	Dr. P. Mishra	To increase the Life Cycle of a Weigh Feeder Belt in a Lime Plant	PO1–7, PO9–10, PO12	SDG 9, SDG 12 The project focuses on industrial reliability improvement, reduction in maintenance cost, and sustainable utilization of resources through innovation in material handling systems.
2	BTECH/10665/21	Shubham Agrawal	Dr. P. Mishra	Auxiliary Equipment Performance (HT)	PO1–7, PO9–10, PO12	SDG 7, SDG 9 Optimization of auxiliary systems enhances energy efficiency, operational productivity, and industrial sustainability, aligning with modern engineering practices.
3	BTECH/10340/21	Lakshya Saini	Dr. P. Mishra	Product Planning for the Bina Dispatch Terminal at the BPCL Bina Refinery	PO1–7, PO9–10, PO12	SDG 9, SDG 11, SDG 12 Efficient logistics and dispatch planning improve supply chain management, reduce operational inefficiencies, and support sustainable industrial infrastructure.

4	BTECH/1072 2/21	Deepshikha Majumdar	Dr. A. K. Kadian	A Solution that prevents Fume Leakage from squeeze rolls window in rinse tanks	PO1–7, PO9–10, PO12	SDG 3, SDG 6, SDG 9 The project improves workplace safety, minimizes hazardous emissions, and promotes environmentally responsible industrial operations.
5	BTECH/1003 3/21	Ujjwal Aman	Dr. A.K. Kadian	To increase the efficiency and Reliability of a mill Bughouse	PO1–7, PO9–10, PO12	SDG 3, SDG 9, SDG 13 Enhancement of baghouse performance reduces particulate emissions, improves air quality, and contributes to cleaner and more sustainable manufacturing practices.

According to the curriculum, major project work is scheduled in the 8th semester, and some students are fortunate to work directly with industries during this period. The table shows the list of the students who worked in SP-2025 with industries like Tata Motors, Reliance Industries Limited, Tata Steel, etc.

Sl. No.	Roll No.	Name of Student	Industry
1	BTECH/10698/21	Goldi Murmu	Tata Steel
2	BTECH/10499/21	Vikash Choudhary	Reliance Industries Limited
3	BTECH/10213/21	Shashank Anand	Reliance Industries Ltd
4	BTECH/10314/21	Tarun Kumar	Tata motors
5	BTECH/10029/21	Suhani	Jindal steel and power limited

Students also have the opportunity to undergo internship at the end of 6th semester, with most opting for industrial training/internships. The table below shows the list of the students completed their industrial internship/training during the summer of 20:

Sl. No.	Roll No.	Student Name	Organization
1	BTECH/10498/21	NISHANT KUMAR	TATA STEEL, JAMSHEDPUR
2	BTECH/10314/21	TARUN KUMAR	TATA MOTORS LIMITED
3	BTECH/10363/21	HARSH KUMAR	SAIL BOKARO
4	BTECH/10722/21	DEEPSHIKHA MAJUMDAR	JIDAL STEEL POWER
5	BTECH/1229/21	NISHANT ABHINAV	INDIA OIL CORPORATION
6	BTECH/10026/21	SHOVIT ATTRI	MARUTI SUZUKI

7	BTECH/10221/2 1	SRAJAN GUPTA	HAL
8	BTECH/1024/21	SWATI KUMARI	TATA STEEL,JAMSHEDPUR
9	BTECH/10033/2 1	UJJWAL AMAN	TATA STEEL PELLET PLANT
10	BTECH/10213/2 1	SHASHANK ANAND	RELIANCE INDUSTRIES LIMITED
11	BTECH/10455/2 1	AMKUNR KUMAR	TATA STEEL LIMITED
12	BTECH/10613/2 1	AYUSH TIWARI AYUSH	RELIANCE INDUSTRIES LIMITED
13	BTECH/10359/2 1	AMAN KUMAR	STEEL AUTHORITY OF INDIA LIMITED,BOKARO
14	BTECH/10606/2 1	NISHANT KUMAR	JINDAL STEEL AND POWER LIMITED (JSPL),RAIGARH
15	BTECH/10665/2 1	SHUBHAM AGRAWAL	JINDAL STEEL AND POWER LIMITED (JSPL),RAIGARH
16	BTECH/10340/2 1	LAKSHYA SAINI	BHARAT PETROLEUM CORPORATION LIMITED,BINA REFINARY,BINA,MP
17	BTECH/10481/2 1	SHRUTI JAIN	RELIANCE INDUSTRIES LIMITED,JAMNAGAR
18	BTECH/10618/2 1	MANAN AGRAWAL	ERNST & YOUNG, MUMBAI

3 OUTCOME-BASED ASSESSMENT (120)

3.1 Evaluation of Continuous Assessment: Assignments, Unit Tests, Mid-Term, etc. (10)

1. The B.Tech. (Mechanical Engineering) programme at BIT Mesra consists of 168 credits distributed across various theory and laboratory courses. Each theory course typically carries a 3 - 4 credit load and is divided into five modules, each spanning 10 lecture hours and defined by specific Course Outcomes (COs).
2. The assessment framework includes Progressive Evaluation (Continuous Assessment - 25% weightage), Mid-Semester Examination (25%), and End-Semester Examination (50%). For theory courses, continuous assessment consists of two quizzes (Quiz 1 before the mid-semester examination and Quiz 2 after mid-semester examination), assignments, and classroom interactions.
3. Evaluation Methods: Quizzes (10% each): Quiz 1 is conducted after completion of 1 - 2 modules, while Quiz 2 is held later in the semester. Questions are mapped to COs, and marks obtained are used to assess attainment. Assessment (5%): Assessment marks are awarded through assignments, seminars, surprise tests, attendance, classroom interactions, etc., at the discretion of the individual faculty member. Mid-Semester Examination (25%): Typically consists of five structured questions (with sub-parts) covering relevant modules, with each question explicitly marked. Evaluation of Laboratory courses is based on a 60% progressive evaluation and a 40% End Semester exam.
4. The attainment level for each student is calculated by combining the scores from Continuous Assessment, Mid-Semester, and End-Semester Examinations. These attainment levels are categorized on a 3-point scale: Low ($\leq 44.99\%$), Medium (45–64.99%), High ($\geq 65\%$).

Since all COs are mapped to Program Outcomes (POs) and Program Specific Outcomes (PSOs), the process ensures that student performance in each course contributes systematically to the attainment of the overall outcome-based B.Tech (Mechanical Engineering) programme.

3.2 Evaluation of the Semester End Exam (SEE) Question Paper (10)

The End Semester Examination carries a 50% weightage of the total course evaluation. Question papers are designed to cover the entire course syllabus, incorporating different levels of Bloom's Taxonomy to test knowledge, understanding, application, and higher-order problem-solving skills. Typically, five main questions (with sub-parts) are included to ensure representation of all modules. Each question is carefully mapped to the respective Course Outcomes (COs), and the maximum marks for each are clearly indicated on the question paper.

§ Students' responses are evaluated as per the defined marking scheme, and the marks obtained are recorded in departmental records. These marks are then tabulated (using Excel or equivalent tools) to calculate the percentage attainment of each CO through the SEE.

§ The final attainment of each student for every CO is computed by combining scores from Continuous Assessment (Quizzes, Assignments), Mid Semester Examination, and End Semester Examination. The consolidated attainment is categorized on a 3-point scale:

- Low ($\leq 44.99\%$)
- Medium (45–64.99%)
- High ($\geq 65\%$)

As all COs are systematically mapped to Program Outcomes (POs) and Program Specific Outcomes (PSOs), this structured evaluation ensures that the B. Tech. (Mechanical Engineering) programme achieves its outcome-based assessment objective effectively.

3.3 Evaluation of Laboratory Work and Workshop (Continuous and SEE) (10)

This structured evaluation ensures that laboratory learning not only develops experimental and analytical skills but also strengthens the attainment of COs, POs, and PSOs of the B. Tech. (Mechanical Engineering) programme.

1. Laboratory and workshop courses in the B. Tech. (Mechanical Engineering) programme carry their own course codes, with a credit weightage typically 50% of the corresponding theory course. While the credits are half, the contact hours are to ensure adequate hands-on exposure. Assessment of laboratory courses involves multiple components: two quizzes (Quiz 1 before the End Semester Examination and Quiz 2 during/alongside the End Semester Examination), continuous laboratory performance in each experiment, viva-voce for every experiment, and timely submission of laboratory records. Marks awarded for each component are mapped to the respective Course Outcomes (COs), ensuring constructive alignment.

2. At the conclusion of the course, students submit their Lab Records to the concerned faculty, which are evaluated along with quiz scores, viva, and practical performance. The attainment of each student for every CO is calculated from the Quiz 1 Record, Viva, and the End Semester Lab Examination. The consolidated attainment levels are then classified on a 3-point scale:

- Low ($\leq 44.99\%$)
- Medium (45 - 64.99%)
- High ($\geq 65\%$)

3.4 Evaluation of Industrial Training/ Internship (Continuous and SEE) (10)

Project Report Evaluation Rubrics :

Performance Indicators	Excellent (Full Marks)	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)	Max Marks	Evaluat
Report Format	Fully adhered (10)	Partially adhered (7)	Not adhered (5)	10	
Clarity & chapter organization	Well defined & clear (10)	Few chapters clear (7)	Not clear (5)	10	
Description of project details	All details described(10)	Few details described (7)	Poorly described (5)	10	
Discussion of results &conclusion	Well discussed (15)	Discussed (12)	Poorly discussed (8)	15	
References	Fully appropriate (5)	Partially appropriate (3)	Inappropriate (2)	5	

Viva-Voce Evaluation Rubrics:

Criteria	Excellent (Full Marks)	Satisfactory (Mid Marks)	Needs Improvement (Low Marks)
Knowledge of Fundamentals	Strong grasp, clear explanations, no major errors (10)	Understands concepts but with minor gaps(7)	Weak understanding, many errors (5)
Application of Knowledge (Problem-Solving &Analysis)	Applies theory effectively to real-world problems (10)	Some application ability, partly correct reasoning (7)	Unable to apply knowledge, incorrect reasoning (5)
Technical Depth (Project/Internship Understanding)	Excellent understanding of objectives, methods, tools, outcomes (10)	Partial understanding, explains some aspects (7)	Poor understanding, unable to explain key aspects (5)
Communication Skills	Fluent explanations, appropriate technical terms, confident answers (8)	Adequate but lacks fluency/clarity, moderate confidence (6)	Weak communication, unclear explanations, low confidence (4)
Confidence & Attitude	Highly confident, enthusiastic, professional(6)	Moderately confident, some hesitation (4)	Nervous, lacks confidence, unprofessional(2)
Overall Impression (Creativity, and Critical Thinking)	Shows originality, creativity, independent thinking (6)	Some originality and critical thinking (4)	Little originality, dependent on others (2)

COs	Description
CO1	Demonstrate the ability to prepare and present a structured technical report with clarity, organization, and proper referencing.
CO2	Apply fundamental engineering knowledge and problem-solving skills to analyze and interpret project/internship-related tasks.
CO3	Exhibit technical depth and comprehensive understanding of the project/internship work, including discussion of results and conclusions.
CO4	Communicate effectively through written and oral presentations, demonstrating confidence and professional attitude.
CO5	Display creativity and critical thinking in project execution

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	0	0	2	1	0	0	1	0	3	1	2	2	0	0
CO2	3	3	2	2	2	1	0	0	0	2	1	3	3	2	0
CO3	3	2	2	3	2	0	0	1	0	2	0	3	3	2	3
CO4	1	0	0	0	0	1	0	2	2	3	0	2	1	0	0
CO5	2	2	3	2	2	0	0	0	1	2	2	3	2	3	2

3.5 Evaluation of Projects (20)

Project evaluation consists of the following components

1. Progressive evaluation-- based on the seminar presentation progress of work is judged and necessary recommendations and suggestions to carry out further work is given to the students by internalexaminer at the mid of final semester.
2. End semester Evaluation- 100 Marks based on the report submitted and seminar presentation on the work done by the students' marks is given by internal examiner as well as external examiner-internalexaminer is guide himself/herself and exte another institute at the end of eighth semester.

s of Project evaluation

- I Problem Identification & Analysis
- 2 Design & Research Application
- 3 Experimentation & Data Interpretation
- 4 Project Management, Teamwork & Professional Skills
- 5 Technical Communication: Report Writing & Presentation

ect report evaluation rubrics

Performance Indicators	Excellent (Full Marks)	Satisfactory (Mid marks)	Needs Improvement (Low Marks)	Max Marks
Problem identification and objectives	Fully Adhered(10)	Partially adhered (7)	Not adhered (5)	10
Technical Knowledge and application	Well adhered and Clear (10)	Few Chapters Clear (10)	Not Clear(10)	10
Methodology and Experimentation/Sim ulation	All details Described(20)	Few Details described(12)	Poorly described (8)	20
Project/management and team work	Well discussed(10)	Discussed(7)	Poorly Discussed(5)	10
Total Marks				50

iv-vocational examination rubrics

Satisfactory (Mid Marks)	Needs improvement (LOW Marks)	Max Marks	COs
Some application ability, partly correct reasoning (12)	Unable to apply knowledge, incorrect reasoning (8)	20	3
Partial understanding, explains some aspects (7)	Poor understanding, unable to explain key aspects (5)	10	5
Adequate but lacks fluency/clarity, moderate confidence (12)	Weak communication, unclear explanations, low confidence (8)	20	1-5
		50	

PO/PSO Attainment matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	2	2	1	2	2	1	1	1	1	2	3	2
CO2	3	2	3	2	3	1	2	1	2	1	2	2	3	3
CO3	2	2	2	3	3	1	1	1	1	1	1	2	2	3
CO4	1	1	2	1	1	1	1	2	3	2	3	2	2	2
CO5	1	1	1	1	1	1	1	1	2	3	2	2	1	1

3.6 Evidence of Addressing Sustainable Development Goals (SDG) (10)

Sl. No.	Roll No.	Student Name	Guide Name	Title [Mention if with industry Collaboration]	SDG
	1BTECH/10711/19	Rooturaj Swain	Dr. Mukesh Sharma	Numerical Investigations On The Thermal Behaviour Of A Fully Voided Concentric Channel Of 220 Mwe IPHWR Under Depleting Moderator Condition	Aligned with
	2BTECH/10548/19	Aman Singh	Dr. Mukesh Sharma	Numerical Investigations On The Thermal Behaviour Of A Fully Voided Concentric Channel Of 220 Mwe IPHWR Under Depleting Moderator Condition	Aligned with
	3BTECH/10593/19	Tanmay Gocher	Dr. Mukesh Sharma	Numerical Investigations On The Thermal Behaviour Of A Fully Voided Concentric Channel Of 220 Mwe IPHWR Under Depleting Moderator Condition	Aligned with
	4BTECH/10217/19	Jayant Krishna	Dr. Paritosh Mahata	Design and Analysis of a Cageless Open Differential	Aligned with
	5BTECH/10385/19	Swati Pradhan	Dr. Paritosh Mahata	Design and Analysis of a Cageless Open Differential	Aligned with
	6BTECH/10550/19	Dasari Bhavya	Dr. Paritosh Mahata	Design and Analysis of a Cageless Open Differential	Aligned with
	7BTECH/10534/19	Shubham Sheshank	Dr. Anil Chandra Mahato	Modelling and Analysis of an Automotive Seating Track using Finite Element Analysis	Aligned with
	8BTECH/10610/19	Srinivas Challa	Dr. Anil Chandra Mahato	Modelling and Analysis of an Automotive Seating Track using Finite Element Analysis	Aligned with
	9BTECH/10647/19	Sanskar Zode	Dr. Anil Chandra Mahato	Modelling and Analysis of an Automotive Seating Track using Finite Element Analysis	Aligned with
	10BTECH/10421/19	Shreya Prasad	Saurav Chakraborty	Convective drying of food products	Aligned with
	11BTECH/10453/19	Shubhankar Sinha	Saurav Chakraborty	Convective drying of food products	Aligned with
	12BTECH/10529/19	Fahim Yousuf Choudhury	Saurav Chakraborty	Convective drying of food products	Aligned with
	13BTECH/10548/19	Aman Singh	Dr. Mukesh Sharma	Effect of Moderator Depletion and Investigations on the Thermal Behaviour of 220 Mwe IPHWR Nuclear Channel during LOCA	Aligned with
	14BTECH/10711/19	Rooturaj Swain	Dr. Mukesh Sharma	Effect of Moderator Depletion and Investigations on the Thermal Behaviour of 220 Mwe IPHWR Nuclear Channel during LOCA	Aligned with
	15BTECH/10593/19	Tanmay Gocher	Dr. Mukesh Sharma	Effect of Moderator Depletion and Investigations on the Thermal Behaviour of 220 Mwe IPHWR Nuclear Channel during LOCA	Aligned with
	16BTECH/10627/19	Gourav Kumar	Dr. Mukesh Sharma	Numerical Investigations on low viscous oil-water flow through macro-channel return bend	Aligned with
	17Btech/10493/19	Ritik Raj Sharma	Dr. Mukesh Sharma	Numerical Investigations on low viscous oil-water flow through macro-channel return bend	Aligned with
	18Btech/10559/19	Agraj	Dr. Mukesh Sharma	Numerical Investigations on low viscous oil-water flow through macro-channel return bend	Aligned with
	19BTECH/10529/19	Fahim Yousuf Choudhury	Saurav Chakraborty	Computational Modelling of Convective Drying of Food Products.	Aligned with
	20BTECH/10453/19	Shubhankar Sinha	Saurav Chakraborty	Computational Modelling of Convective Drying of Food Products.	Aligned with
	21BTECH/10421/19	Shreya Prasad	Saurav Chakraborty	Computational Modelling of Convective Drying of Food Products.	Aligned with
	22BTECH/10224/19	Vaddi Srikanth	Abhijith Nag	MODELLING AND OPTIMIZATION OF HARDNESS OF ELECTROLESS NI-B COATING BY USING ANN-GA METHODOLOGY	Aligned with
	23BTECH/10327/19	Bhagawansingh rathor	Abhijith Nag	MODELLING AND OPTIMIZATION OF HARDNESS OF ELECTROLESS NI-B COATING BY USING ANN-GA METHODOLOGY	Aligned with
	24BTECH/10362/19	Adarsh raj	Abhijith Nag	MODELLING AND OPTIMIZATION OF HARDNESS OF ELECTROLESS NI-B COATING BY USING ANN-GA METHODOLOGY	Aligned with
	25BTECH/10416/19	Nishit Mishra	Praveen James Sanga	COMPREHENSIVE STUDY ON THE MECHANICAL AND DYNAMIC PROPERTIES OF AIRLESS TIRE DESIGNS	Aligned with
	26BTECH/10504/19	Kumar Prasoon	Praveen James Sanga	COMPREHENSIVE STUDY ON THE MECHANICAL AND DYNAMIC PROPERTIES OF AIRLESS TIRE DESIGNS	Aligned with
	27BTECH/10531/19	Aurajeet Mahapatra	Praveen James Sanga	COMPREHENSIVE STUDY ON THE MECHANICAL AND DYNAMIC PROPERTIES OF AIRLESS TIRE DESIGNS	Aligned with
	28BTECH/10611/19	Prakhar Shah	Dr. Arun Kumar Kadian	Design and Analysis of roll cage and braking system of an All-Terrain Vehicle.	Aligned with
	29BTECH/10135/19	Sahil Kumar Pandey	Dr. Arun Kumar Kadian	Design and Analysis of roll cage and braking system of an All-Terrain Vehicle.	Aligned with
	30BTECH/10108/19	Vivek Kumar	Dr. Arun Kumar Kadian	Design and Analysis of roll cage and braking system of an All-Terrain Vehicle.	Aligned with
	31BTECH.10630.19	Samyak Kumar	Mukesh Sharma	To develop a brake system that is capable of locking four wheels altogether at a max deceleration of 1.5g	Aligned with
	32BTECH.10630.19	Pranshu Singh	Mukesh Sharma	To develop a brake system that is capable of locking four wheels altogether at a max deceleration of 1.5g	Aligned with
	33BTECH/10048/19	Biswarup Roy	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
	34BTECH/10276/19	Vivek Kumar	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
	35BTECH/10342/19	D Abhaya Kumar	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
	36BTECH/10175/19	Shubham Mishra	Dr. S.K. Dhiman	DESIGN AND DEVELOPMENT OF A PORTABLE AIR-COOLING SYSTEM USING WATER WITHOUT ANY EVAPORATION LOSSES	Aligned with
	37BTECH/10062/19	Abhijeet Pranav Mishra	Dr. S.K. Dhiman	DESIGN AND DEVELOPMENT OF A PORTABLE AIR-COOLING SYSTEM USING WATER WITHOUT ANY EVAPORATION LOSSES	Aligned with
	38BTECH/10173/19	Ayush Kumar	Dr. S.K. Dhiman	DESIGN AND DEVELOPMENT OF A PORTABLE AIR-COOLING SYSTEM USING WATER WITHOUT ANY EVAPORATION LOSSES	Aligned with
	39BTECH/10430/19	Aman Srivastava	Dr. Praveen Mishra	Design and analysis of gearbox for an all-terrain vehicle	Aligned with
	40BTECH/10637/19	Akshat Srivastava	Dr. Praveen Mishra	Design and analysis of gearbox for an all-terrain vehicle	Aligned with
	41BTECH/10684/19	Aditya Kumar Panda	Dr. Praveen Mishra	Design and analysis of gearbox for an all-terrain vehicle	Aligned with
	42BTECH/10158/19	Anik Sarkar	Saurav Chakraborty	STUDY OF INVERSE HEAT TRANSFER TECHNIQUES IN CONTINUOUS CASTING	Aligned with

43BTECH/10357/19 Rishav Deo Raj	Saurav Chakraborty	STUDY OF INVERSE HEAT TRANSFER TECHNIQUES IN CONTINUOUS CASTING	Aligned with
44BTECH/10431/19 Ayush Jacob kujur	Om prakash pandey	DESIGN, FABRICATION AND COMPARISON OF CUBOIDAL AND CYLINDRICAL HYDRAULIC TURBINE	Aligned with
45BTECH/10734/19 Rohit Roshan Topno	Om prakash pandey	DESIGN, FABRICATION AND COMPARISON OF CUBOIDAL AND CYLINDRICAL HYDRAULIC TURBINE	Aligned with
46BTECH/10537/19 Kamal Gautam	Om prakash pandey	DESIGN, FABRICATION AND COMPARISON OF CUBOIDAL AND CYLINDRICAL HYDRAULIC TURBINE	Aligned with
47BTECH/10723/19 MUDAVATH RAVI	Dr.OM PRAKASH	MATHEMATICAL MODELLING AND SIMULATION OF HELICAL COIL BASED HEAT EXCHANGER FOR CONCENTRATED SOLAR POWER PLANT	Aligned with
48BTECH/10048/19 BISWARUP ROY	Dr.OM PRAKASH	MATHEMATICAL MODELLING AND SIMULATION OF HELICAL COIL BASED HEAT EXCHANGER FOR CONCENTRATED SOLAR POWER PLANT	Aligned with
49BTECH/10276/19 VIVEK KUMAR	Dr.OM PRAKASH	MATHEMATICAL MODELLING AND SIMULATION OF HELICAL COIL BASED HEAT EXCHANGER FOR CONCENTRATED SOLAR POWER PLANT	Aligned with
50BTECH/10342/19 D ABHAYA KUMAR	Dr.OM PRAKASH	MATHEMATICAL MODELLING AND SIMULATION OF HELICAL COIL BASED HEAT EXCHANGER FOR CONCENTRATED SOLAR POWER PLANT	Aligned with
51BTECH/10093/19 Sohini Shah	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
52BTECH/10269/19 Ronit Kumar	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
53BTECH/10271/19 Neeraj Narang	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
54BTECH/10194/19 Aklavya Anurag	Dr. Om Prakash	Experimental and Computational Study of Plate Steam Condenser Heat Transfer Characteristics	Aligned with
55BTECH/10203/19 Akash Raj	Dr. Om Prakash	Experimental and Computational Study of Plate Steam Condenser Heat Transfer Characteristics	Aligned with
56BTECH/10417/19 Pranav Prakash	Dr. Om Prakash	Experimental and Computational Study of Plate Steam Condenser Heat Transfer Characteristics	Aligned with
57BTECH/10598/19 Amod Surin	Arkadeb Mukhopadhyay	DEVELOPMENT OF BI- LAYER ELECTROLESS Ni-Sn-Cu-B COATING AND INVESTIGATION OF ITS TRIBOLOGICAL BEHAVIOUR	Aligned with
58BTECH/10025/19 Arpit Nischal	Arkadeb Mukhopadhyay	DEVELOPMENT OF BI- LAYER ELECTROLESS Ni-Sn-Cu-B COATING AND INVESTIGATION OF ITS TRIBOLOGICAL BEHAVIOUR	Aligned with
59BTECH/10148/19 Vivek Gari	Arkadeb Mukhopadhyay	DEVELOPMENT OF BI- LAYER ELECTROLESS Ni-Sn-Cu-B COATING AND INVESTIGATION OF ITS TRIBOLOGICAL BEHAVIOUR	Aligned with
60BTECH/10364/19 Abhishek Ranjan	Dr. Mukesh Sharma	Analysis of phase distribution during kerosene-water flow through inverted U bend	Aligned with
61BTECH/10638/19 Aditya Abhay Jain	Dr. Mukesh Sharma	Analysis of phase distribution during kerosene-water flow through inverted U bend	Aligned with
62BTECH/10409/19 Varad Gangadhar Gattuwar	Dr. Mukesh Sharma	Analysis of phase distribution during kerosene-water flow through inverted U bend	Aligned with
63BTECH/10630/19 Samyak Kumar	Mukesh Sharma	To develop a brake system that is capable of locking four wheels altogether at a max deceleration of 1.5g	Aligned with
64BTECH/10475/19 Pranshu Singh	Mukesh Sharma	To develop a brake system that is capable of locking four wheels altogether at a max deceleration of 1.5g	Aligned with
65BTECH/10296/19 Nilesh Ranjan	Prof. Praveen James Sanga	HEAT TRANSFER ENHANCEMENT OF TURBULENT FORCED NANOFLUID FLOW IN A MICROCHANNEL USING SECTOR SHAPED RIB	Aligned with
66BTECH/10304/19 Nitish Kumar	Prof. Praveen James Sanga	HEAT TRANSFER ENHANCEMENT OF TURBULENT FORCED NANOFLUID FLOW IN A MICROCHANNEL USING SECTOR SHAPED RIB	Aligned with
67BTECH/10310/19 Suman Shekhar	Prof. Praveen James Sanga	HEAT TRANSFER ENHANCEMENT OF TURBULENT FORCED NANOFLUID FLOW IN A MICROCHANNEL USING SECTOR SHAPED RIB	Aligned with
68BTECH/10147/19 SANGAM BHARTI	Dr Nirmal Kumar	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with development
69BTECH/10354/19 SONU SAHA	Dr Nirmal Kumar	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with development
70BTECH/10594/19 HARSH RANJAN	Dr Nirmal Kumar	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with development
71BTECH/10675/19 Abhishek	Dr. Rajeev Kumar	INVESTIGATIONS ON MASS ENERGY BALANCE ANALYSIS OF A BIOGAS GENERATION PLANT	Aligned with
72BTECH/10447/19 Shreya Shukla	Dr. Rajeev Kumar	INVESTIGATIONS ON MASS ENERGY BALANCE ANALYSIS OF A BIOGAS GENERATION PLANT	Aligned with
73BTECH/10033/19 Kumari Kritika	Dr. Rajeev Kumar	INVESTIGATIONS ON MASS ENERGY BALANCE ANALYSIS OF A BIOGAS GENERATION PLANT	Aligned with
74Btech/10593/19 Tanmay Gocher	Mukesh Sharma	Effect of moderator depletion and investigations on the thermal behaviour of 220 Mwe IPHWR nuclear channel during LOCA	Aligned with
75Btech/10548/19 Rooturaj Swain	Mukesh Sharma	Effect of moderator depletion and investigations on the thermal behaviour of 220 Mwe IPHWR nuclear channel during LOCA	Aligned with
76Btech/10711/19 Aman Singh	Mukesh Sharma	Effect of moderator depletion and investigations on the thermal behaviour of 220 Mwe IPHWR nuclear channel during LOCA	Aligned with
77BTECH/10147/19 SANGAM BHARTI	Dr NIRMAL KUMAR	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with
78BTECH/10354/19 SONU SAHA	Dr NIRMAL KUMAR	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with
79BTECH/10594/19 Harsh Ranjan	Dr NIRMAL KUMAR	ANALYSIS OF FATIGUE CRACK INITIATION IN CYCLIC MICROPLASTICITY REGIMES THROUGH A NON-INVASIVE TECHNIQUE	Aligned with
80BTECH/10392/19 Rakshit Jain	Dr. Richa Pandey	Design and analysis of Vehicle Dynamics system for an all terrain vehicle	Aligned with
81BTECH/10425/19 Shubhankar	Dr. Richa Pandey	Design and analysis of Vehicle Dynamics system for an all terrain vehicle	Aligned with
82BTECH/10607/19 Chetan Sinha	Dr. Richa Pandey	Design and analysis of Vehicle Dynamics system for an all terrain vehicle	Aligned with
83BTECH/10377/19 Ankit Kumar	Dr. Abhijit Nag	Optimization of dimension in a pressure vessel cylinder	Aligned with

84BTECH/10370/19 Harsh Barnwal	Dr. Abhijit Nag	Optimization of dimension in a pressure vessel cylinder	Aligned with
85BTECH/10239/19 Deva Ajay Kumar	Dr. Abhijit Nag	Optimization of dimension in a pressure vessel cylinder	Aligned with
86BTECH/10235/19 K Jayanth Kumar	Om Prakash	CFD modelling and experimentation of steam turbine used in concentrated solar power plant	Aligned with
87BTECH/10281/19 Kuthadi Harshavardhan	Om Prakash	CFD modelling and experimentation of steam turbine used in concentrated solar power plant	Aligned with
88BTECH/10275/19 P Vishnu	Om Prakash	CFD modelling and experimentation of steam turbine used in concentrated solar power plant	Aligned with
89Btech/10671/19 Gautam Gupta	Richa Pandey	Design and development of automatic cradle	Aligned with
90Btech/10687/19 Anish oraon	Richa Pandey	Design and development of automatic cradle	Aligned with
91Btech/10659/19 Madhav Agarwal	Richa Pandey	Design and development of automatic cradle	Aligned with
92BTECH/10138/19 VISHAL SARDAR	Dr. Om Prakash Pandey	FABRICATION AND EXPERIMENTAL ANALYSIS OF GEAR EMBEDDED LOW HEAD CROSS FLOW TURBINE	Aligned with
93BTECH/10165/19 ARJUN ORAON	Dr. Om Prakash Pandey	FABRICATION AND EXPERIMENTAL ANALYSIS OF GEAR EMBEDDED LOW HEAD CROSS FLOW TURBINE	Aligned with
94BTECH/10337/19 CHANDAN MARDI	Dr. Om Prakash Pandey	FABRICATION AND EXPERIMENTAL ANALYSIS OF GEAR EMBEDDED LOW HEAD CROSS FLOW TURBINE	Aligned with
95BTECH/10093/19 Sohini Shah	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
96 BTECH/10269/19 Ronit Kumar	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
97BTECH/10271/19 Neeraj Narang	Dr. Rajeev Kumar	DESIGN, FABRICATION AND PERFORMANCE ANALYSIS OF A COMPRESSED AIR ENGINE THROUGH GREEN ENERGY RESOURCES	Aligned with
98BTECH/10479/19 Anuj Agrawal	Dr. Richa Pandey	Design and development of shredder machine for efficient recycling of plastic in India	Aligned with
99BTECH/10554/19 Somya Garg	Dr. Richa Pandey	Design and development of shredder machine for efficient recycling of plastic in India	Aligned with
100BTECH/10666/19 Prateek Shankar Prasad	Dr. Richa Pandey	Design and development of shredder machine for efficient recycling of plastic in India	Aligned with
101BTECH/10670/19 Atrash Raj	Dr. Richa Pandey	Design and development of shredder machine for efficient recycling of plastic in India	Aligned with
102BTECH/10601/19 Anuj Pandey	Dr. Arun Kumar Kadian	DESIGNING AND FINITE ELEMENT ANALYSIS OF SUSPENSION AND STEERING GEOMETRY OF AN ALL TERRAIN VEHICLE	Aligned with
103BTECH/10603/19 Shritam Sain	Dr. Arun Kumar Kadian	DESIGNING AND FINITE ELEMENT ANALYSIS OF SUSPENSION AND STEERING GEOMETRY OF AN ALL TERRAIN VEHICLE	Aligned with
104BTECH/10653/19 Aniruddh K Singh	Dr. Arun Kumar Kadian	DESIGNING AND FINITE ELEMENT ANALYSIS OF SUSPENSION AND STEERING GEOMETRY OF AN ALL TERRAIN VEHICLE	Aligned with
105BTECH/10034/19 Siddhartha Shekhar Mishra	Dr. Praveen James Sanga	NUMERICAL INVESTIGATION OF HEAT TRANSFER PERFORMANCE OF A DUCT IN A RADIATOR USING NANOFLUID	Aligned with
106BTECH/10122/19 Rahul Sinha	Dr. Praveen James Sanga	NUMERICAL INVESTIGATION OF HEAT TRANSFER PERFORMANCE OF A DUCT IN A RADIATOR USING NANOFLUID	Aligned with
107BTECH/10495/19 Ashutosh Bhadauri	Dr. Praveen James Sanga	NUMERICAL INVESTIGATION OF HEAT TRANSFER PERFORMANCE OF A DUCT IN A RADIATOR USING NANOFLUID	Aligned with
108BTECH/10706/19 Lokesh Gupta	Dr. Arkadeb Mukhopadhyay	TRIBOLOGICAL STUDY OF BI-LAYER ELECTROLESS Ni-B COATING ON AISI 1040 STEEL	Aligned with
109BTECH/10617/19 Ritik Sharma	Dr. Arkadeb Mukhopadhyay	TRIBOLOGICAL STUDY OF BI-LAYER ELECTROLESS Ni-B COATING ON AISI 1040 STEEL	Aligned with
110BTECH/10679/19 Siddharth Jain	Dr. Arkadeb Mukhopadhyay	TRIBOLOGICAL STUDY OF BI-LAYER ELECTROLESS Ni-B COATING ON AISI 1040 STEEL	Aligned with
111Btech/10390/19 Sumedh Dintakurthy	Anil chandra Mahato	DESIGN AND ANALYSIS OF VARIABLE INERTIA FLYWHEEL	Aligned with
112Btech/10701/19 Peala yeswanth	Anil chandra Mahato	DESIGN AND ANALYSIS OF VARIABLE INERTIA FLYWHEEL	Aligned with
113Btech/10563/19 Gurram Sunny Aroma	Anil chandra Mahato	DESIGN AND ANALYSIS OF VARIABLE INERTIA FLYWHEEL	Aligned with
114BTECH/10036/19 Shashank Kumar Singh	Dr. Paritosh Mahata	Design, Development and Analysis of the Convertible Stairs	Aligned with
115BTECH/10064/19 Rahul Roshan	Dr. Paritosh Mahata	Design, Development and Analysis of the Convertible Stairs	Aligned with
116BTECH/10280/19 Roshan Manish Agarwa	Dr. Paritosh Mahata	Design, Development and Analysis of the Convertible Stairs	Aligned with
117BTECH/10455/19 Aditya Kumar	Dr. Om Prakash	Energy and Exergy analysis of innovative steam condenser	Aligned with
118BTECH/10724/19 Vijay Kumar Das	Dr. Om Prakash	Energy and Exergy analysis of innovative steam condenser	Aligned with
119BTECH/10521/19 Ankit Kumar	Dr. Om Prakash	Energy and Exergy analysis of innovative steam condenser	Aligned with
120BTECH/10467/19 Devesh Kujur	Dr. Richa Pandey	A Study of Effect of Heat Treatment on Mechanical Properties of 3D Printed Polylactic Acid	Aligned with
121BTECH/10159/19 Runel Kerketta	Dr. Richa Pandey	A Study of Effect of Heat Treatment on Mechanical Properties of 3D Printed Polylactic Acid	Aligned with
122BTECH/10176/19 Rishabh Toppo	Dr. Richa Pandey	A Study of Effect of Heat Treatment on Mechanical Properties of 3D Printed Polylactic Acid	Aligned with
123BTECH/10306/19 DIVYANSHU	DR. OM PRAKASH	DESIGN AND DEVELOPMENT OF THERMAL OIL BASED PARABOLIC TROUGH COLLECTOR	Aligned with
124BTECH/10743/19 VIPIN KUMAR	DR. OM PRAKASH	DESIGN AND DEVELOPMENT OF THERMAL OIL BASED PARABOLIC TROUGH COLLECTOR	Aligned with
125BTECH/10130/19 SUBHAM PASHI	DR. OM PRAKASH	DESIGN AND DEVELOPMENT OF THERMAL OIL BASED PARABOLIC TROUGH COLLECTOR	Aligned with
126BTECH/10059/19 Siddhant Pradhan	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
127BTECH/10324/19 Harshit Kejriwal	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
128BTECH/10411/19 Devlin Sarkar	Dr. Om Prakash	Mathematical Modelling and Simulation of Helical Coil Based Heat Exchanger for Concentrated Solar Power Plant	Aligned with
129BTECH/10568/19 ADITYA SINGH JARIAL	Dr. Sujeet Kumar Mishra	Designing of IoT framework for machine digitalization	Aligned with
130BTECH/10538/19 EKANSH ZHARIYA	Dr. Sujeet Kumar Mishra	Designing of IoT framework for machine digitalization	Aligned with
131BTECH/10587/19 SHUBHAM KUMAR	Dr. Sujeet Kumar Mishra	Designing of IoT framework for machine digitalization	Aligned with
132BTECH/10678/19 Dishant Katdare	Sujeet Kumar Mishra	Designing of a torsionally stiff race car chassis	Aligned with
133BTECH/10703/19 Shashwat Chaturvedi	Sujeet Kumar Mishra	Designing of a torsionally stiff race car chassis	Aligned with

134BTECH/10681/19 Akshay Tando	Sujeet Kumar Mishra	Designing of a torsionally stiff race car chassis	Aligned with
135Btech/10473/19 Rishav Mishra	Dr. Richa Pandey	Fabrication of foot orthotic insole by 3D printing	Aligned with
136Btech/10686/19 Rishabh Thakur	Dr. Richa Pandey	Fabrication of foot orthotic insole by 3D printing	Aligned with
137Btech/10287/19 Priya Agarwal	Dr. Richa Pandey	Fabrication of foot orthotic insole by 3D printing	Aligned with

3.7 Attainment of Course Outcomes (25)

I. **EXAMINATIONS FOR THE UNDER-GRADUATE (UG) PROGRAMME**

1. **THEORY COURSES:** The total of 100 marks are distributed as under:

a) **Semester End Examination [50%]**

The Question Paper will have 05 questions with one question from each of the five modules of the syllabus, and there will be no choice. All 05 questions need to be answered to ensure compliance of course outcome as required by graduate attributes.

b) **Continuous Internal Assessment [50%]**

The Continuous Internal Assessment shall consist of:

i) **Mid-Semester Examination [25%]**

Mid-semester examination will be conducted by the Examination Section of the Institute. The Question Paper shall not carry any choice. There shall be five (05) questions, each carrying 5 marks ($5 \times 5 = 25$ marks).

ii) **Two Quizzes [20% ($2 \times 10\%$)]**

There shall be two quizzes of 10 marks each. First Quiz will be held before the mid-semester examination and the Second Quiz before the Semester-End examination. The two quizzes will be conducted by the department offering that course.

iii) **Teacher's Assessment [5%]**

This assessment shall be decided by the teacher(s) conducting that course. This may consist of assignment(s) / attendance / performance / participation in class/ viva. However, the chosen assessment tool shall be announced in the class by the teacher(s) before its commencement and shall be the same for all sections of that course and for the same course at all Centres where this course is being offered.

Common courses taught for multiple sections of the same paper, Quiz (es) across all sections shall be uniform i.e., same Question Paper to be used for the quizzes and the quizzes to be conducted on the same day and at the same time. For common papers, the department shall take the service of one common coordinator who shall be responsible for setting up the Question Paper in consultation with the course teacher(s). Coordinators shall be appointed by the respective Head of the Department/Directors of the Centres as the case may be. If a course is taught by more than one teacher, there shall be one common coordinator for the course.

2. LABORATORY COURSES: [100 Marks (Distributed as under)]:

a) Continuous Internal Assessment [60% (Distribution is as follows)]

- | | |
|---|-------|
| i) Day-to-day performance and Lab files | [30%] |
| ii) Quiz(es) | [10%] |
| iii) Viva | [20%] |

Subtotal of 2.(a)	[60%]
--------------------------	--------------

Page 1 of 7



b) Semester-End Examination [40% (Distribution is as follows)]

- | | |
|---------------------------------------|-------|
| i) Examination Experiment Performance | [30%] |
| ii) Quiz | [10%] |

Subtotal of 2.(b)	[40%]
--------------------------	--------------

Grand Total 2.(a)+(b)	[100%]
------------------------------	---------------

3. UG PROJECT: The total of 100 marks are distributed as under:

Project work may be carried out preferably independently or by a group of students not exceeding four (4). More than four students in a group shall be discouraged. Students opting for an Industry Internship in lieu of project work shall do it preferably independently or as deemed by the concerned industry. Project work done outside Institution shall be from Institutions with current Engineering/Science/Management/ University NIRF ranking within 100. In the case of Pharmacy/Architecture students, the same shall be from Institutions with current Pharmacy/Architecture NIRF ranking within 50. In any case, there shall be an academic guide from the parent Institution. Students doing industry internships or research projects in an outside Organization/Institute/University shall produce an internship/project completion certificate from the concerned Organisation/Institute/University to the Head of the Department before the final examination.

Project evaluation shall be as follows:

a) External Examiner	[50%]
b) Project Guide	[25%]
c) Departmental Project Evaluation Committee (DPEC)	[25%]
TOTAL	[100%]

The Departmental Project Evaluation Committee (DPEC) shall be constituted by the Head of the Department with inputs from and approval of Dean (UGS). The Guide of the candidate shall not participate in the evaluation process by the DPEC. The panel of external examiners to be provided by the Head of the Department shall be from Institutions with current Engineering/Science/Management/University NIRF ranking within 100.

For Pharmacy and Architecture projects, the panel of external examiners to be provided by the Head of the Department shall be from Institutions with current Pharmacy/Architecture NIRF ranking within 50.

A plagiarism check is mandatory for the evaluation of all the Dissertations.

4. Guidelines for Summer Training of the Students of UG Sixth Semester

The Undergraduate students of Sixth Semester under CBCS Course will have to undergo a Summer Training Programme in a reputed Organization, which shall be a part of the Course Curriculum for the award of degree.



Page 2 of 7

Further, the student will have to prepare a Report, duly certified by the Summer Training Organization soon after the completion of the Summer Training. The Head of the Department shall constitute an Evaluation Committee to conduct the Viva-Voce of these students. The Viva-Voce examination shall be conducted after the completion of Summer Training.

The break-up of marks shall be as under:

- a) Progressive evaluation (50%) : Based on Summer Training Report
- b) End-semester Evaluation (50%) : Based on Viva-Voce conducted in the Department by a Committee.

Steps for Calculating CO, PO/PSO and PEO Attainment

1. Map the Questions to respective COs. Note that one question can map to multiple COs with different weights.

For eg. Q1 (a) → CO1 (60%), CO2 (40%) → Different weightage

Q1 (b) → CO1 (50%), CO2 (50%) → Equal weightage

Map for all forms of assessments.

2. For each student, calculate the following:

- a. For each assessment type, compute the weighted sum of marks obtained in questions mapped to the respective COs and the Total marks those questions carry.

For eg. For Mid Semester Exam

$$Marks_{CO_x} = \sum_{i=1}^n M_i * W_i$$

$$Total_{CO_x} = \sum_{i=1}^n FM_i * W_i$$

x is the number of COs. $x = 1, 2, 3, 4, 5, \dots$

M_i is the marks obtained and FM_i is the full mark for the i^{th} question mapped to CO_x and n is the total number of questions/assessments.

W_i is the weightage of the question i for CO_x . It can be any % value in the range $[0, 100]$



Questions mapping to CO's											
Assessments (FM)	Questions	Mapped CO's									
Quiz 1 (10)	Q1, Q2	CO1, CO2									
Quiz 2 (10)	Q1, Q2	CO3, CO4									
Assignment (5)	Q1	CO4, CO5									
Mid Sem (25)	Q1, Q2, Q3, Q4, Q5	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)	4(a)	4(b)	5(a)	5(b)
		CO1	CO1	CO1	CO1	CO2	CO2	CO2	CO2	CO3	CO3
End Sem (50)	Q1, Q2, Q3, Q4, Q5	1(a)	1(b)	2(a)	2(b)	3(a)	3(b)	4(a)	4(b)	5(a)	5(b)
		CO1	CO1	CO2	CO2	CO3	CO3	CO4	CO4	CO5	CO5



Quiz 1 mapped to CO1
(50%) & CO2 (50%)

$$\begin{aligned} Total_{CO_1} &= \sum_{i=1}^3 FM_i * W_i \\ &= 10 * \frac{50}{100} \\ &= 5 \end{aligned}$$

$$\begin{aligned} Marks_{CO_1} &= \sum_{i=1}^3 M_i * W_i \\ &= 5 * \frac{50}{100} \\ &= 2.5 \end{aligned}$$

		Internal (25%)				CO1	
	Quiz1(10)		Quiz2(10)		Assignment (5)	Total _{CO1}	Marks _{CO1}
Full Marks	5	5	5	5	5		
Student 1	3	2	2	4	4	5	2.5
Student 2	2	5	5	3	5	5	3.5
Student 3	1	4	4	2	4	5	2.5
Student 4	4	4	4	4	5	5	4
Student 5	3	5	5	4	5	5	4
Student 6	2	2	2	3	5	5	2
Student 7	5	4	3	5	5	5	4.5
Student 8	3	5	4	2	5	5	4
Student 9	3	0	1	3	4	5	1.5
Student 10	1	4	4	3	5	5	2.5

- b. For each assessment type, apply the weightage of the assessment and again calculate the marks obtained for each CO and the Total marks (This step is required only when the total marks of all assessments is not in the ratio prescribe by BIT i.e Internal-25%, Mid Sem-25% and End Sem-50%).

$$\begin{aligned} Weighted_Total_{CO_x} &= Total_{CO_x} * AW\% \\ Weighted_Marks_{CO_x} &= \frac{Marks_{CO_x}}{Total_{CO_x}} * Weighted_Total_{CO_x} \end{aligned}$$

Where AW is the weightage, the assessment carries.

$$\begin{aligned}\text{Weighted_Total}_{CO_1} &= \text{Total}_{CO_1} * AW\% \\ &= 5 * \frac{25}{100} \\ &= 1.25\end{aligned}$$

$$\begin{aligned}\text{Weighted_Marks}_{CO_1} &= \frac{\text{Marks}_{CO_1}}{\text{Total}_{CO_1}} * \text{Weighted_Total}_{CO_1} \\ &= \frac{2.5}{5} * 1.25 \\ &= 0.63\end{aligned}$$

			Internal (25%)			CO1		CO1		
	Quiz1 (10)		Quiz2 (10)		Assignment (5)	Total _{CO1}	Marks _{CO1}	Weighted_Total _{CO1}	Weighted_Marks _{CO1}	
Full Marks	5	5	5	5	5					
Student 1	3	2	2	4	4	5	2.5	1.25		0.63
Student 2	2	5	5	3	5	5	3.5	1.25		0.88
Student 3	1	4	4	2	4	5	2.5	1.25		0.63
Student 4	4	4	4	4	5	5	4	1.25		1.00
Student 5	3	5	5	4	5	5	4	1.25		1.00
Student 6	2	2	2	3	5	5	2	1.25		0.50
Student 7	5	4	3	5	5	5	4.5	1.25		1.13
Student 8	3	5	4	2	5	5	4	1.25		1.00
Student 9	3	0	1	3	4	5	1.5	1.25		0.38
Student 10	1	4	4	3	5	5	2.5	1.25		0.63

- c. For each assessment type, calculate Attainment_Percentage, Attainment_Score and Attainment_Level based on the predefined rubrics, for each CO.

S. No	Evaluator	Score	Grading Scale Min % Range	Grading Scale Max % Range
1	High	3	65	100
2	Medium	2	45	64.99
3	Low	1	0	44.99

$$\text{Attainment_Percentage}_{CO_x} = \frac{\text{Weighted_Marks}_{CO_x}}{\text{Weighted_Total}_{CO_x}} * 100$$

$$\text{Attainment_Score}_{CO_x} = \begin{cases} 1, \text{if } 44.9 > \text{Attainment_Percentage} > 0 \\ 2, \text{if } 45 > \text{Attainment_Percentage} > 64.99 \\ 3, \text{if } 65 > \text{Attainment_Percentage} > 100 \end{cases}$$

$$\text{Attainment_Level}_{CO_x} = \begin{cases} \text{LOW}, \text{if } \text{Attainment_Score} = 1 \\ \text{MEDIUM}, \text{if } \text{Attainment_Score} = 2 \\ \text{HIGH}, \text{if } \text{Attainment_Score} = 3 \end{cases}$$

$$\begin{aligned} \text{Attainment_Percentage}_{CO_1} &= \frac{\text{Weighted_Marks}_{CO_1}}{\text{Weighted_Total}_{CO_1}} * 100 \\ &= \frac{0.63}{1.25} * 100 \end{aligned}$$

$$\begin{aligned} \text{Attainment_Score/Level}_{CO_1} &= \begin{cases} 1/\text{LOW}, \text{if } 44.9 > \text{Attainment_Percentage} > 0 \\ 2/\text{MEDIUM}, \text{if } 45 > \text{Attainment_Percentage} > 64.99 \\ 3/\text{HIGH}, \text{if } 65 > \text{Attainment_Percentage} > 100 \end{cases} \end{aligned}$$

	CO1		
	Internal		
	Attainment_ Percentage	Attainment_ Score	Attainment_ Level
Student 1	50	2	MEDIUM
Student 2	70	3	HIGH
Student 3	50	2	MEDIUM
Student 4	80	3	HIGH
Student 5	80	3	HIGH
Student 6	40	1	LOW
Student 7	90	3	HIGH
Student 8	80	3	HIGH
Student 9	30	1	LOW
Student 10	50	2	MEDIUM

Calculate this for all the other assessments like Mid Sem and End Sem, before proceeding to the next Step

3. Calculate the Direct_Assessment_Percentage and Direct_Assessment_Score over the total number of students in the course, over all the assessment types. Check if the target is achieved or not.

$$\text{Direct_Assessment_Percentage}_{CO_X} = \frac{\sum_{i=1}^M \sum_{j=1}^N \frac{\text{Assessment_Percentage}_{CO_X}}{N}}{N}$$

$$\text{Direct_Assessment_Score}_{CO_X} = \frac{\sum_{i=1}^M \sum_{j=1}^N \frac{\text{Assessment_Score}_{CO_X}}{N}}{N}$$

Where N is the total number of students enrolled in the course and M are the total types of assessments.

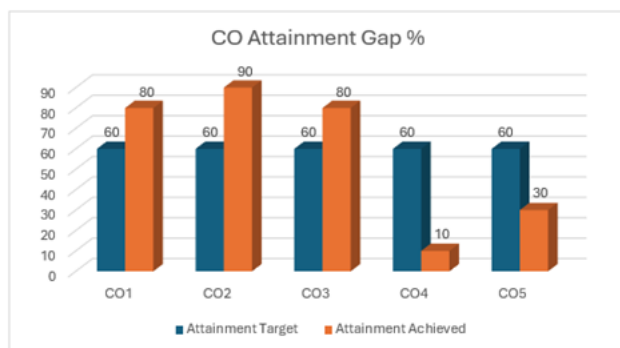
	Internal		Mid Sem		End Sem			
	AVG. PERC	AVG. SCORE	AVG. PERC	AVG. SCORE	AVG. PERC	AVG. SCORE	Direct_Assessment_Percentage _d over, all assessments	Direct_Assessment_Score _d over, all assessments
Student 1	50	2	50	2	60	2	53.33	2.00
Student 2	70	3	60	2	70	3	66.67	2.67
Student 3	50	2	100	3	50	2	66.67	2.33
Student 4	80	3	100	3	80	3	86.67	3.00
Student 5	80	3	80	3	50	2	70.00	2.67
Student 6	40	1	80	3	90	3	70.00	2.33
Student 7	90	3	70	3	70	3	76.67	3.00
Student 8	80	3	60	2	50	2	63.33	2.33
Student 9	30	1	80	3	60	2	56.67	2.00
Student 10	50	2	50	2	90	3	63.33	2.33
							= 67.33%	= 2.47

Calculate this for all the other COs, before proceeding to the next Step

4. Direct_Assessment_Percentage_{CO_x} and Direct_Assessment_Score_{CO_x} for all the CO's are tabulated, and an average value is computed (highlighted in Red)

		CO1	CO2	CO3	CO4	CO5	Average
Average Attainment % over all students	Direct_Assessment_Percentage _{CO_x}	67.33	79.53	94.33	53.67	59.00	70.77
Average Attainment level over all students	Direct_Assessment_Score _{CO_x}	2.47	2.30	2.23	1.93	1.97	2.18

5. The Direct Attainment of CO's are matched with the pre-defined Targets, to check if the CO's have been attained or not.
 TARGET :- The same target value is set for all the COs of a course.
 TARGET SET:- 60% STUDENTS MUST ACHIEVE 60% AND ABOVE



	No. of Students with Direct_Assessment_Percentage >60%	% of Students achieving the Target	Attainment Target	Target Achieved?	CO Attainment Gap %	Actions Proposed to Fill the Gap	Modification of CO target (if required)
CO1	8	$\frac{8}{10} * 100 = 80\%$	60%	Yes	+20		
CO2	9	90%	60%	Yes	+30		
CO3	8	80%	60%	Yes	+20		
CO4	1	10%	60%	No	-50		
CO5	3	30%	60%	No	-30		

- o If targets are achieved, we may set higher targets subsequently as part of continuous improvement.
- o If targets are not achieved then instead of lowering the target, an action plan should be put into place to attain the target in subsequent years.

6. Calculate the indirect assessment score. For this, take the Course Exit feedback from students on all the CO's and compute the average feedback score. The score for each question will be in 0,1,2 or 3 grade.

	CO1	CO2	CO3	CO4	CO5
Student 1	3	3	3	2	1
Student 2	2	3	2	3	3
Student 3	3	2	3	3	2
Student 4	2	3	2	3	2
Student 5	3	3	3	1	2
Student 6	3	3	2	3	3
Student 7	3	3	3	3	3
Student 8	2	2	2	2	2
Student 9	3	3	3	2	1
Student 10	3	3	2	3	1
Indirect_Assessment_Score _{COs}	2.7	2.8	2.5	2.5	2

7. Calculate the final CO attainment for the course by taking 70% of Direct Assessment and 30% of the Indirect Assessment

$$Attainment_Score_{CO_x} = 70\% \text{ Direct_Assessment_Score}_{CO_x} + 30\% \text{ Indirect_Assessment_Score}_{CO_x}$$

	CO1	CO2	CO3	CO4	CO5	Average
Direct_Assessment_Score _{CO_x} - A	2.47	2.30	2.23	1.93	1.97	2.18
Indirect_Assessment_Score _{CO_x} - B	2.70	2.80	2.50	2.50	2.00	2.5
Attainment_Score_{CO_x}=70%*A+30%*B	2.54	2.45	2.31	2.10	1.98	2.01

Utilized later
for PO/PSO
attainment

8. Calculate the Direct PO/PSO assessment for all courses in a program, by using the CO-PO/PSO articulation matrix, comprising the level of mapping of a certain CO to a particular PO/PSO. Note, the level of mapping, represented as $Level_{CO-PO_{xy}}/Level_{CO-PSO_{xy}}$ in the equation below can be 0, 1, 2 or 3, representing No, Low, Medium and High respectively.
- o Compute the Average of Direct_Assessment_Score_{CO_x} for all CO's, representing the overall Direct_Assessment_Score of the course. Similarly, compute the Average of $Level_{CO-PO}/Level_{CO-PSO}$ for all PO's/PSO's.
 - o Populate a table, comprising of Direct_Assessment_Score_{CO_x} for each course in the program and their corresponding average $Level_{CO-PO}/Level_{CO-PSO}$

$$Direct_Assessment_Score_{PO_y} = \frac{\sum_{x=1}^5 Direct_Assessment_Score_{CO_x} * \sum_{x=1}^5 Level_{CO-PO_{xy}}}{3}$$

$$Direct_Assessment_Score_{PSO_y} = \frac{\sum_{x=1}^5 Direct_Assessment_Score_{CO_x} * \sum_{x=1}^5 Level_{CO-PSO_{xy}}}{3}$$

where y is the number of POs and PSOs.

The final course outcomes are given in Table 3.7.2.1.

Table 3.7.2.1: The attainments of Course Outcomes.

Sl.No.	Course Code	Course Name	CO1	CO2	CO3	CO4	CO5
1.	MA203	Numerical Methods	2.44	2.505	2.46	2.2	2.22
2.	ME201	Thermodynamics	2.63	2.71	2.54	2.53	2.53
3.	ME203	Fluid Mechanics and Hydraulic Machines	2.16	2.00	2.02	2.41	2.42
4.	ME205	Strength of Materials	2.29	2.015	2.25	2.07	2.215
5.	MA204	Numerical Methods Lab	1.96	1.96	1.46	1.46	1.47
6.	ME202	Fluid Mechanics and Hydraulic Machines Lab	2.24	1.95	2.06	1.97	2.49
7.	ME204	Mechanical Engineering Lab I	2.93	2.88	2.9	2.9	2.9
8.	MT131	Understanding Harmony (UHV2)	2.1	2.1363	2.0007	2.0517	1.5774
9.	ME207	Kinetics and Dynamics of Machines	2.1	2.295	2.4	2.31	2.2

10.	ME209	Energy Conversion Systems	2.35	2.47	2.34	2.34	1.74
11.	ME211	Machine Design	1.45	1.57	0.98	0.98	2.86
12.	ME213	Thermo Fluid Engineering	1.28	1.53	1.19	1.11	2.15
13.	ME208	Dynamics of Machines Lab	2.91	2.81	2.86	2.86	2.86
14.	ME301	IC Engine & Gas Turbine	2.055	2.085	1.705	1.47	1.97
15.	ME303	Mechanical Vibration	2.015	2.025	1.925	2.03	2.065
16.	ME315	Heat and Mass Transfer	1.53	1.53	1.52	1.52	1.57
17.	ME351	Finite Element Methods	2.04	1.96	1.58	1.97	2.39
18.	ME349	Turbo Machinery	0.8	1.2	1.4	0.6	1.8
19.	ME355	Advanced Solid Mechanics	2.16	1.98	2.03	2.17	1.97
20.	ME377	Mechatronics	1.59	1.59	1.59	1.59	2.0
21.	ME367	Industrial Tribology	2.38	2.14	2.05	2.4	
22.	ME302	Heat Transfer Lab.	2.24	2.75	2.75	2.75	2.31
23.	ME304	Internal Combustion Engine Lab	1.95	1.95	1.95	1.51	1.51
24.	ME306	Mechanical Engineering Lab.-II	3	3	3	3	3
25.	ME311	Computer Aided Design	2.525	2.18	2.29	2.065	2.755
26.	ME305	Automobile Engineering	2.265	2.385	2.21	1.83	2.76
27.	ME307	Robotics Engineering	2.26	2.41	2.45	2.52	2.865
28.	ME359	Power Plant Engineering	2.54	2.4	2.4	2.8	2.92
29.	ME369	Gas Dynamics	2.76	2.6	2.75	2.62	2.68
30.	ME373	Hydraulic and Pneumatic Control	2.24	2.21	2.66	2.55	2.55
31.	ME308	Robotics and Automation Lab.	2.67	2.67	2.76	2.76	2.88
32.	ME310	Automobile Engineering Lab.	2.75	2.74	2.72	2.77	2.77
33.	ME401	Refrigeration and Air Conditioning	2.32	1.525	2.69	2.595	2.84
34.	ME409	Industrial Management	2.89	2.89	2.81	2.94	2.96
35.	ME479	Advanced Heat Transfer	1.7	2.25	2.3	2.6	
36.	ME400M	Minor Project	2.9	2.9	2.9	2.9	2.9
37.	ME404	Refrigeration and Air Conditioning Lab	2.49	2.49	2.445	2.7	2.67

38.	ME406	Computer Aided Design and Drafting Lab	2.81	2.87	2.74	2.75	2.75
39.	ME400	Research Project	2.93	2.93	2.93	2.93	2.93

3.8 Attainment of Program Outcomes and Program Specific Outcomes (25)

PO Attainment

[illegible]

ME301	1.86	1.81	1.85	1.84	1.76	1.71	1.66	PO8	PO9	1.77	1.7
ME302	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	PO
ME307	2.52	2.51	2.52	2.54	2.54	PO6	PO7	PO8	PO9	PO10	PO
ME315	1.53	1.53	1.53	1.52	1.52	1.53	PO7	PO8	PO9	PO10	1.5
ME349	1.16	1.16	1.11	1.13	1.12	PO6	PO7	PO8	1.2	1.2	1.2
ME355	2.06	2.06	2.06	2.05	2.06	2.06	2.06	2.04	2.05	2.16	PO
ME367	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24	PO10	PO
ME373	2.46	2.45	2.45	2.46	2.46	PO6	PO7	PO8	PO9	PO10	PO
ME351	1.99	1.99	1.98	2.03	1.98	1.99	1.98	2.06	2.02	1.98	1.9

PO Attainment Indirect

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO
Exit Feedbac	2.18	2.0	2.33	3	3	2.67	3	3	2.75	2.75	2
Industry Feec	2.8	2.83	2.89	2.89	2.89	2.66	2.66	2.33	2.67	2.67	2.6
Parent Feedt	3	3	3	3	3	3	3	3	3	3	3

PO Attainment Level

Note: The Institution can fix the weightage of the indirect attainment maximum up to 20%.

Define the Weightage for Indirect Attainment: 20.00

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO
Direct Attainment	2.28	2.28	2.28	2.29	2.26	2.30	2.32	2.33	2.32	2.32	2.
InDirect Attainment	2.66	2.61	2.74	2.96	2.96	2.78	2.89	2.78	2.81	2.81	2.
Overall Attainment	2.36	2.35	2.37	2.42	2.4	2.40	2.43	2.42	2.42	2.42	2.

PSO Attainment

Course	PSO1	PSO2	PSO3
ME201	2.60	2.60	2.60
MA204	1.63	1.66	1.63
ME202	2.14	2.14	2.14
ME204	2.9	2.9	2.9
ME207	2.26	2.23	2.26
ME209	2.25	2.25	2.25
ME211	1.57	1.57	1.57

ME213	1.45	1.47	1.42
ME208	2.86	2.86	2.86
ME301	1.73	1.73	1.73
ME301	1.73	1.73	1.73
ME303	2.03	2.05	2.05
ME351	1.96	1.99	1.99
ME367	2.24	2.24	2.24
ME306	3	3	3
ME304	1.78	1.77	1.77
ME311	2.36	2.36	2.33
ME307	2.47	2.50	2.50
ME373	2.44	2.44	2.44
ME308	2.75	2.75	PSO3
ME310	2.75	2.75	2.75
ME401	2.36	2.39	2.39
ME409	2.9	2.9	2.9
ME479	2.2	2.25	2.2
ME400M	2.9	2.9	2.9
ME404	2.55	2.56	2.56
ME406	2.79	2.78	2.78
ME400	2.93	2.93	PSO3
ME203	2.21	2.17	PSO3
ME205	2.17	2.17	PSO3
ME315	1.53	1.53	PSO3
ME359	2.59	2.61	PSO3
ME369	2.68	2.68	PSO3

PSO Attainment Indirect

Survey	PSO1	PSO2	PSO3
Exit Feedback	2.72	2.72	2.72
Industry Feedback	2.67	2.82	2.67
Parent Feedback	3	3	3

PSO Attainment Level

Course	PSO1	PSO2
--------	------	------

Direct Attainment	2.32	2.33
InDirect Attainment	2.80	2.85
Overall Attainment	2.42	2.43

4 STUDENTS' PERFORMANCE (120)

Table No. 4A: Admission details for the program excluding those admitted through multiple entry and exit points.

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2025-26 (CAY)	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)	2021-22 (CAYm4)	2020-21 (CAYm5)	2019-20 (CAYm6)
N=Sanctioned intake of the program (as per AICTE /Competent authority)	120	120	120	120	120	120	120
N1=Total no. of students admitted in the 1st year minus the no. of students, who migrated to other programs/ institutions plus no. of students, who migrated to this program	132	150	118	129	123	109	113
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	0	0	0	0	0	0
N3=Separate division if any	0	0	0	0	0	0	0
N4=Total no. of students admitted in the 1st year via all supernumerary quotas	2	0	0	1	2	1	1
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	134	150	118	130	125	110	114

Table No. 4B: Admission details for the program through multiple entry and exit points.

	Item (No. of students admitted/exited through multiple entry and exit points) in the respective batch	2025-26 (CAY)	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)	2021-22 (LYG)
N52=No. of students admitted in 2nd year via multiple entry and exit points in same batch	N52=No. of students admitted in 2nd year via multiple entry and exit points in same batch	0	0	0	0	0
N53=No. of students admitted in 3rd year via multiple entry and exit points in same batch	N53=No. of students admitted in 3rd year via multiple entry and exit points in same batch	0	0	0	0	0
N54=No. of students admitted in 4th year via multiple entry and exit points in same batch	N54=No. of students admitted in 4th year via multiple entry and exit points in same batch	0	0	0	0	0
N5=N52+N53+N54	N5=N52+N53+N54	0	0	0	0	0
N61=No. of students exits after 1st year via multiple entry and exit points in same batch	N61=No. of students exits after 1st year via multiple entry and exit points in same batch	0	0	0	0	0
N62=No. of students exit after 2nd year via multiple entry and exit points	N62=No. of students exit after 2nd year via multiple entry and exit points	0	0	0	0	0
N63=No. of students exit after 3rd year via multiple entry and exit points in same batch	N63=No. of students exit after 3rd year via multiple entry and exit points in same batch	0	0	0	0	0
N6=N61+N62+N63	N6=N61+N62+N63	0	0	0	0	0

Table No. 4C: No. of students graduated within the stipulated period of the program.

Year of entry	Total no. of students (N1 + N2 + N3+ N4 + N5 - N6 as defined above)	Number of students who have successfully graduated in stipulated period of study) [Total of with Backlog + without			
		I year	II year	III year	
2025-26 (CAY)	134				
2024-25 (CAYm1)	150	150			
2023-24 (CAYm2)	118	118	118		
2022-23 (CAYm3)	130	130	120	120	
2021-22 (LYG)	125	125	124	121	121
2020-21 (LYGm1)	110	110	107	107	107
2019-20 (LYGm2)	114	114	114	114	114

4.1 Enrolment Ratio (20)

Get Details from Table 4.1

Table No.4.1.1: Student enrolment ratio in the 1st year.

Year of entry	N (From Table 4.1)	N1 (From Table 4.1)	N4 (From Table 4.1)	Enrollment Ratio [(N1/N)*100]
2025-26 (CAY)	120	132	2	111.67
2024-25 (CAYm1)	120	150	0	125.00
2023-24 (CAYm2)	120	118	0	98.33

Average [(ER1 + ER2 + ER3) / 3] = 111.67 $\equiv$ 100

Assessment : 20.00

4.2 Success Rate of the Students in the Stipulated Period of the Program (15)

Table No.4.2.1: The success rate in the stipulated period of a program.

Item	(2021-22) LYG
A*= (No. of students admitted in the 1st year of that batch and those actually admitted in the 2nd year via lateral entry, plus the number of students admitted through multiple entry (if any) and separate division if applicable, minus the number of students who exited through multiple entry (if any).	125.00
B=No. of students who graduated from the program in the stipulated course duration	121.00
Success Rate (SR)= (B/A) * 100	96.80

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 93.66

SR Points : 14.05

Note *: If the value of A in Table No. 4.2.1 is less than the sum of the sanctioned intake (N) and the lateral entry including leftover seats (N2), then the value of A in Table No. 4.2.1 should be the sum of the sanctioned intake (N) and the lateral entry incl

4.3 Academic Performance of the First-Year Students of the Program (10)

Table No.4.3.1: Academic Performance of the First-Year Students of the Program.

Academic Performance	CAYm1(2024-25)	CAYm2(2023-24)	CAYm3 (
Mean of CGPA or mean percentage of all successful students(X)	7.74	7.67	7.19
Y=Total no. of successful students	150.00	118.00	130.00
Z=Total no. of students appeared in the examination	150.00	118.00	130.00
API [X*(Y/Z)]	7.74	7.67	7.19

Average API[(AP1+AP2+AP3)/3] : 7.53

Assessment = Average API : 7.53

4.4 Academic Performance of the Second Year Students of the Program (10)

Table No.4.4.1: Academic Performance of the Second Year Students of the Program.

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)
X=(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 2rd year/10)	8.54	8.18
Y=Total no. of successful students	118.00	120.00
Z=Total no. of students appeared in the examination	118.00	130.00
API [X * (Y/Z)]	8.54	7.55

Average API [(AP1 + AP2 + AP3)/3] : 8.03

Assessment [AverageAPI] : 8.03

4.5 Academic Performance of the Third Year Students of the Program (10)

Table No.4.5.1: Academic Performance of the Third Year Students of the Program

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)
X=(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 3rd year/10)	8.72	8.80
Y=Total no. of successful students	120.00	121.00
Z=Total no. of students appeared in the examination	120.00	124.00
API [X*(Y/Z)]:	8.72	8.59

Average API [(AP1 + AP2 + AP3)/3] : 8.53

Assessment [1.5 * AverageAPI] : 8.53

4.6 Placement, Higher Studies and Entrepreneurship (30)

Table No. 4.6.1: Placement, higher studies, and entrepreneurship details.

Item	LYG (2021-22)	LYGm1(2020-21)	LYGm2(2019-20)
FS*=Total no. of final year students	121.00	120.00	120.00
X=No. of students placed	88.00	76.00	87.00
Y=No. of students admitted to higher studies	5.00	0.00	1.00
Z= No. of students taking up entrepreneurship	1.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	77.69	63.33	73.33

Average Placement Index = (P_1 + P_2 + P_3)/3: 71.45

Placement Index Points: 21.44

4.7.1 Professional Societies/ Bodies, Chapters, Clubs, and Professional Engineering Events Organized (5)

Table No. 4.7.1.1: List of active professional societies/bodies/chapters/clubs.

S.No	Name of the Professional Societies/Bodies, Chapters, Clubs
1	Team Firebolt Racing
2	Team Srijan
3	Team Aveon
4	Robolution
5	National Service Scheme
6	Unnat Bharat Abhiyan
7	Aerospace Society
8	Institute of Electrical and Electronics Engineering (IEEE)

Table No. 4.7.1.2: List of events/programs organized.

(CAYm1) 2024-25

S.No	Name of the Professional Societies/Bodies, Chapters, Clubs	Name of the Event	National/International level	Date of Event (DD/MM)
1	Institute of Electrical and Electronics Engineering (IEEE)	IEEE Megaproject	National	18/01/2025
2	Institute of Electrical and Electronics Engineering (IEEE)	DSA Contest 3.0 Series	National	08/12/2004
3	Institute of Electrical and Electronics Engineering (IEEE)	IEEE LEAD 5.0	National	26/10/2024

(CAYm2) 2023-24

S.No	Name of the Professional Societies/Bodies, Chapters, Clubs	Name of the Event	National/International level	Date of Event (DD/MM)
1	Institute of Electrical and Electronics Engineering (IEEE)	Coding Weekender	National	02/03/2024
2	Institute of Electrical and Electronics Engineering (IEEE)	IEEE Megaproject	National	27/01/2024
3	Institute of Electrical and Electronics Engineering (IEEE)	IEEE LEAD 4.0	National	06/12/2023
4	Team Srijan	ASTA DI AUTOS	National	03/10/2024

(CAYm3) 2022-23

S.No	Name of the Professional Societies/Bodies, Chapters, Clubs	Name of the Event	National/International level	Date of Event (DD/MM)
1	Institute of Electrical and Electronics Engineering (IEEE)	Coding Weekender	National	24/03/2024
2	Institute of Electrical and Electronics Engineering (IEEE)	IEEE Megaproject	National	13/01/2022
3	Team Srijan	ASTA DI AUTOS	National	07/10/2024

4.7.2 Student's Participations in Professional Events (10)

Table No. 4.7.2.1: List of students participated in professional events.
(CAYm1) 2024-25

S.No	Name of the Student	Name of the Event	State /State /National/International level	Date of Event (DD/MM/YYYY)	Name of Award
1	Akash Kumar Tiwary	HackOn with Amazon	National	31/07/2025	Top 25 Fastest Coder
2	Md Faique Ibrahim	Flipkart Grid 7.0	National	15/08/2025	National semi-finalist
3	Achintya Kumar	Flipkart Grid 7.0	National	15/08/2025	National semi-finalist
4	Swaraj Unde	ICPC 2025	International	08/11/2025	Regionalist
5	Aditya Dutta	ICPC 2025	International	08/11/2025	Regionalist
6	Ayush Agarwal	ICPC 2025	International	08/11/2025	Regionalist
7	Ankit Singh Sisodia	ICPC 2025	International	08/11/2025	Regionalist
8	Shouryaman Singh	ETH Global	International	10/09/2025	-
9	Keshav Agarwal	ETH Global	International	10/09/2025	-
10	Saquib Jawed	NXP AIM competition	National	05/08/2024	1st in Noida Regional Finale
11	Arijit Basu	SUPRA SAE 2025	National	13/08/2025	-
12	Ajitesh Verma	SUPRA SAE 2025	National	13/08/2025	-
13	Saksham Khalkho	SUPRA SAE 2025	National	13/08/2025	-
14	Akshat Srivastava	SUPRA SAE 2025	National	13/08/2025	-
15	Tejasva Singh	SUPRA SAE 2025	National	13/08/2025	-
16	Kumar Shresth	SUPRA SAE 2025	National	13/08/2025	-
17	Harshit Singh Sikrawar	SUPRA SAE 2025	National	13/08/2025	-
18	Atulya Kumar Singh	SUPRA SAE 2025	National	13/08/2025	-
19	Aryayan Roy	SUPRA SAE 2025	National	13/08/2025	-
20	Pranshu	SUPRA SAE 2025	National	13/08/2025	-
21	Jagriti Singh	SUPRA SAE 2025	National	13/08/2025	-
22	Rishav Kumar	SUPRA SAE 2025	National	13/08/2025	-
23	Shashwat Pankaj Singh	SUPRA SAE 2025	National	13/08/2025	-
24	Nirnay Sinha	SUPRA SAE 2025	National	13/08/2025	-
25	Arnav Sarna	SUPRA SAE 2025	National	13/08/2025	-
26	Shashwat Shantanu	SUPRA SAE 2025	National	13/08/2025	-
27	Ayush Nigam	SUPRA SAE 2025	National	13/08/2025	-
28	Souvik Sen	SUPRA SAE 2025	National	13/08/2025	-
29	Ritwik Kurly	SUPRA SAE 2025	National	13/08/2025	-
30	Kshitij Singh	SUPRA SAE 2025	National	13/08/2025	-
31	Ayush Kumar Keshri	SUPRA SAE 2025	National	13/08/2025	-
32	Himanshu	SUPRA SAE 2025	National	13/08/2025	-
33	Yash Singh	SUPRA SAE 2025	National	13/08/2025	-

34	Anom Baladkar	SUPRA SAE 2025	National	13/08/2025	-
35	Prince Raj	SUPRA SAE 2025	National	13/08/2025	-
36	Abhinav Kumar Singh	SUPRA SAE 2025	National	13/08/2025	-
37	Ayush Raj	SUPRA SAE 2025	National	13/08/2025	-
38	Brianson John Lakra	SUPRA SAE 2025	National	13/08/2025	-
39	Chandranshu Singh	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
40	Tarun Kumar	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
41	Aabhas Kumar	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
42	Aayushman Singh	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
43	Aman Prasad	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
44	Mahender Banoth	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
45	RISHIT RAJ	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
46	SHIVANSH PAL	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
47	Tapan Munday	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
48	Sidra Siddiqui	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
49	Sanjeev Kumar Mahto	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
50	Umesh Podulla	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
51	Ashish Nehra	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
52	Swayam Shekhar	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC
53	Priyabrata Das	BAJA SAEINDIA 2025	National	09/01/2025	4TH in GO GREEN and 5TH in INNC

(CAYm2) 2023-24

S.No	Name of the Student	Name of the Event	State /National/International level	Date of Event (DD/MM/YYYY)	Name of Award
1	Sumit Agarwal	JPMC Code For Good Hackathon	National	15/07/2023	1st position
2	Sumit Agarwal	Code-With-Cisco Hackathon	National	13/07/2023	1st position
3	Keshav Agarwal	Hyperledger CLP program	National	17/06/2024	-
4	Chandrachud Shrivastava	ICPC 2024	International	14/12/2024	Regionalist
5	ARIJIT BASU	Pi-EV 2024	National	21/07/2024	-
6	AKSHAT SRIVASTAVA	Pi-EV 2024	National	21/07/2024	-
7	TEJASVA SINGH	Pi-EV 2024	National	21/07/2024	-
8	SHRESTH KUMAR	Pi-EV 2024	National	21/07/2024	-
9	ATUL TIWARI	Pi-EV 2024	National	21/07/2024	-
10	SOHAM PAUL	Pi-EV 2024	National	21/07/2024	-
11	AGNIK CHOUDHARY	Pi-EV 2024	National	21/07/2024	-
12	PRANSHU	Pi-EV 2024	National	21/07/2024	-
13	ARNAV SARNA	Pi-EV 2024	National	21/07/2024	-
14	SOUVIK SEN	Pi-EV 2024	National	21/07/2024	-
15	SHASHWAT PANKAJ SINGH	Pi-EV 2024	National	21/07/2024	-
16	Ritika	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
17	Aprub Ayush Toppo	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
18	Sanjeev Kumar Mahto	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
19	Umesh Podulla	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
20	Ashish Nehra	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
21	Swayam Shekhar	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
22	Priyabrata Das	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
23	Chandranshu Singh	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
24	Tarun Kumar	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
25	Nishant Kumar	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
26	Dhrub Narnolia	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
27	Shashank Anand	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
28	Aditya Kumar	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O
29	Abhishek Anand	BAJA SAEINDIA 2024	National	10/01/2024	1st in SALES PRESENTATION, 1st in OC CHOICE AWARDS, and 4th in O

S.No	Name of the Student	Name of the Event	State /National/International level	Date of Event (DD/MM/YYYY)	Name of Award
1	Sarvjot Singh	ICPC 2023	International	01/04/2023	Regionalist
2	Anuj Pandey	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
3	Chandranshu Singh	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
4	Sandeep Yadav	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
5	Tarun Kumar	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
6	Nishant Kumar	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
7	Dhrub Narnolia	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
8	Shashank Anand	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
9	Aditya Kumar	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
10	Abhishek Anand	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
11	Kaushik Kumar Pattnaik	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
12	Piyush Aman	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
13	Ashutosh S Kumar	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
14	Ritika	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN
15	Aprub Ayush Toppo	BAJA SAEINDIA 2023	National	15/02/2023	5TH in SALES PRESENTATION and 7TH in COST EFFECTIVEN

4.7.3 Publication of Journals, Magazines, Newsletters, etc. in the Department (5)

Table No. 4.7.3.1: List of students involved in publication of journals, magazines, and newsletters, etc. in the Department.

(CAYm1) 2024-25

S.No	Name of the Journal, Magazine, Newsletter	Name of the Editor	Name of the Student	Semester	No. of Issues	Hard c
1	Mechanical Engineering Bulletin	Dr. Lakhbir Singh Brar	Gaural Kumar Tandasi	6	1	Hard/s

(CAYm2) 2023-24

S.No	Name of the Journal, Magazine, Newsletter	Name of the Editor	Name of the Student	Semester	No. of Issues	Hard c
1	Mechanical Engineering Bulletin	Dr. Kaushik Kumar	Amarnath	6	1	Hard/s

(CAYm3) 2022-23

S.No	Name of the Journal, Magazine, Newsletter	Name of the Editor	Name of the Student	Semester	No. of Issues	Hard c
1	Mechanical Engineering Bulletin	Dr. Rajeev Kumar	Amarnath	4	1	Hard/s

4.7.4 Student Publications (5)

Table No. 4.7.4.1: List of student publications.
(CAYm1) 2024-25

S.No	Name of the Student	Semester	Name of the Publisher	Name of the Journal/ Conference, etc.	Volume No.	Issue No.
1	Abhigyan Prakash	8	Taylor & Francis	Heat Transfer Engineering Journal	46	7
2	Raushan Kumar, Chandranshu Kumar Singh, Anurag Singh, Mushtaque Momin	8	Elsevier	Annals of Nuclear Energy	226	5
3	Shivam Raj, Apurb Ayush Topno, Kumar Piyush Aman, Mushtaque Momin	8	Elsevier	Annals of Nuclear Energy	222	6
4	Ankur Kumar, Sandeep Shriwastava	8	IOP	Journal of Physics: Conference Series	2856	120

(CAYm2) 2023-24

S.No	Name of the Student	Semester	Name of the Publisher	Name of the Journal/ Conference, etc.	Volume No.	Issue No.	Na
1	Aditya Kumar Singh	8	IOP	Journal of Physics Conference series	2856	1	N
2	J Sriharsha, R Bollu, V B Reddy	8	IOP	Journal of Physics Conference series	2856	1	N
3	Prakyat Reddy B, Lankapalli Jaswant	8	IOP	Journal of Physics Conference series	2856	1	N
4	Rooturaj Swain, Aman Singh, Tanmay Gocher	8	Elsevier	Nuclear Engineering and Design	419	1	N
5	Lokesh Gupta, Siddharth Jain, Ritik Sharma	8	Springer	Transactions of the Indian Institute of Metals	77	1	N
6	S. Zode, S. Sheshank, S. Challa	8	ARQII Publication	Applications of Modelling and Simulation	8	1	N
7	A. Mittal	8	ARQII Publication	Applications of Modelling and Simulation	7	1	N

(CAYm3) 2022-23

S.No	Name of the Student	Semester	Name of the Publisher	Name of the Journal/ Conference, etc.	Volume No.	Issue No.	Na
1	Abhigyan Prakash, Aman Kumar, Aniket Anand Sharma	8	AIP Proceedings	AIP Proceedings	2863	1	NA
2	Surya Narayan Laguri, Phaningmi Kasar, Abhishek Soren	8	AIP Proceedings	AIP Proceedings	2863	1	NA

Sr.No	Name of the Faculty	PAN No.	APAAR faculty ID*(if any)	Highest degree	University	Area of Specialization	Date of Joining in this Institution	Experience in years in current institute	Designation at Time Joining in this Institution	Present Designation	The date on which Designated as Professor/ Associate Professor if any	Nature of Association (Regular/ Contract/ Ad hoc)	Currently Associated (Y/N)	In case of NO, Date of Leaving	IS HOD?
1	Dipti Prasad Mishra	AHBPM6412A	678912885636	Ph.D	IIT Kharagpur	CFD and Heat Transfer	19/12/2012	13.3	Associate Professor	Professor	01/06/2017	Regular	Yes		No
2	Richa Pandey	AAFPO0035L	818217088316	Ph.D	Birla Institute of Technology Mesra Ranchi	CAD/CAM Mechatronics	01/07/2002	23.9	Lecturer	Assistant Professor		Regular	Yes		No
3	Om Prakash	ATMPP7524P	632777819652	Ph.D	NIT Bhopal	Thermal Engineering	26/03/2015	11	Assistant Professor	Assistant Professor		Regular	Yes		No
4	Saurav Chakraborty	AWXPC6978N	921447933388	Ph.D	IIT Delhi	Thermal Engineering	06/09/2021	4.7	Assistant Professor	Assistant Professor		Regular	Yes		No
5	Lakhhbir Singh Brar	AFZPS8653M	423828687652	Ph.D	Birla Institute of Technology, Mesra, Ranchi	Fluid Mechanics	13/09/2010	15.7	Assistant Professor	Assistant Professor		Regular	Yes		No
6	Abhishek Kumar Kashyap	DIIPK6079N	570637341278	Ph.D	NIT Rourkela	Robotics and Machine Learning	08/09/2025	0.7	Assistant Professor	Assistant Professor		Regular	Yes		No
7	Sushanta Ghuku	BWEPG5848P	960094176936	Ph.D	Jadavpur University	Machine Design and Solid Mechanics	01/03/2023	3.1	Assistant Professor	Assistant Professor		Regular	Yes		No
8	Ankur Chattopadhyay	ALNPC0524F	686916176590	Ph.D	IIT Ropar	Thermofluids	14/10/2025	0.6	Assistant Professor	Assistant Professor		Regular	Yes		No
9	Ritwik Maiti	AVBPM9903A	295148343689	Ph.D	IIT Kharagpur	Experimental Fluid Dynamics	30/08/2021	4.7	Assistant Professor	Assistant Professor		Regular	Yes		No
10	Anil Chandra Mahato	BOKPM4975H	282110271693	Ph.D	IIT (ISM) DHANBAD	System dynamics and control	22/08/2019	6.7	Assistant Professor	Assistant Professor		Regular	Yes		No
11	Faisal Rahmani	ALZPR7678D	175880094654	Ph.D	IIT Delhi	Mechanical Design	09/11/2021	4.5	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Sujeet Kumar Mishra	AIJPM8211E	516403474278	Ph.D	Birla Institute of Technology, Mesra, Ranchi	Design, Fracture, EMR Emission	13/12/2005	20.4	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Paritosh Mahata	AUVPM8546L	514014107655	Ph.D	IIT Kanpur	Solid Mechanics and Design	11/07/2016	9.9	Assistant Professor	Assistant Professor		Regular	Yes		No

14	Arbind Kumar	ABTPK1986F	380018158258	Ph.D	Ranchi University	Heat Power Engg.	01/06/1986	39.10	Assistant Professor	Professor	01/04/2008	Regular	Yes		No
15	Kaushik Kumar	AHCPK0573H	947411150270	Ph.D	Jadavpur University	Materials and Design	19/09/2001	24.7	Lecturer	Professor	02/09/2024	Regular	Yes		No
16	Rajeev Kumar	AISPK4011H	NA	Ph.D	BIT Mesra	Plastic Deformation of Materials, Heat Power	01/07/2002	23.9	Lecturer	Associate Professor	12/09/2011	Regular	Yes		No
17	Sushil Kumar Dhiman	AKDPD7812L	734107554697	Ph.D	Birla Institute of Technology, Mesra Ranchi	Thermal Engineering	05/07/2007	18.9	Assistant Professor	Assistant Professor		Regular	Yes		No
18	Abhijit Nag	APNPN3186L	578642901106	Ph.D	IIT Kharagpur	Design of Hydrostatic Machine Elements	02/01/2012	14.3	Assistant Professor	Assistant Professor		Regular	Yes		No
19	O. P. Pandey	ALAPP7522M	NA	Ph.D	Birla Institute of Technology	Hydraulic M/C, Renewable energy	15/07/2003	22.8	Assistant Professor	Assistant Professor		Regular	Yes		No
20	Praveen Mishra	AKCPM1178K	NA	Ph.D	Birla Institute of Technology Mesra Ranchi	Energy, Industrial Management, Fluid Mechanics	23/01/2004	22.2	Assistant Professor	Assistant Professor		Regular	Yes		No
21	Praveen James Sanga	BMCP50499G	793071709776	Ph.D	Birla Institute of Technology, Mesra, Ranchi	Thermal Engineering	09/07/2007	18.9	Assistant Professor	Assistant Professor		Regular	Yes		No
22	Mukesh Sharma	DAJPS3701L	744136315478	Ph.D	IIT Roorkee	Thermal Engineering	16/08/2019	6.8	Assistant Professor	Assistant Professor		Regular	Yes		No
23	R.P. Sharma	ADEPS7529K	NA	Ph.D	Birla Institute of technology Mesra Ranchi	Thermal Engineering	06/06/1986	39.3	Assistant Professor	Professor	02/03/2015	Regular	No	30/08/2025	No
24	Arun Kumar Kadian	CFYPK3816F	NA	Ph.D	IIT Guwahati	Finite Element Analysis	24/07/2019	6.8	Assistant Professor	Assistant Professor		Regular	Yes		No
25	Arkadeb Mukhopadhyay	BFIPM3411H	213132824219	Ph.D	Jadavpur University	Mechanical Engineering	14/08/2019	6.8	Assistant Professor	Assistant Professor		Regular	Yes		No
26	Apurba Kumar Roy	ADBPR4872R	516985184282	Ph.D	IIT Kharagpur	Fluid dynamics and Turbo-machinery	03/12/2010	15.4	Associate Professor	Associate Professor	03/12/2010	Regular	Yes		Yes

5.1 Student-Faculty Ratio (SFR) (30)

No. of UG(Engineering) programs in Department including allied departments/ clusters (UGn):

UG1=1st UG program

UGn=nth UG program

B= No. of Students in UG 2nd year (ST)

C= No. of Students in UG 3rd year (ST)

D= No. of Students in UG 4th year (ST)

No. of PG (Engineering) programs in Department including allied departments/ clusters (PGm):

PG1=1st PG program.

PGm=mth PG program

A= No. of Students in PG 1st year

B= No. of Students in PG 2nd year

Student Faculty Ratio (SFR) = S/F

S= No. of students of all programs in the Department including all students of allied departments/clusters.

No. of students (ST)=Sanctioned Intake (SA)+ Actual admitted students via lateral entry including leftover seats (L) if any (limited to 10 % of SA)

Students who admitted under supernumerary quotas (SNQ, EWS, etc) will not be considered in calculating SFR value. Those students are exempted.

F=Total no. of regular or contractual faculty members (Full Time) in the Department, including allied departments/clusters (excluding first year faculty (The faculty members who have a 100% teaching load in the first-year courses)).

UG

No. of UG(Engineering) programs in Department including allied departments/clusters(UGn): 1

Mechanical Engineering						
Year of Study	CAY		CAYm1		CAYm2	
	(2025-26)		(2024-25)		(2023-24)	
	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through lateral entry students	Sanction Intake	Actual admitted through
2nd Year	120	0	120	0	120	0
3rd Year	120	0	120	0	120	0
4th Year	120	0	120	0	120	0
Sub-Total	360	0	360	0	360	0
Total	360		360		360	
Grand Total	360		360		360	

PG

No. of PG Programs in the Department 1

Mechanical Engineering			
Year of Study	CAY(2025-26)	CAYm1(2024-25)	CAYm2 (2023-24)
	Sanction Intake	Sanction Intake	Sanction Intake
1st Year	24	24	24
2nd Year	24	24	24
Total	48	48	48
Grand Total	48	48	48

SFR

No. of UG Programs in the Department 1

No. of PG Programs in the Department 1

Mechanical EngineeringMechanical Engineering

Description	CAY(2025-26)	CAYm1 (2024-25)	C
UG1.B	120	120	120
UG1.C	120	120	120
UG1.D	120	120	120
UG1: Mechanical Engineering	360	360	360
PG1.A	24	24	24
PG1.B	24	24	24
PG1: Mechanical Engineering	48	48	48
DS=Total no. of students in all UG and PG programs in the Department	408	408	408
AS=Total no. of students of all UG and PG programs in allied departments	0	0	0
S=Total no. of students in the Department (DS) and allied departments (AS)	S1= 408	S2= 408	S
DF=Total no. of faculty members in the Department	23	24	24
AF= Total no. of faculty members in the allied Departments	0	0	0
F=Total no. of faculty members in the Department (DF) and allied Departments (AF)	F1= 23	F2= 24	F
FF=The faculty members in F who have a 100% teaching load in the first-year courses	4	4	4
Student Faculty Ratio (SFR)=S/(F-FF)	SFR1= 21.47	SFR2= 20.40	S
Average SFR for 3 years	SFR= 20.76		

Average SFR for three assessment years : 20.76

Assessment SFR : 18

5.2 Faculty Qualification (25)

Year	X	Y	RF	FQ = 2.5 x [(10X + 4Y) / RF]]
2025-26(CAY)	23	0	20.00	28.75
2024-25(CAYm1)	23	1	20.00	29.25
2023-24(CAYm2)	23	1	20.00	29.25

Average Assessment : 29.08

5.3 Faculty Cadre Proportion (25)

Year	Professors		Associate Professors		Assistant P
	Required F1	Available	Required F2	Available	Required F3
CAY(2025-26)	2.00	3.00	4.00	2.00	13.00
CAYm1(2024-25)	2.00	3.00	4.00	3.00	13.00
CAYm2(2023-24)	2.00	3.00	4.00	3.00	13.00
Average Numbers	2.00	3.00	4.00	2.67	13.00

Cadre Ratio Marks [(AF1 / RF1) + [(AF2 / RF2) * 0.6] + [(AF3 / RF3) * 0.4]] * 12.5 : 25.00

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

Table No. 5.4.1: List of visiting/adjunct faculty/professor of practice and their teaching and practical loads.

(CAYm1) 2024-25

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Not Available	Not Available	Not Available	Not Available	0.00

(CAYm2) 2023-24

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Not Available	Not Available	Not Available	Not Available	0.00

(CAYm3) 2022-23

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Not Available	Not Available	Not Available	Not Available	0.00

5.5 Faculty Retention (10)

Description	2024-25 (CAYm1)	2023
RF=No. of required faculty in the Department to adhere to the 20:1 Student-Faculty ratio, with calculations based on both student numbers and faculty requirements as per section 5.1 of SAR; (RF=DS/20).	20	20
AF=The no. of available faculty members in the Department including allied Departments	23	24
A= The no. of faculty members at the current institute with less than 1 year of experience (A in AF)	0	0
B= The no. of faculty members at the current institute with more than 1 year and less than 2 years of experience (B in AF)	0	0
C= The no. of faculty members at the current institute with more than 2 years and less than 3 years of experience (C in AF)	0	0
D= The no. of faculty members at the current institute with more than 3 years and less than 4 years of experience (D in AF)	1	1
E= The no. of faculty members at the current institute with more than 4 years of experience (E in AF)	22	23
FR=((A*0)+(B*1)+(C*2)+(D*3)+(E*4))/RF) *2.50 (points limited to 10)	10	10

Average : 10.00

Assessment Marks : 10.00

6 FACULTY CONTRIBUTIONS (120)

6.1 Professional Development Activities (60)

6.1.1 Memberships in Profession Societies at National/International Levels (5)

Table No. 6.1.1.1: List of faculty members and their memberships.

S.No	Name of the Faculty	Name of the Professional Society /Body at National and International Level	Name of the Grade/ Level/Posit
1	Dr. Saurav Chakraborty	Indian Society of Mechanical Engineers	Life Member
2	Dr. Saurav Chakraborty	American Society of Mechanical Engineers	Member
3	Dr. Sushil Kumar Dhiman	Society of Automobile Engineers India	Member
4	Dr. Dipti Prasad Mishra	Institution of Engineers India	Life Member
5	Dr. Dipti Prasad Mishra	Indian Institution of Industrial Engineering	Life Member
6	Dr. Dipti Prasad Mishra	Indian Society for Technical Education	Life Member
7	Dr. Sujeet Kumar Mishra	Institution of Engineers India	Fellow
8	Dr. Anil Chandra Mahato	Fluid Power Society of India	Life Member
9	Dr. Sujeet Kumar Mishra	The Indian Science Congress Association	Life Member
10	Dr. Sujeet Kumar Mishra	Materials Research Society of India	Life Member
11	Dr. Sujeet Kumar Mishra	Association for Machines and Mechanism	Life Member
12	Dr. Apurba Kumar Roy	Fluid Power Society of India	Life Member
13	Dr. Apurba Kumar Roy	Institution of Engineers India	Life Member
14	Dr. Apurba Kumar Roy	Indian Society for Technical Education	Life Member
15	Dr. Praveen Mishra	Indian Society for Technical Education	Life Member
16	Dr. Praveen Mishra	Institution of Engineers India	Fellow
17	Dr. Om Prakash	Indian National Academy of Engineering	Senior Member
18	Dr. O. P. Pandey	Institution of Engineers India	Life Member
19	Dr. Rajeev Kumar	Indian Society of Technical Education	Life Member
20	Dr. Rajeev Kumar	Institution of Engineers India	Life Member
21	Dr Richa Pandey	Indian Society for Technical Education	Life Member
22	Dr Richa Pandey	Geriatric Society of India	Life Member
23	Dr Richa Pandey	International Society of Prosthetics and Orthotics	Life Member
24	Dr. Paritosh Mahata	Society of Automotive Engineers India	Member
25	Dr. Lakhbir Singh Brar	Indian Society of Technical Education	Life Member
26	Dr Richa Pandey	Artificial Intelligence and Machine Learning Association	Life Member
27	Dr. Mukesh Sharma	Indian Society of Heating, Refrigerating and Air Conditioning Engineers	Member

6.1.2 Faculty as Resource Persons or Participants in STTPs/FDPs (10)

6.1.2.1 Faculty as Resource Persons in STTPs/FDPs (5)

**Table No. 6.1.2.1: List of faculty members as resource person in STTP/FDP events.
(CAYm1) 2024-25**

S.No	Name of the Faculty as Resource Person	Name of the STTP/FDP	Date (DD/MM/YYYY)	Location	Organized by
1	Dr. Sushanta Ghuku	Innovative Synergies in Mechanical Engineering-Design to Sustainability	21/04/2025	Sanaka Educational Trust's Group of Institution, Durgapur	Sanaka Education Durgapur
2	Dr.Sushil Kumar Dhiman	Emerging Trends in Advanced Materials Manufacturing and Surface Engineering	09/12/2025	NIT Jamshedpur	NIT Jamshedpur
3	Dr. Om Prakash	ANRF sponsored Workshop on Green Hydrogen	20/01/2025	BIT Mesra, Ranchi	BIT Mesra, Ranchi
4	Dr. Anil Chandra Mahato	Intelligent Monitoring and Optimization of Machining/Finishing Processes using Industry 4.0 Technology	07/08/2025	Thapar Institute of Engineering and Technology, Patiala	Thapar Institute of Engineering and Technology, Patiala
5	Dr. Dipti Prasad Mishra	Advanced Heat Transfer Technologies for Enhancing Energy Efficiency and Reducing Carbon Emission	13/01/2025	NIT Jamshedpur	NIT Jamshedpur
6	Dr.Sushil Kumar Dhiman	Modern Tools & Techniques for Surface Modification	15/09/2025	BIT Mesra, Ranchi	BIT Mesra, Ranchi
7	Prof. Kaushik Kumar	Special Lecture on 5S	23/07/2024	Ranchi, Jharkhand	Jharkhand Government
8	Prof. Kaushik Kumar	SVU Faculty Lecture Series	24/12/2024	Kolkata, West Bengal	Swami Vivekananda
9	Prof. Kaushik Kumar	AICTE Sponsored FDP on Recent Advances in Business Analytics and Management Research	08/01/2025	Ranchi, Jharkhand	IIIT Ranchi

(CAYm2) 2023-24

S.No	Name of the Faculty as Resource Person	Name of the STTP/FDP	Date (DD/MM/YYYY)	Location	Organized by
1	Prof. Kaushik Kumar	Professional Approach on Mould Design	15/03/2023	Ranchi, Jharkhand	Jharkhand Government
2	Prof. Kaushik Kumar	Seminar and Hands-on Training on Machining	20/04/2023	Ranchi, Jharkhand	Usha Martin University,
3	Prof. Kaushik Kumar	Workshop on Paper Writing – The State of Art	04/08/2023	Ranchi, Jharkhand	RTC Institute of Technology
4	Prof. Kaushik Kumar	Expert Lecture on Effective Research Paper Writing – Augmenting Students' Employability	10/08/2023	Ranchi, Jharkhand	RKDF University, Ranchi
5	Prof. Kaushik Kumar	Workshop on Intellectual Property Right	11/08/2023	Ranchi, Jharkhand	RTC Institute of Technology
6	Prof. Kaushik Kumar	Expert Lecture on Additive Manufacturing	11/10/2023	Hyderabad, Telangana	GRIET, Hyderabad
7	Prof. Kaushik Kumar	Workshop on Intellectual Property Right	04/11/2023	Ramgarh, Jharkhand	Radha Govind University

(CAYm3) 2022-23

S.No	Name of the Faculty as Resource Person	Name of the STTP/FDP	Date (DD/MM/YYYY)	Location	Organized by
1	Dr. Ritwik Maiti	Preparation and Characterization of Oral Solid Dosage Form	10/07/2022	Birla Institute of Technology Mesra, Ranchi	ISM Dhanbad and
2	Prof. Kaushik Kumar	Skilling Workshop on 3D Printing	14/12/2022	AICTE IDEA Lab, BIT Mesra, Ranchi	BIT Mesra, Ranchi
3	Prof. Kaushik Kumar	Workshop on Effective Research Paper Writing	03/09/2022	Ranchi, Jharkhand	Usha Martin University
4	Prof. Kaushik Kumar	Workshop on Project Proposal Writing	30/07/2022	Ranchi, Jharkhand	Cambridge Institute

6.1.2.2 Faculty Members' Participation in STTPs/FDPs (5)

Name of the faculty	Max 5 Per Faculty		
	2024-25(CAYm1)	2023-24(CAYm2)	2022-23(CAYm3)
Dr. Saurav Chakraborty	3.00	0.00	0.00
Dr. Sujeet Kumar Mishra	5.00	5.00	0.00
Dr. Apurba Kumar Roy	0.00	5.00	0.00
Dr. Om Prakash	5.00	0.00	0.00
Dr. Mukesh Sharma	5.00	0.00	0.00
Dr. L S Brar	3.00	0.00	0.00
Dr. Arkadeb Mukhopadhyay	3.00	3.00	0.00
Sum	24.00	10.00	0.00
RDF = Number of faculty required to comply with the 20:1 student - faculty ratio in the Department alone, as per section 5.1 of SAR(RDF= DS / 20).	20.40	20.40	20.40
Assessment Points (AP)= (Sum/(0.5* RDF)) (Points limited to 5 for each assessment year)	2.35	0.98	0.00

Average assessment over 3 years: 1.11

6.1.3 Faculty Contribution in Development of SWAYAM MOOCs and other E-Content (7)

Table No. 6.1.3.1: List of faculty members developed MOOC course for the past 3 years.

S.No	Name of the Faculty	Name of the Course Developed and available online on Swayam platform by your Department faculty
1		

6.1.4 Faculty Certification of MOOCs through SWAYAM, etc. (8)

Table No. 6.1.4.1: List of faculty members obtained certification of MOOCs for the past 3 years.

S.No	Name of the Faculty	Name of Course Passed	Course Offered by (agency)	Grade obtained if any
1				

6.1.5 FDP/STTP Organized by the Department (10)

Table No. 6.1.5.1: List of FDPs/STPs organized by Department for the past 3 years.

(CAYm1) 2024-25

S.No	Name of the Program	Date of the Program(DD/MM/YYYY)	Duration	Name of the Speaker & Designation and Organization
1	Green Hydrogen: The Future of Clean Energy	20/01/2025	5 days	Dr. Anil Kumar, Professor, Delhi Technical University, New Delhi, and many others

(CAYm2) 2023-24

S.No	Name of the Program	Date of the Program(DD/MM/YYYY)	Duration	Name of the Speaker & Designation and Organization
1	7 Day Karyashala on Surface Engineering and Tribological Challenges in Sustainable Manufacturing	18/12/2023	7 days	Dr. Partha Protim Chattopadhyay, Professor & Director, NIAMT Ranchi and many o

(CAYm3) 2022-23

S.No	Name of the Program	Date of the Program(DD/MM/YYYY)	Duration	Name of the Speaker & Designation and Organization
1	7 Day Karyashala on Joining techniques for modern transportation sector	5/12/2022	7 days	Prof. Surjya K Pal, Professor IIT Kharagpur and others

6.1.6 Faculty Support in Student Innovative Projects (10)

Table No. 6.1.6.1: List of faculty members involved in student innovative projects.

(CAYm1) 2024-25

S.No	Name of the Faculty	Name of the Event	Date of the Event(DD/MM/YYYY)	Place of Event	Website Link if a
1	Dr. Paritosh Mahata	BAJA SAE INDIA 25	09-01-2025	NATRAX, Pithampur, Madhya Pradesh	https://www.bajas

(CAYm2) 2023-24

S.No	Name of the Faculty	Name of the Event	Date of the Event(DD/MM/YYYY)	Place of Event	Website Link if a
1	Dr. Paritosh Mahata	BAJA SAE INDIA 24	10/01/2024	NATRAX, Pithampur, Madhya Pradesh	https://www.bajas

(CAYm3) 2022-23

S.No	Name of the Faculty	Name of the Event	Date of the Event(DD/MM/YYYY)	Place of Event	Website Link if a
1	Dr. Paritosh Mahata	BAJA SAE INDIA 23	15/02/2023	NATRAX, Pithampur, Madhya Pradesh	https://www.bajas

6.1.7 Faculty Internship/Training/Collaboration with Industry (10)

Table No. 6.1.7.1: Faculty internship/training/collaboration details.

S.No	Name of the Faculty	Name of the Internship/ Training/ Collaboration	Name of the Company & Place	Duration	Outcomes of Internship/ Training/ Collaborati
1	Dr. Saurav Chakraborty	Research Collaboration	Tata Steel Pvt. Ltd., Jamshedpur	2022-2023	1 SCI journal paper (https://doi.org/10.1080/0145
2	Dr. Om Prakash, Dr. Nirmal Kumar, Dr. Lakhbir Singh Brar	Research Collaboration	MIR Lab, Moradabad, U.P.	2022-2025	Product development
3	Dr. Rajeev Kumar	Research Collaboration	Aman Infra, Ranchi	2022-2025	Stirling Engine Prototype development

6.2 Research and Development Activities (60)

6.2.1 Academic Research (10)

Table No. 6.2.1.1: Faculty publication details.

S.No.	Item	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)
1	No. of peer reviewed journal papers published	65	73	52
2	No. of peer reviewed conference papers published	25	24	26
3	No. of books/book chapters published	8	6	5

6.2.2 Ph.D. Student Details (5)

Table No. 6.2.2.1: Ph.D. details.

S.No.	Item	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)
1	No. of students enrolled for Ph.D. in the Department	5	4	3
2	No. of Ph.D. students graduated in the Department	5	7	0

6.2.3 Development Activities (10)

S.No	Name of Faculty	Details of Patents		
		CAYm1 (24-25)	CAYm2 (23-24)	CAYm3 (22-23)
		Title	No.s Status (Published/Granted)	No.s Status (Published/Granted)
1	Dr. Lakhbir Singh Brar	Hydrogen tank for usage in 2/3 wheelers (HydroRide)	Published	
2	Dr. Lakhbir Singh Brar	A fin and tube heat exchanger with inclined continuous vortex		Published
3	Dr. Lakhbir Singh Brar	A fin and tube heat exchanger		Published
4	Dr. Lakhbir Singh Brar	A heat storage and release system for energy management in solar power plant		Published
5	Dr. Lakhbir Singh Brar	A fin and tube heat exchanger		Published

6	Dr. Mukesh Sharma	A MACHINE LEARNING BASED INTELLIGENT DUST SUPPRESSION SYSTEM	Published
---	----------------------	--	-----------

7	Dr. Mukesh Sharma	DUST COLLECTION AND SUPPRESSION DEVICE	Published
---	----------------------	--	-----------

8	Dr. Mukesh Sharma	DEVICE TO DETERMINE THICKNESS OF WATER FILM DURING OIL - WATER FLOW	Published
---	----------------------	---	-----------

9	Dr. Mukesh Sharma	A SOLAR STILL APPARATUS AND METHOD OF USE THEREOF	Published
---	----------------------	---	-----------

10	Dr. D.P. Mishra	A Fin and Tube Heat Exchanger	Published
----	-----------------	-------------------------------	-----------

11	Dr. D.P. Mishra	A Fin and Tube Heat Exchanger with Inclined Continuos Vertex Generato	Published
----	-----------------	---	-----------

12	Dr.Om Prakash	Hydrogen tank for usage in 2/3 wheelers (HydroRide)	Published
----	---------------	---	-----------

13	Dr.Om Prakash	A fin and tube heat exchanger with inclined continuous vortex	Published
----	---------------	---	-----------

14	Dr.Om Prakash	A fin and tube heat exchanger	Published
----	---------------	-------------------------------	-----------

15	Dr.Om Prakash	A heat storage and release system for energy management in solar power plant	Published
16	Dr.Om Prakash	A fin and tube heat exchanger	Published
17	Dr. Anil C. Mahato	A variable inertia flywheel for power controlling and delivering systems	Published on January 17, 2024.
18	Dr. Anil C. Mahato	A wind turbine power transmission system	Published on April 04, 2025
19	Dr. Anil C. Mahato	Variable inertia flywheel system for inverted pendulum control	Publishedon June 18, 2025.
20	Dr. Rajeev Kumar	An Alpha Steam –based Stirling System for Power Generation and Method thereof	Published on 05.04.2024

21	Dr. Rajeev Kumar	A Modified Plant- Based Polysaccharide Binder, Methods of its Preparation and Use thereof	Published on 15.12.2023
----	------------------	---	-------------------------

22	Dr. Arkadeb Mukhopadhyay	A metal coating process for tribological applications and a coated surface obtained therefrom	1Published
----	--------------------------	---	------------

23	Dr. Arkadeb Mukhopadhyay	A surface coating and method of preparation thereof using computational tools	1Published
----	--------------------------	---	------------

Name of working models				
the		CAYm1	CAYm2	CAYm3
Faculty	Title	(24-25)	(23-24)	(22-23)

Dr. Om Prakash	A heat storage and release system for energy management in solar power plant	Working
----------------	--	---------

Dr. Anil Mahato	variable inertia flywheel development
-----------------	---------------------------------------

Dr. Anil Mahato	Wind turbine power transmission system							
	variable inertia flywheel in inverted pendulum							
Prototypes developed by faculty								
Name of members								
Faculty	Title	CAYm1 (24-25)	CAYm2 (23-24)	CAYm3 (22-23)				

Dr. Om Prakash	A heat storage and release system for energy management in solar power plant			
	Prototype			

6.2.4 Sponsored Research Project (15)

2024-25 (CAYm1)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of project
Lakhbir Singh Brar	Om Prakash, Arkadeb Mukhopadhyay	Mechanical Engineering	Development of abrasion-resistant electroless Ni-B-W coating on cyclone separator walls and design optimization for longevity with enhanced performance	ANRF	2024-2027
Priyank Kumar	Sudip Das, Lakhbir Singh Brar	Space Engineering and Rocketry	Development of High Angle of Attack CFD Aerodynamic Database & Behaviour Model of Missile Configuration at Varying Geometric and Flow Parameters	DRDO	2024-2026
Om Prakash	NA	Mechanical Engineering	Green Hydrogen: The Future of Clean Energy	ANRF	2024-2025

2023-24 (CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of project
Dr. Sushanta Ghuku	NA	Mechanical Engineering	A novel hard magnetic soft continuum curved robot: Multi-physical mechanics, active control, modulation, and optimized design (Acronym: NHMSC robot)	ANRF	2024-2027

2022-23 (CAYm3)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of project
Om Prakash	Lakhbir Singh Brar, D.P.Mishra, D.Singh, Anil Kumar	Mechanical Engineering	Investigation of Stones as Sensible Thermal Heat Storage Materials for Concentrated Solar Power Applications	ANRF	2022-2024
Rajeev Kumar	Richa Pandey	Mechanical Engineering	Design and Fabrication of Bellow Type of Bio-gas Plant	MoE, Unnat Bharat Abhiyan	2022-2024
Rajeev Kumar	Rajeshwari Chatterjee	Mechanical Engineering	Setting up of a small-scale pilot plant for production of organic compost from kitchen waste and dry leaves	Unnat Bharat Abhiyan	2022-2024
Rajeev Kumar	Sanath Kumar Mukherjee	Mechanical Engineering	SETTING UP OF A SMALL-SCALE PILOT PLANT FOR PRODUCTION OF BIODIESEL FROM INDIGENOUS PLANT	Unnat Bharat Abhiyan	2022-2024
Arkadeb Mukhopadhyay	Arun Kumar Kadian, Anil C Mahato, Mukesh Sharma	Mechanical Engineering	Development of multi-layered lead free electroless Ni-B coating with high wear resistance, thermal stability and corrosion resistance for tribological applications	ANRF	2023-2024

Total Amount (Lacs) Received for the Past 3 Years: 180.40

Note*:

- Only sponsored research projects will be considered. Infrastructure-based projects will not be considered here.

6.2.5 Consultancy Work (15)

2024-25 (CAYm1)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of th project
Dr. Arbind Kumar	Dr. A.K.Roy	Mechanical Engineering	Design Verification of 1 HP DC Surface Movable Trolley	Royal Instrument India Pvt. Ltd, Ratu Road, Ranchi	6 months
Dr. Arbind Kumar	Dr. A.K.Roy	Mechanical Engineering	Design Verification of 1 HP and 2 HP Solar Mobile DC Pumping System	Royal Instrumen India Pvt. Ltd, Ratu Road, Ranchi	6 months
Dr. Arbind Kumar	Dr. A.K.Roy	Mechanical Engineering	Evaluation of the structural design of trolley for 2 HP Solar Movable pumps	Directorate of Agriculture, Jharkhand	6 months
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	Executive Engineer, Drinking Water & Sanitation Department, Jhumari Tilaiya	5 days
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	M/s NCC Limited, Water and Environmental Division, Ranchi	5 days

2023-24 (CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	M/s Sharda Shelters Pvt. Ltd. Ranchi	5 days
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	Executive Engineer, Drinking Water & Sanitation Department, Medininagar	5 days

2022-23 (CAYm3)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	M/s NCC Limited, Ranchi	5 days
Nirmal Kumar	Om Prakash	Mechanical Engineering	Material Testing	Basics Engineering India Structure Pvt. Ltd., Ranchi	5 days

Total amount (Lacs) received for the past 3 years: 2.14

Note*:

- Only consultancy projects will be considered. Infrastructure-based projects will not be considered here.

6.2.6 Institution Seed Money or Internal Research Grant to its Faculty for Research Work(5)

6.2.6 A Amount received (3)

2024-25 (CAYm1)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project

2023-24 (CAYm2)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Saurav Chakraborty	Experimental Investigation of Dynamics of Drop Impact on a Heated Surface	2 years	2.50	0.86	Experimental studies conducted and 1 conference paper published
			Amount received (Rs.): 2.50		

2022-23 (CAYm3)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25
Nirmal Kumar	DESIGN AND DEVELOPMENT OF A HEART SIMULATOR TO TEST HEART VALVES	2 years	5.00	4.64
			Amount received (Rs.): 5.00	

Total amount (Lacs) received for the past 3 years : 7.50

6.2.6 B Amount utilized (2)

These budget is utilized to develop product and utilized amount is 5.5 Lakhs.

7 FACILITIES AND TECHNICAL SUPPORT (100)

7.1 Adequate and well equipped laboratories, and technical manpower (40)

Sr. No	Name of the Laboratory	Number of students per set up(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	Engineering Gr	75	Different types	05	Different types	Jr. Technical St	Diploma in Mex
2	Fluid Mechanic	50	.Bernoulli's The	03	Chhote Lal Mal	Jr. Technical St	Diploma in Mex
3	Dynamics of M	50	1. Motorised G	03	Anit Mahato	Jr. Technical St	Diploma in Aut
4	Mechanical En	50	1. Universal Te	03	Jitendra Kumal	Jr. Technical St	Diploma in Mex
5	Heat Transfer I	50	1.Thermal Con	03	Ramesh Mund	Jr. Technical St	Diploma in Mex
6	Internal Comb	50	1. Computerise	03	C.K.Singh,	Technical Supe	Diploma in Aut
7	Mechanical En	50	1. Insight Solar	03	Anit Mahato, R	Jr. Technical St	Diploma in Aut
8	Robotics &Aut	50	1. Car Simulat	03	Jitendra Kumal	Jr. Technical St	Diploma in Mex
9	Automobile En	50	1. Cut Section	03	C.K.Singh,	Technical Supe	Diploma in Aut
10	Refrigeration &	50	1.Cooling usin	03	Ashok Kumar C	Jr. Technical St	Diploma in Mex
11	Computer Aide	50	70+ computers	05	Pramod Kumar	Technical Supe	BCA

7.2 Additional Facilities Created for Improving the Quality of Learning Experience in Laboratories (20)

Sr. No	Name of the Facility	Details	Purpose for creating facility	Utilization	Relevance to POs/PSOs
1	Department Computer Lab (Location: Main Building – Ground Floor – Mechanical Engg.)	70+ modern desktop computers with high RAM and dedicated GPUs. Licensed software: AutoCAD, Solidworks, Ansys, MATLAB etc.	To enable UG, PG and PhD students to perform simulation, data analysis, design, and modelling relevant to the curriculum and research.	Laboratories are actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize lab resources for research and project Simulation.	PO1, PO2, PO3, PO4, PO5, PO10, PSO1, PSO3
2	Reverse Engineering Lab. (Location: Main Building – Ground Floor – Mechanical Engg.)	The lab utilizes virtual machines, specialized software or 3D scanning for product innovation, and CAD model generation from physical parts.	To enable UG, PG and PhD students to perform simulation, data analysis, design, and experiment relevant to the curriculum and research.	Laboratory is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize lab resources for research and project Simulation.	PO2, PO3, PO4, PO5, PO12, PSO1
3	Computational Lab. (Location: Main Building – Ground Floor – Mechanical Engg.)	15+ modern desktop computers with high RAM and dedicated GPUs. Licensed software: Ansys Fluent, MATLAB, etc	To enable UG, PG and PhD students to perform simulation, data analysis, design, and modelling relevant to the curriculum and research.	Laboratory is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize lab resources for research and project Simulation.	PO1, PO2, PO4, PO5, PO10, PSO1, PSO3
4	Wind tunnel (Location: I.C. engine lab. – Ground Floor – Mechanical Engg.)	The apparatus is used for generating a controlled, uniform air stream to test the aerodynamic forces (lift, drag) on models, using a blower/fan, settling chamber for laminar flow, a contraction cone, and a test section.	To enable UG, PG and PhD students to perform experimental analysis for testing aerodynamic forces (lift, drag) on models, using a blower/fan.	Laboratories are actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize lab resources for research and project Simulation.	PO1, PO2, PO4, PO7, PSO1
5	Universal Testing machine (Location: Main Building – Ground Floor – Mechanical Engg., Autonomous Lab)	Tensile Testing up to 10000 kg Bending Testing Compression Testing up to 10000 kg	To enable UG, PG and PhD students to perform experimental analysis for testing tensile strength of various samples.	Equipment is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize for their research project.	PO1, PO2, PO4, PO5, PSO1
6	High Temperature Air Jet Erosion (Location: Main Building – Ground Floor – Mechanical Engg., Strength of Material Lab)	Up to 140 m/s velocity of erodent, up to a temperature of 900 °C. Can test erosion behaviour of materials at different attack angles.	For UG projects and funded research projects.	Used for UG students undertaking projects and internships and PhD students.	PO1, PO2, PO4, PO7, PSO1
7	Experimental Module for Stick-slip Frictional Vibration (Location: Main Building – Ground Floor – Mechanical Engg., Dynamics of Machine Lab)	Stick-slip frictional vibration of a circular disc sliding on another rigid rotating disc can be analysed.	To enable PG and PhD students to perform experimental analysis of vibration induced due to the friction in circular discs.	Equipment is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize for their research project.	PO1, PO2, PO4, PSO1

8	Biogas plant (Location: Behind Hostel 11, Mesra campus)	From 250 kg/day of organic waste (leftover food/vegetables) converts into 35 to 40 m ³ of biogas from the CSRT digester, used for cooking activities in hostel 11.	Develop Bio gas production process from organic waste.	Plant is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize for their research project. Summer Internship is undertaken by internship students.	PO6, PO7, PO8, PO11, PSO2
9	Scratch tester (Location: Main Building – Ground Floor – Mechanical Engg., Strength of Material Lab)	Finding scratch hardness and critical load of failures of materials and coatings.	For UG projects and funded research projects.	Used for UG students undertaking projects and internships and PhD students.	PO1, PO2, PO4, PSO1
10	TIERA Machine Fault Simulator (TMFS) (Location: Main Building – Ground Floor – Mechanical Engg., Dynamics of Machine Lab)	It is used to study the signature of common machinery faults, such as unbalance, alignment, resonance bearing, rotor dynamics ,gearbox, belt drive, mechanical rub, induction motor, pump, compressor and fan.	To enable UG, PG, and PhD students to perform experimental analysis for testing faults in machinery.	Equipment is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize for their research project.	PO1, PO2, PO4, PO5, PO11, PSO2
11	Friction stir welding machine IC Engine Lab – Mechanical Engg.	Friction stir welding (FSW) machines are solid-state joining systems that use a rotating, non-consumable tool to generate frictional heat and soften materials, creating high-strength, low-distortion welds without melting.	To enable UG, PG, and PhD students to perform experiment on friction stir welding.	Equipment is actively used by faculty for funded research projects, Final-year UG, PG and PhD students utilize for their research project.	PO1, PO2, PO3, PO4, PO5, PSO1, PSO2

7.3 Maintenance of laboratories and overall ambience (10)

7.3 Maintenance of Laboratories and Overall Ambiance

Laboratory Maintenance Overview – Department of Mechanical Engineering

All laboratories in the Department of Mechanical Engineering are well-maintained to ensure smooth academic and research activities.

- In each laboratory, a Professor-in-Charge and a technician are assigned for Lab maintenance. Their responsibility is to look over the overall regular maintenance of the equipment, and keep all records related to maintenance, repairs and purchases.
- A Laboratory Safety & Maintenance Committee oversees the overall maintenance and functionality of the laboratories across the department.
- Minor issues, such as equipment malfunctions or electrical problems, are promptly attended to by the departmental technical staff, often in coordination with the Central Electricity Department and the Central Workshop.
- For major breakdowns, the respective equipment manufacturers are contacted, and formal work orders are issued for repairs.
- For sophisticated analytical instruments, Annual Maintenance Contracts (AMCs) are secured at the time of procurement. Every effort is made to renew these AMCs regularly to ensure uninterrupted operation and minimize downtime.

1. Daily Maintenance Tasks

- Benchtop and Equipment surface Cleaning.
- Waste disposal (chemical, sharps etc.,) in designated bins.
- Check water taps, gas valves, and power outlets for leaks or hazards.

2. Weekly/Monthly Maintenance

- Inspect and clean air filters.
- Check inventory of oil, and consumables

3. Equipment Maintenance

- Follow manufacturer guidelines for preventive maintenance
- Maintain logbooks for major equipment

4. Safety Checks

- Emergency eyewash and shower stations
- Check fire extinguishers, first aid kits, and spill kits
- Check Do's and Don't list.

5. Documentation and Record-Keeping

- Maintain SOPs (Standard Operating Procedures)
- Update maintenance logs for equipment

Laboratory Overall Ambience – Department of Mechanical Engineering

The overall ambience of the Mechanical Engineering laboratories is reasonably good.

- Sufficient number of windows are available to ensure effective ventilation and adequate natural light.
- Lighting system is very effective, along with the natural light in every corner of the rooms.
- An adequate number of ceiling/wall-mounted fans are installed to maintain comfortable working conditions.
- The lab that needs air conditioning is well equipped with an air conditioning system.
- Each laboratory is equipped with cupboards to safely store spare parts, glassware, and laboratory instruments.
- Properly designed and sufficient tables are provided for housing equipment and conducting experiments.
- Adequate seating arrangements, including stools for students, are available for comfortable working.
- Analytical Instrumentation and computer Laboratories are air-conditioned for improved equipment stability and operator comfort.
- All laboratories have access to a consistent and good-quality water supply.
- Generator backup is available in all laboratories to ensure uninterrupted power supply during outages.

7.4 Safety measures in laboratories (10)

Sr. No	Laboratory Name	Safety Measures
1	Engineering Graphics	First-aid kits, Proper use of electric devices, Fire extinguisher Emergency Contact Numbers Displayed, Equipment Safety Instructions, Laboratories are equipped with MCBs, and instructed to always handle drawing instruments and laboratory equipment carefully to prevent accidents and injuries.
2	Fluid Mechanics & Hydraulic Machines Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to always handle drawing instruments and laboratory equipment carefully to prevent accidents and injuries caused by moving machinery.
3	Mechanical Engineering Lab I	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Power Backup, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to follow the instructions carefully, as the rotating parts/ Sharp edges/ Electrical connections of the Equipment might cause serious damage.
4	Dynamics of Machines Lab	First-aid kits, Proper use of electric devices, Fire extinguisher Emergency Contact Numbers Displayed, Power Backup, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to avoid touching the rotating parts and avoid loose clothes as the rotating parts of the Equipment might cause serious damage.
5	Heat Transfer Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to not touch heated surfaces or equipment without proper protective gloves, as they can cause burns. Wear appropriate personal protective equipment (PPE).
6	Internal Combustion Engines Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Power Backup, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to keep hands, clothing, and loose objects away from moving engine parts such as belts, pulleys, and rotating shafts while the engine is running.
7	Mechanical Engineering Lab II	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to never touch the rotating parts/ Sharp edges/ Electrical connections of the Equipment, which might cause serious damage.
8	Robotics & Automation Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Power Backup, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to maintain a safe distance from moving robotic arms and never enter the robot's operating area while it is running.
9	Automobile Engineering Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to always wear appropriate personal protective equipment (PPE), such as safety goggles, gloves, and safety shoes, while working on vehicles and machinery.
10	Refrigeration & Air Conditioning Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Equipment Safety Instructions, Laboratories are equipped with MCBs, and Do's and Don't list. Student instructed to handle refrigerants carefully and ensure proper ventilation to avoid inhalation of refrigerant gases and prevent leakage hazards.

11	Computer Aided Design & Drafting Lab	First-aid kits, Proper use of electric devices, and Fire extinguisher Emergency Contact Numbers Displayed, Power Backup, Equipment Safety Instructions, Laboratories are equipped with a fire alarm system. Student instructed to use computers and electrical equipment properly and avoid touching electrical connections with wet hands to prevent electric shock.
----	--------------------------------------	---

7.5 Project laboratory/research laboratory /centre of excellence (20)

SI No.	Name of the Laboratory
1	Research and Project lab. (Scratch tester , High temperature air jet erosion) (Location: Main building, Strength of Material Lab)
2.	Reverse Engineering Lab. (3-d printer) (Location: Main Building – Ground Floor – Mechanical Engg.)
3.	Computational Lab. (Various simulation software, Matlab, Ansys etc) (Location: Main Building – Ground Floor – Mechanical Engg.)
4.	Robotics Lab. (PID-CASCAD controller, UTM machine) (Location: Main Building – Ground Floor – Mechanical Engg., Robotics &Automation Lab)
5.	Computer Aided Design & Drafting Lab. (Location: Main Building – Ground Floor – Mechanical Engg.)
6.	Internal Combustion Engines Lab. (Wind tunnel, Friction stir welding machine) (Location: IC Engine Lab. building, Ground Floor – Mechanical Engg.)
7.	Dynamics of Machines Lab. (TIERA Machine Fault Simulator (TMFS), stick-slip frictional vibration machine) (Location: Main Building – Ground Floor – Mechanical Engg.)
8.	Biogas plant (Location: Behind Hostel 11, Mesra campus)

8 CONTINUOUS IMPROVEMENT (80)

8.1 Actions taken based on the results of evaluation of each of the COs, POs & PSOs (40)

8.1.1 Actions Taken Based on the Results of Evaluation of the COs Attainment (20)

1. Areas of Weakness Identified:

- a. Attainment for slow learners: Certain students consistently underperformed, lowering overall course attainment averages.
- b. Difficulty in problem-based courses: Students found it hard to integrate knowledge from multiple subjects when solving complex problems.
- c. Communication and teamwork-related COs attainment: Group projects and presentations revealed gaps in technical report writing and effective communication.

2. Measures Identified and Implemented for Improvement

Curriculum Interventions

- a. Introduced mini-projects to enhance application and design-oriented learning.
- b. Updated laboratory manuals and experiments to include simulation-based and industrial problems.
- c. Integrated skill-based modules (software tools, industry case studies, etc.) into selected courses.

Pedagogical Initiatives

- a. Adoption of active learning techniques (quiz-based learning, peer learning).
- b. Increased focus on problem-solving sessions and assignments linked with industrial problems.
- c. Regular use of ICT tools (NPTEL/SWAYAM resources, simulation software, online interactive platforms) to supplement teaching.

Support System Improvements

- a. Establishment of bridge/remedial classes for slow learners.
- b. Mentoring and tutorial hours to support weaker students.
- c. Strengthened interactions with outside world through guest lectures.
- d. e-resource access improved to support self-learning.

Monitoring and Feedback

- a. Continuous monitoring of CO attainment through periodic tests.
- b. Collection of student feedback and alumni/industry feedback to identify skill gaps.
- c. Implementation of corrective actions in subsequent semesters (course content adjustments, more practice problems).

8.1.2 Actions Taken Based on the Results of Evaluation of the POs/PSOs Attainment (20)

The following criterion was set to assess the performance of each course in terms of PO attainment:

< 50%	Poor
50% - 60%	Average
60% - 70%	Good
70% - 80%	Very Good
> 80%	Excellent

POs & PSOs Attainment Levels and Actions for improvement based on 2023 batch:

POs	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
PO1	75.00	85.4	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Thermodynamics and CAD are core mechanical engineering courses and thus require more effort to achieve an attainment of more than 80%. For this, it is planned to provide more tutorials to the upcoming batches. Weak students shall be advised to consult the respective subject teachers to clarify their doubts. Based on the day-to-day performance of the Automobile Lab, the students scoring below 70% attainment, it was planned that the weak students would undergo rigorous experimental practice for further improvement.			
PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.			

PO2	75.00	85.46	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Thermodynamics and CAD are core mechanical engineering courses and thus require more effort to achieve an attainment of more than 80%. For this, it is planned to provide more tutorials to the upcoming batches. Weak students shall be advised to consult the respective subject teachers to clarify their doubts. Based on the performance of the Automobile Lab, the students scoring below 70%, more emphasis will be given on results and analysis to improve their attainment.			
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.			
PO3	75.00	85.42	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Thermodynamics and CAD are core mechanical engineering courses and thus require more effort to achieve an attainment of more than 80%. For this, it is planned to provide more tutorials to the upcoming batches. Weak students shall be advised to consult the respective subject teachers to clarify their doubts. Based on the day-to-day performance of the Automobile Lab, the students scoring below 70% attainment, it was planned that the weak students would undergo rigorous experimental practice for further improvement.			
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	75.00	85.3	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, Power Plant Engineering, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Thermodynamics, Power Plant Engineering, and CAD are core mechanical engineering courses and thus require more effort to achieve an attainment of more than 80%. For this, it is planned to provide more tutorials to the upcoming batches and encourage students peer learning through discussions. Weak students shall be advised to consult the respective subject teachers to clarify their doubts. Based on the performance of the Automobile Lab, the students scoring below 70%, more emphasis will be given for extended lab classes for hands-on practice.			
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	75.00	85.43	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Thermodynamics and CAD are core mechanical engineering courses and thus require more effort to achieve an attainment of more than 80%. Extra time will be devoted to weak students to clarify their doubts. Link the experiments with industrial case studies to improve motivation. Encourage peer mentoring and frequent oral questioning during lab to strengthen conceptual clarity.			
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	75.00	85	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, and Thermodynamics attainment was between 65-75 %.
Action to improve attainment: To be improved through remedial sessions, enhanced practical training, and industry-oriented exposure.			
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.			
PO7	75.00	84.8	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, and Thermodynamics attainment was between 65-75 %.
Action to improve attainment: Assignments and projects related to environmental sustainability.			
PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.			
PO8	75.00	84.16	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: 1. Conduct mandatory lab safety and ethics orientation at the beginning of the course. 2. Organize interactive sessions/seminars on professional ethics.			

PO9: Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.			
PO9	75.00	84.84	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: Promote an interactive classroom session. Motivate students to participate in individual events such as paper presentations in technical seminars. Introduce group projects to cultivate collaborative learning.			
PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as comprehending and writing effective reports and design documentation, making effective presentations, and giving and receiving clear instructions.			
PO10	75.00	84.94	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and Automobile lab, attainment was between 65-75 %.
Action to improve attainment: 1. Teacher to encourage students to participate in the question-answer session/teacher-student interaction. 2. Encourage students to publish their project works in thermal engineering in the various conferences and scientific communities.			
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	75.00	84.59	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, and Thermodynamics, attainment was between 65-75 %.
Action to improve attainment: The institute provides financial support to students through the department, depending on their project/internship requirements.			
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	75.00	85.36	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD and Thermodynamics, attainment was between 65-75 %.
Action to improve attainment: 1. Encourage self-learning – PowerPoint presentation, Project report on Frontier areas of mechanical engineering. 2. Advise students on e-learning resources on technological changes in various areas of mechanical engineering.			
PSO1: The student will be able to design mechanical systems in various fields and challenges such as machine elements, thermal systems, manufacturing, and industrial and inter disciplinary fields like additive manufacturing, soft computing to meet the demand of the day in industry as well as society.			

PSO1	75.00	85.47	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and the Automobile Lab, attainment was between 65-75 %.
Action to improve attainment: 1. Strengthening analysis in the laboratory courses. 2. Guest Lectures on Scale-up in the design of the mechanical industry. 3. Take up more design-based projects in the field of Mechanical Engineering.			
PSO2: The student will be capable to start their entrepreneurship, be employable and suitable for various fields like design, manufacturing, production industries, academic and industries, research, and development organizations in and outside the country.			
PSO2	75.00	85.52	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD, Thermodynamics, and the Automobile Lab, attainment was between 65-75 %.
Action to improve attainment: 1. Strengthening analysis in the laboratory courses. 2. Students will be encouraged to take up more Mechanical Engineering-related projects (targeting manufacturing and design areas).			
PSO3: The student will be able to pursue advanced degrees in engineering, business, or other professional fields through their knowledge and learned skills through formal as well as informal self-study and motivation.			

PSO3	75.00	87.45	Observations: 1. Overall attainment is above the target. 2. In only 03 courses, attainment was less than 75%. 3. In courses, namely CAD and Thermodynamics, attainment was between 65-75 %.
Action to improve attainment: 1. Students are to be encouraged to take up collaborative projects with students and faculty of other Departments. 2. Students will be encouraged to take up Industry collaborative projects with joint guidance of BIT faculty and Industry for the final semester credited project.			

In general, the following actions are planned to improve the attainment level:

1. Assignments/Tutorials related to real-life problems and industrial problems.
2. Surprise quiz on important topics.
3. Special focus on weak students through extra classes, tutorials, and assignments.
4. Guest lecture by Industry personnel.

8.2 Academic Audit and actions taken thereof during the period of Assessment (15)

The institution has established a structured **Academic Audit system** to ensure systematic evaluation and enhancement of academic processes.

The process involves:

Collection of Data: In a standardised format from Departments.

Assessment and Score Calculation: As per Academic Audit Guidelines

SWOT Analysis and Recommendations: First at Departmental Level as well as at Institute Level.

External committee evaluation: Finally the evaluation and action plan is to be done by the external committee duly constituted by the Institute.

Name of Campus							
Name of Department:							
Student Strength (If more than one program either in UG or PG, please input the summation value)	AY 2024-25		Placement and Higher studies				
	Sanctioned Strength	Enrolled Students Strength	Graduate Students		AY 2024-25		
	UG Program (Year 1)		Students Enrolled in Final Year (UG+PG)				
	UG Program (Year 2)		Students Graduated (UG+PG)				
	UG Program (Year 3)		How many of these students were placed?				
	UG Program (Year 4)		How many of these opted for higher studies?				
	UG Program (Year 5) if applicable		Total No. of PhD students in the Department				
	Total UG	0	0	No. of PhD students graduated			
	PG Program (Year 1)						
	PG Program (Year 2)						
	Total PG	0	0	Outreach Activities		Y/N	Count (in AY 2024-25)
	Total (UG + PG)	0	0	No. of Conferences/Workshops//Seminars etc. organized by the Department			
				No. of faculty members who visited abroad			
				No. of faculty members who attended Conferences, Workshops, FDPs, MDPs, Short Term Training Programs etc. within India			
	Faculty Qualification	AY 2024-25		No. of MoUs (all active MoUs with Activity Reports)			
Total Faculty in 2023-24			No. of Awards/Recognitions received by faculty				
How many faculty with PhD degree?			No. of faculty who delivered Invited Talks				
How many faculty with Post graduate degree?							
Financial Resource Utilization	FY 2024-25		Accreditation Related Activities (Part A)		Count (AY 2024-25)		
Amount of Budget allocated to Department (Rs)			Number of Departmental Societies and Club Activities				
Amount Utilized (Rs)			Number of Professors of Practice and Chair Professors				
			Number of New courses introduced				
Research and Professional Practices	Calendar Year 2024		Accreditation Related Activities (Part B)		Y/N		
No. of Unique Publications published by the Department			Implementation of Feedback Analysis and Action Taken Report				
No. of publications in WoS database?			Implementation of Mentor-Mentee System				
No. of publications only in Scopus database but not in WoS database?			Implementation of OBE in all programs (applicable to programs eligible for NBA)				
No. of Patents Granted (exclude design patent)							
No. of Patents Published (exclude design patent)							
Amount (Rs) received from	FY 2024-25						
Govt. Sponsored R&D Projects							
Consultancy Projects							
CSR Projects							
External agencies or registration for participation to organize FDPs, MDPs, EDPs etc.							
Govt. agencies or external agencies for Organizing Certificate Programmes / Training Workshops/Seminars/conference/symposium etc.		Date	Place				
				Name and Signature of Head of Department			
Total	0						

Guidelines for Academic Audit:

Summary of Academic Audit Parameters and Weightages

Sr. No.	Parameter	Marks	Weightage	Net marks
1	Teaching, Learning & Resources (TLR)	100	0.30	30
2	Research and Professional Practice (RP)	100	0.30	30
3	Graduation Outcomes (GO)	100	0.20	20
4	Outreach Activities (OA)	100	0.10	10
5	Accreditation Related Activities (ARA)	100	0.10	10
Total Academic Audit Score				100

S.No.	Parameters	Marks
1.	Teaching, Learning & Resources (TLR) Weight: 0.30	100
	Student Strength (SS): 20 marks Faculty Student Ratio (FSR): 30 marks Faculty Qualification Index (FQI): 20 marks Financial Resource Utilization (FRU): 30 marks	
2.	Research and Professional Practice (RP) Weight: 0.30	100
	Publications (PU): 35 marks Quality of Publications (QP): 40 marks IPR and Patents: Published and Granted (IPR): 15 marks Footprint of Projects and Professional Practice (FPPP): 10 marks	
3.	Graduation Outcomes (GO) Weight: 0.20	100
	Placement and Higher Studies (GPH): 50 marks University Examinations (GUE): 25 marks Number of Ph.D. Students Enrolled and Graduated (GPHD): 25 marks	
4.	Outreach Activities (OA) Weight: 0.10	100
	As per various Outreach Activities undertaken by Department	

5. Accreditation Related Activities (ARA) Weight: 0.10	100
As per various Accreditation Related Activities undertaken by Department	

1.Teaching, Learning & Resources (TLR): 100 marks

Weight: 0.30

Overall Assessment Metric:

TLR = SS (20) + FSR (30) + FQI (20) + FRU (30)

Component metrics based on:

Student Strength: SS

Faculty-Student Ratio: FSR

Faculty with PhD: FQI

Financial Resource Utilization: FRU

Student Strength (SS): 20 Marks

SS = [No. of students enrolled / Sanctioned Intake] x 100

SS	Marks
>= 90%	20
80% to 89.99%	17
70% to 79.99%	14
60% to 69.99%	11
50% to 59.99%	08
40% to 49.99%	05
Less than 40%	00

Data to be collected:

	Previous Academic Year (N)	Enrolled student strength (E)
Sanctioned Strength of UG Program (Year 1)		
Sanctioned Strength of UG Program (Year 2)		

Sanctioned Strength of UG Program (Year 3)		
Sanctioned Strength of UG Program (Year 4)		
Sanctioned Strength of UG Program (Year 5) If applicable		
Total UG (X)		
Sanctioned Strength of PG Program (Year 1)		
Sanctioned Strength of PG Program (Year 2)		
Total PG (Y)		
Total (X+Y)	N=	E=
SS	(E/N)*100 =	

A. Faculty-Student Ratio (FSR): 30 marks

•FSR = N/F

- **N = No. of students (UG + PG) in previous Academic Year**
- F: Faculty (who have taught at least 2 semesters) in the institution in the previous academic year. *Faculty on contract basis/ad-hoc basis will be considered if the concerned faculty has taught in both the semesters of previous Academic Year*

- FSR

FSR	Marks
Less than 15	30
15.01 to 16.99	26
17.00 to 18.99	22
19.00 to 20.99	18
21.00 to 22.99	14
23.00 to 25.00	10
Greater than 25.00	00

Data to be collected:

	Previous
Sanctioned Strength of UG Program (Year 1)	
Sanctioned Strength of UG Program (Year 2)	
Sanctioned Strength of UG Program (Year 3)	
Sanctioned Strength of UG Program (Year 4)	
Sanctioned Strength of UG Program (Year 5) If applicable	

Total UG (X)	
Sanctioned Strength of PG Program (Year 1)	
Sanctioned Strength of PG Program (Year 2)	
Total PG (Y)	
Total (X+Y)	N=
F (No. of Faculty)	
<i>to be used in all metrics requiring Total No. of Faculty</i>	
FSR (N/F)	

B. Faculty Qualification Index (FQI): 20 marks

Faculty qualification index (FQI) = $2 * [(10X + 4Y)/F]$

- ☐ X=No. of faculty members with Ph.D. degree or equivalent as per AICTE/UGC norms.
- ☐ Y=No. of faculty members with M. Tech. or ME degree or equivalent as per AICTE/UGC norms.
- ☐ F=Total No. of faculty

Data to be collected:

	Previous Academic Year
No. of faculty with PhD (X)	
No. of faculty with Post Graduate degree (Y)	

D: Financial Resources and their Utilisation (FRU): 30 Marks

- **FRU = [Amount of allocated budget utilized / Budget allocated] x 100**

FRU(%)	Marks
>= 90%	30
80% to 89.99%	27
70% to 79.99%	24
60% to 69.99%	21
50% to 59.99%	18
40% to 49.99%	15
Less than 40%	00

Data to be collected:

	Previous Financial Year
Amount of Budget allocated to Department (B)	
Amount utilized U)	
FRU $\{(U/B)*100\}$	

2. Research and Professional Practice (RP): 100 marks

- Weight: 0.30
- Overall Assessment Metric:

For Architecture, Management, HSS, CQEDS, Maths, RS:

$$RP = PU (40) + QP (40) + FPPP (20)$$

For Other Departments:

$$RP = PU (35) + QP (40) + IPR (15) + FPPP (10)$$

- The component metrics:
 - A. Total Publications: PU
 - B. Quality of Publications: QP
 - C. IPR and Patents: Patents Published and Granted: IPR
 - D. Footprint of Projects and Professional Practice: FPPP

- A. Publications (PU): 35 marks / 40 marks (for Arch, HSS, CQEDS, Mgmt, Maths, RS)
 - $PU = \text{Total Unique Publications made by the department (P)} / \text{No. of Faculty (F)}$

If PU is:

For other Departments	For Architecture, Management, HSS, CQEDS, Mathematics, Remote Sensing
$\geq 3.0 - 35$ marks	$\geq 3.0 - 40$ marks
$2.5 - 3.0 - 30$ marks	$2.5 - 3.0 - 35$ marks
$2.0 - 2.5 - 25$ marks	$2.0 - 2.5 - 30$ marks
$1.5 - 2.0 - 20$ marks	$1.5 - 2.0 - 25$ marks
$1.0 - 1.5 - 15$ marks	$1.0 - 1.5 - 20$ marks
$0.5 - 1.0 - 10$ marks	$0.5 - 1.0 - 15$ marks
Less than 0.5 – 0 marks	Less than 0.5 – 0 marks

Data to be collected:

	Previous calendar Year
Total unique Publications made by the department (P)	
$PU = (P/F)$	

- B. Combined metric for Quality of Publications (QP): 40 Marks (for all)

$$QP = [\text{Publications in SCI/SCIE (R)} / \text{Total unique Publications (P)}] \times 100$$

100% - 40 marks	30% - 40% - 26 marks
80% - 90% - 38 marks	20% to 30% - 24 marks
70% - 80% - 36 marks	10% to 20% - 22 marks
60% - 70% - 32 marks	less than 10% - 20 marks
50% - 60% - 30 marks	
40% - 50% - 28 marks	

Data to be collected:

	Previous calendar Year
Total unique Publications made by the Department (P)	
How many of these publications were in WoS database? (R)	
$QP = (R/P) \times 100$	

C. IPR and Patents: Patents Published and Granted (IPR): 15 marks

(metric not applicable to Architecture, Management, HSS, CQEDS, Maths, RS)

- $IPR = [2 \times \text{Granted Patents (G)} + \text{Published Patents (P)}] / \text{No. of Faculty (F)}$

$IPR \geq 0.5$ – 15 marks

$0.4 \leq IPR < 0.5$ – 12 marks

$0.3 \leq IPR < 0.4$ – 9 marks

$0.2 \leq IPR < 0.3$ – 6 marks

$0.1 \leq IPR < 0.2$ – 3 marks

$IPR < 0.1$ – 0 marks

Data to be collected:

	Previous Calendar Year
No. of Patents Granted (G)	
No. of Patents Published (P)	
$IPR = (2G+P)/F$	

D. Footprint of Projects and Professional Practice (FPPP): 10 marks / 20 marks (for Arch, HSS, CQEDS, Management and Mathematics)

• $FPPP = (SPR + C + CSR + FDP + WS) / F$

If FPPP is:

For other Departments	For Architecture, Management, HSS, CQEDS, Mathematics, Remote Sensing
> 5 lakhs – 10 marks	> 5 lakhs – 20 marks
4 to 5 lakhs – 8 marks	4 to 5 lakhs –18 marks
3 to 4 lakhs – 6 marks	3 to 4 lakhs – 16 marks
2 to 3 lakhs – 4 marks	2 to 3 lakhs – 14 marks
1 to 2 lakhs – 2 marks	1 to 2 lakhs – 12 marks
Less than 1 lakh – 0 marks	Less than 1 lakh – 0 marks

Data to be collected:

Amount received from	Amount received in the previous Financial Year
Govt. Sponsored R&D Projects (SPR)	
Consultancy Projects (C)	
CSR Projects (CSR)	
External agencies or registration for participation to organize FDPs, MDPS, EDPs etc. (FDP)	
Govt. agencies or external agencies for Organizing Certificate Programmes / Training Workshops/Seminars/conference/symposium etc. (WS)	
Total Amount (X)	
FPPP = (X/F)	

3. Graduation Outcome (GO):100 marks

a. **Weight: 0.20**

b. **Overall Assessment Metric:**

c. $GO = GPH (50) + GUE (25) + GPHD (25)$

The component metrics are explained on the following pages:

A. **Placement and Higher Studies: GPH**

B. **Metric for University Examinations: GUE**

C. **Metric for Number of Ph.D. Students Enrolled and Graduated: GPHD**

D. **Metric for Placement and Higher Studies (GPH): 50 marks**

◦ $GPH = 50 \times [(Np / 100) + (Nhs / 100)]$

$Np = (\text{No. of Students Placed} / \text{No. of Students Graduated}) \times 100$

Nhs = (No. of Students opted for Higher Studies / No. of Students Graduated) x 100

Data to be collected:

	Previous Academic Year
No. of Graduate Students (<i>to be used in next metric also</i>)	
No. of Students Placed	
No. of Students opted for Higher Studies	

B. Metric for University Examinations (GUE): 15 Marks

- $GUE = 25 \times \min [(N_g/80), 1]$
- $N_g = (\text{No. of students graduated} / \text{No. of students enrolled in final year}) \times 100$

Data to be collected:

	Previous Academic Year
No. of Students enrolled in Final Year	

C. Metric for Number of Ph.D Students Enrolled and Graduated (GPHD): 25 Marks

$GPHD = (N1/F) + (N2/F)$ [N1 = No. of PhD Students Enrolled; N2 = No. of PhD Students Graduated]

If (N1/F) is:

>3 – 10 marks

2 to 3 – 8 marks

1 to 2 – 6 marks

Between 0 to 1 – 4 marks

No scholar – 0 marks

If (N2/F) is:

>1.0 – 15 marks

0.8 to 1.0 – 8 marks

0.6 to 0.8 – 6 marks

0.4 to 0.6 – 4 marks

0.2 to 0.4 – 3 marks

< 0.2 – 0 marks

Data to be collected:

	Previous Academic Year
No. of PhD Students Enrolled (N1)	
No. of PhD Students Graduated (N2)	

4. Outreach Activities (OA): 100 marks

Weight: 0.10

Overall Assessment Metric has the following components:

- Conferences / Workshops / Seminars etc. organized by the Department
- Faculty members visited abroad
- Faculty members attended Conferences, Workshops, FDPs, MDPs, Short Term Training Programs etc. within India
- MoUs (all active MoUs with Activity Reports)
- Awards/Recognitions received by faculty
- Faculty delivered Invited Talks

Number of Outreach activities	Marks
All 6	100
Only 5	80
Only 4	60
Only 3	40
Only 2	20
Less than 2	00

Data to be collected:

Outreach activities

Number of Conferences / Workshops / Seminars etc. organized by the department

Number of Faculty members visited abroad

Number of Faculty members attended Conferences, Workshops, FDPs, MDPs, Short Term Training Programs etc. within India

Number of MoUs (all active MoUs with Activity Reports)

Number of Awards/Recognitions received by faculty

Number of Faculty delivered Invited Talks

4. Accreditation Related Activities (ARA): 100 marks

Weight: 0.10

Overall Assessment Metric has the following components:

- Departmental Societies and Club Activities
- Professors of Practice and Chair Professors
- New courses introduced
- Implementation of Feedback Analysis and Action Taken Report
- Implementation of Mentor-Mentee System
- Implementation of OBE in all programs (applicable to programs eligible for NBA)
- Books and book chapters published by the department

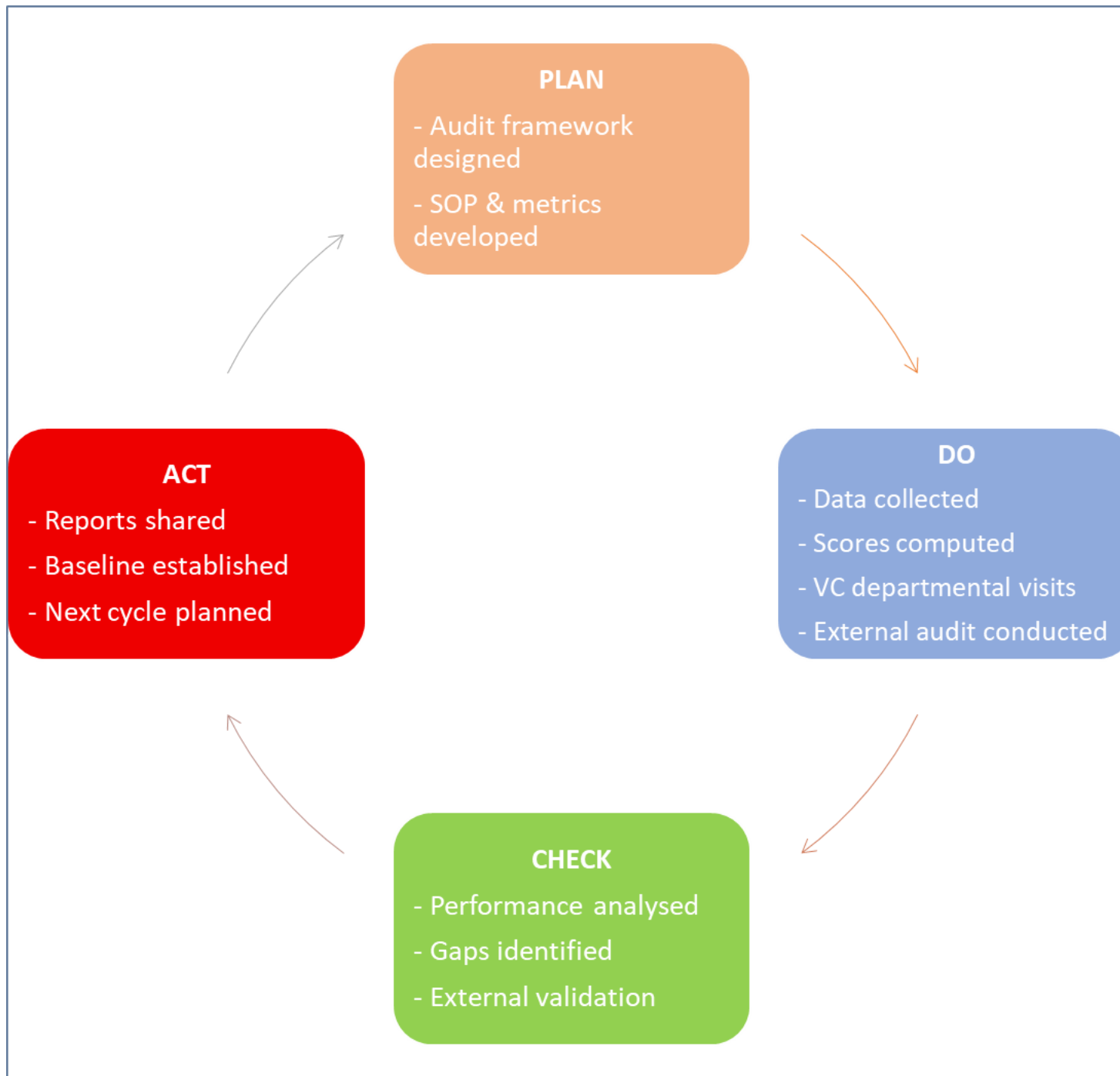
Number of Outreach activities	Marks
All 7	100
Only 6	80
Only 5	60
Only 4	40
Only 3	20

2 or less	00
-----------	----

Data to be collected:

Accreditation Related Activities (Part A)	Count (A.Y. 2023-24)
Number of Departmental Societies and Club Activities	
Number of Professors of Practice and Chair Professors	
Number of New courses introduced	
Number of books and book chapters published by the department	
Accreditation Related Activities (Part B)	Y/N
Implementation of Feedback Analysis and Action Taken Report	
Implementation of Mentor-Mentee System	
Implementation of OBE in all programs (applicable to programs eligible for NBA)	

PDCA Cycle for Academic Audit Initiative (IQAC)



Initiative: Academic Audit Framework Implementation

1. PLAN (P)

Objective:

To establish a systematic and quantitative framework for assessing academic performance across departments and ensuring quality enhancement.

Planning Activities:

1. IQAC developed a structured Academic Audit framework with defined parameters and weightages:
 - i. Teaching, Learning & Resources (TLR)
 - ii. Research & Professional Practice (RP)
 - iii. Graduation Outcomes (GO)
 - iv. Outreach Activities (OA)
 - v. Accreditation Related Activities (ARA)
2. A detailed SOP and rubrics were formulated for uniform evaluation.
3. Standardised data collection templates (Excel-based) were designed for:
 - i. Departmental data entry
 - ii. Automated score calculation
4. Clear guidelines and timelines were communicated to all departments.

Expected Outcome:

1. Uniform and transparent academic performance assessment
 2. Identification of strengths and areas of improvement
 3. Support for accreditation processes (NAAC/NBA)
-

2. DO (D)

Implementation:

1. Departments submitted data in prescribed formats.
2. Academic Audit Scores were computed based on defined metrics.

Administrative Review:

Vice Chancellor visited departments and reviewed:

- i. Submitted data
- ii. Academic practices
- iii. Departmental performance

External Review:

An External Academic Audit Committee was constituted.

External experts:

- i. Examined departmental data
 - ii. Interacted with HoDs and faculty
 - iii. Submitted audit reports and observations
-

3. CHECK (C)

Evaluation:

1. Departmental performance analysed across all parameters
2. Comparative assessment carried out to identify:

- i. Performance variations
- ii. Key strengths and gaps

Validation:

Findings validated through:

- i. VC observations
- ii. External expert reports

Outcome of Check Phase:

Identification of:

- i. Variability in research output and quality
- ii. Differences in graduation outcomes
- iii. Gaps in documentation and outreach activities

4. ACT (A)

Action Taken:

1. Audit reports and observations were shared with all departments
2. Departments were informed of:
 - i. Their performance scores
 - ii. Observations by internal and external reviewers

Action Status

This cycle primarily focused on:

- i. Establishing the audit system
- ii. Conducting baseline assessment

Future Action Plan:

1. Departments are expected to:
 - i. Analyse feedback
 - ii. Initiate corrective measures
2. IQAC proposes to:
 - i. Conduct subsequent audit cycles
 - ii. Track improvements over time

Outcome of PDCA Cycle

- Successful implementation of a structured Academic Audit system
- Creation of a baseline for continuous quality improvement
- Enhanced transparency and accountability

8.3 Improvement in Faculty Qualification/Contribution (15)

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022-23)
No. of faculty members with Ph.D. degree	25.00	23.00	22.00
No. of publications in peer reviewed journals	49.00	61.00	40.00
No. of publications in conferences	9.00	26.00	15.00

8.4 Improvement in Academic Performance (10)

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)
Academic Performance Index (API) of the First-Year Students in the Program (Refer to section 4.3)	6.73	5.93
Academic Performance Index (API) of the Second-Year Students in the Program (Refer to section 4.4)	8.54	7.55
Academic Performance Index (API) of the Third-Year Students in the Program (Refer to section 4.5)	8.72	8.59

9 STUDENT SUPPORT AND GOVERNANCE (120)

9.1 First Year Student-Faculty Ratio (FYSFR) (5)

Please provide First year faculty information considering load

Name of the faculty member	PAN No.	Qualification	From Engineering Courses	Date of Receiving Highest Degree	Area of Specialization	Designation	Date of joining	Teaching load (%)			Nature Of Association (Regular / Contract)
								CAY	CAYm1	CAYm2	
Aditi Panda	BUPPP0195M	Ph.D	Yes	20/04/2022	Computer Science and Engineering	Assistant Professor	22/09/2025	50	0	0	Regular
Sanchita Paul	AQNPP5103A	Ph.D	Yes	06/01/2012	Computer Science and Engineering	Associate Professor	15/07/2006	0	0	18	Regular
Akriti Nigam	AHIPN2393Q	Ph.D	Yes	24/04/2017	Computer Science and Engineering	Assistant Professor	15/04/2015	17	0	50	Regular
Debjani Mustaf	AKIPM8433D	Ph.D	Yes	15/02/2019	Computer Science and Engineering	Assistant Professor	29/07/2009	50	50	50	Regular
Anup Kumar K	ANRPK5886C	Ph.D	Yes	01/08/2013	Computer Science and Engineering	Assistant Professor	29/10/2004	13	0	50	Regular
Indradeo Ram	AGJPR0519E	M.E.	Yes	19/03/2003	Computer Science and Engineering	Assistant Professor	14/07/2003	17	17	17	Regular
Jit Mukherjee	BMDPM9093B	Ph.D	Yes	11/12/2020	Computer Science and EngineeringComputer Science and Engineering	Assistant Professor	17/08/2021	50	0	50	Regular
Kalyan Saman	ASUPS4681B	M.Tech	Yes	03/08/1993	Computer Science and Engineering	Assistant Professor	02/08/2010	15	0	14	Regular
Kanchan Jha	BAIPJ2214C	Ph.D	Yes	21/08/2023	Computer Science and Engineering	Assistant Professor	15/12/2025	50	0	0	Regular
Md Shah Faha	ADXPf3064D	Ph.D	Yes	13/04/2022	Computer Science and Engineering	Assistant Professor	20/03/2023	50	0	0	Regular
Monu Bhagat	AYWPB7050P	Ph.D	Yes	08/04/2024	Computer Science and Engineering	Assistant Professor	28/03/2025	50	0	0	Regular
Niraj Kumar Si	BUFPS3572M	Ph.D	Yes	13/03/2017	Computer Science and Engineering	Assistant Professor	29/08/2016	11	14	16	Regular
Prashant Pran	CDRPP8782J	Ph.D	Yes	15/10/2020	Computer Science and Engineering	Assistant Professor	25/08/2021	9	0	50	Regular
Richa	DMKPR1971L	Ph.D	Yes	04/06/2019	Computer Science and Engineering	Assistant Professor	15/03/2023	50	0	0	Regular
Sandip Ghosal	ASWPG1644A	Ph.D	Yes	26/02/2022	Computer Science and Engineering	Assistant Professor	19/12/2024	50	50	0	Regular
Satya Prakash	ARLPS8625H	Ph.D	Yes	29/06/2012	Computer Science and Engineering	Assistant Professor	17/08/2001	50	50	50	Regular
Supreeti Kamil	DUCPK2794C	Ph.D	Yes	14/09/2021	Computer Science and Engineering	Assistant Professor	23/12/2021	16	0	12	Regular
Brajesh Kumar	BDYPK3131Q	Ph.D	Yes	29/12/2025	Electrical and Electronics Engineering	Assistant Professor	09/12/2025	90	0	0	Regular

Chaman Lal D	BAFPD3623L	Ph.D	Yes	13/07/2022	Electrical and Electronics Engineering	Assistant Professor	03/06/2024	50	50	0	Regular
Debomita Gho	ARDPG0858N	Ph.D	Yes	21/08/2014	Electrical and Electronics Engineering	Associate Professor	08/07/2008	50	50	0	Regular
Gauri Shanker	AFPPG5502B	Ph.D	Yes	23/10/2019	Electrical and Electronics Engineering	Assistant Professor	08/06/2008	50	50	50	Regular
Pankaj Mishra	AMGPM4857K	Ph.D	Yes	11/10/2018	Electrical and Electronics Engineering	Assistant Professor	13/07/2009	50	50	0	Regular
Prabhat Kumar	AALPU0864D	Ph.D	Yes	23/01/2012	Electrical and Electronics Engineering	Assistant Professor	01/07/2001	57	33	0	Regular
Sudip Kumar S	BKCP53750E	Ph.D	Yes	01/10/2013	Computer Science and Engineering	Associate Professor	02/08/2007	50	0	50	Regular
Sarode Shiva t	CRMP59703H	Ph.D	Yes	30/03/2017	Electrical and Electronics Engineering	Assistant Professor	04/10/2016	0	16	12	Regular
Prem Prakash	AHYPP7483K	Ph.D	Yes	18/01/2023	Electrical and Electronics Engineering	Assistant Professor	11/03/2023	27	0	0	Regular
Sanjeev Kuma	BOFPK5035P	Ph.D	Yes	02/07/2021	Electrical and Electronics Engineering	Assistant Professor	12/11/2024	87	0	0	Regular
Sourabh Paitar	BPLPP2623D	Ph.D	Yes	05/07/2021	Electrical and Electronics Engineering	Assistant Professor	24/05/2024	22	50	0	Regular
Sudhansu Kurr	ALSPM3502C	Ph.D	Yes	30/12/2012	Electrical and Electronics Engineering	Associate Professor	01/12/2011	50	0	0	Regular
Sushma Surya	BAKPK8690M	Ph.D	Yes	21/10/2019	Electrical and Electronics Engineering	Assistant Professor	05/07/2007	50	50	50	Regular
Tirthadip Ghos	AFAPG2041N	Ph.D	Yes	24/12/1999	Electrical and Electronics Engineering	Professor	19/06/1999	50	50	0	Regular
Vijaya Laxmi	ABNPL8350L	Ph.D	Yes	21/08/2010	Electrical and Electronics Engineering	Professor	02/06/2002	50	0	0	Regular
Anusha Vuppu	BDFPA5794N	Ph.D	Yes	15/12/2021	Electronics and Communication Engineering	Assistant Professor	07/06/2024	42	29	0	Regular
Dileep Kumar l	ABPPU4756P	Ph.D	Yes	06/03/2014	Electronics and Communication Engineering	Assistant Professor	25/08/2007	50	50	50	Regular
Md Afaque Aza	BRYPA9635D	Ph.D	Yes	24/12/2022	Electronics and Communication Engineering	Assistant Professor	09/05/2024	50	50	0	Regular
Megha Dadel	AVSPD4964H	Ph.D	Yes	15/05/2015	Electronics and Communication Engineering	Assistant Professor	08/06/2009	60	50	50	Regular
Prajna Parimita	AQAPD9807C	Ph.D	Yes	20/10/2017	Electronics and Communication Engineering	Assistant Professor	31/07/2012	50	50	50	Regular
Richa Mishra	ALNPM6893M	Ph.D	Yes	19/08/2019	Electronics and Communication Engineering	Assistant Professor	15/09/2021	50	50	50	Regular
Sandeep Mukh	AQIPM0023F	Ph.D	Yes	27/02/2014	Electronics and Communication Engineering	Assistant Professor	18/03/2024	76	50	0	Regular

Sanjaya Shank	AHAPT6872E	Ph.D	Yes	08/08/2014	Electronics and Communication Engineering	Assistant Professor	14/07/2006	50	0	50	Regular
Sanjeet Kumar	AKYPK8246Q	Ph.D	Yes	26/09/2013	Electronics and Communication Engineering	Assistant Professor	14/07/2003	50	50	50	Regular
Shubham Anar	BEIPA4537F	Ph.D	Yes	23/09/2025	Electronics and Communication Engineering	Assistant Professor	14/08/2025	14	0	0	Regular
Sukanta Kuma	AHPPD3995F	Ph.D	Yes	18/11/2024	Electronics and Communication Engineering	Assistant Professor	16/08/2004	50	0	50	Regular
Tarakeswar Sh	EFCPS9821E	Ph.D	Yes	12/05/2021	Electronics and Communication Engineering	Assistant Professor	15/12/2025	100	0	0	Regular
Riya Mishra	CTAPM4798L	Ph.D	No	02/10/2025	Humanities and Social Sciences	Assistant Professor	15/10/2025	100	0	0	Regular
Abhijit Nag	APNPN3186L	Ph.D	Yes	28/12/1978	Mechanical Engineering	Assistant Professor	02/01/2012	36	50	50	Regular
Ankur Chattop;	ALNPC0524F	Ph.D	Yes	04/12/2020	Mechanical Engineering	Assistant Professor	14/10/2025	0	0	0	Regular
Arkadeb Mukh	BFIPM3411H	Ph.D	Yes	24/12/2018	Mechanical Engineering	Assistant Professor	14/08/2019	35	57	64	Regular
Arun Kumar K	CFYPK3816F	Ph.D	Yes	21/12/2018	Mechanical Engineering	Assistant Professor	24/07/2019	50	50	50	Regular
Faisal Rahman	ALZPR7678D	Ph.D	Yes	03/11/2018	Mechanical Engineering	Assistant Professor	09/11/2021	50	32	29	Regular
Kaushik Kumar	AHCPK0573H	Ph.D	Yes	13/04/2011	Mechanical Engineering	Professor	19/09/2001	50	50	50	Regular
Lakhbir Singh I	AFZPS8653M	Ph.D	Yes	01/08/2016	Mechanical Engineering	Assistant Professor	13/09/2010	36	0	0	Regular
Mukesh Sharm	DAJPS3701L	Ph.D	Yes	06/10/2018	Mechanical Engineering	Assistant Professor	16/08/2019	41	50	50	Regular
Nirmal Kumar	DYTPK2518B	Ph.D	Yes	09/07/2016	Mechanical Engineering	Assistant Professor	08/06/2015	50	50	50	Regular
Om Prakash	ATMPP7524P	Ph.D	Yes	06/05/2015	Mechanical Engineering	Assistant Professor	26/03/2015	33	33	33	Regular
Paritosh Mahat	AUVPK8546L	Ph.D	Yes	16/06/2017	Mechanical Engineering	Assistant Professor	11/07/2016	55	50	50	Regular
Praveen Jame	BMCPK0499G	Ph.D	Yes	26/06/2024	Mechanical Engineering	Assistant Professor	09/07/2007	50	50	50	Regular
Praveen Mishr	AKCPM1178K	Ph.D	Yes	17/10/2014	Mechanical Engineering	Assistant Professor	23/01/2004	30	0	0	Regular
Rajeev Kumar	AISPK4011H	Ph.D	Yes	11/09/2008	Mechanical Engineering	Associate Professor	01/07/2002	50	50	50	Regular
Richa Pandey	AAFPO0035L	Ph.D	Yes	11/05/2016	Mechanical Engineering	Assistant Professor	09/06/2011	50	0	0	Regular

Saurav Chakra	AWXPC6978N	Ph.D	Yes	02/11/2019	Mechanical Engineering	Assistant Professor	31/07/2021	50	0	50	Regular
Sujeet Kumar I	AIJPM8211E	Ph.D	Yes	06/02/2019	Mechanical Engineering	Assistant Professor	13/12/2005	50	50	0	Regular
Sushanta Ghul	BWEPG5848P	Ph.D	Yes	26/07/2022	Mechanical Engineering	Assistant Professor	01/03/2023	32	50	46	Regular
Sushil Kumar L	AKDPD7812L	Ph.D	Yes	18/05/2018	Mechanical Engineering	Assistant Professor	05/07/2007	50	50	50	Regular
Gayatri Paul	APKPP3384F	Ph.D	Yes	10/07/2015	Production and Industrial Engineering	Assistant Professor	17/08/2021	29	14	11	Regular
Laxmi Narayan	AEUPP1297A	Ph.D	Yes	02/01/2006	Production and Industrial Engineering	Associate Professor	24/10/2005	19	24	13	Regular
Prashant Prake	BKMPP5668L	Ph.D	Yes	08/07/2019	Production and Industrial Engineering	Assistant Professor	16/07/2010	22	7	18	Regular
Randhir Kumar	BBZPK3416P	Ph.D	Yes	10/05/2014	Production and Industrial Engineering	Assistant Professor	27/09/2012	21	26	33	Regular
Somak Datta	AQPPD8970P	Ph.D	Yes	15/09/2012	Production and Industrial Engineering	Assistant Professor	19/09/2011	22	0	19	Regular
Suman Saman	BOCPS9764L	Ph.D	Yes	28/06/2018	Production and Industrial Engineering	Assistant Professor	14/09/2021	19	32	10	Regular
Thakur Abhina	AMIPA2431M	Ph.D	Yes	28/12/2024	Production and Industrial Engineering	Assistant Professor	16/08/2010	42	18	33	Regular
Vinay Sharma	AKXPS7830B	Ph.D	Yes	07/08/2006	Production and Industrial Engineering	Professor	26/02/1999	29	29	0	Regular
Partha Mondal	AUCPM7152M	Ph.D	Yes	27/09/2014	Space Engineering and Rocketry	Assistant Professor	04/02/2015	37	40	0	Regular
Priyank Kumar	ASKPK8049D	Ph.D	Yes	09/11/2016	Space Engineering and Rocketry	Associate Professor	03/12/2007	33	18	0	Regular
Sudip Das	AEWPD8377B	Ph.D	Yes	01/11/2011	Space Engineering and Rocketry	Professor	16/08/2001	15	50	0	Regular
Anjana Dwived	ARJPD0115D	Ph.D	No	11/03/2014	Bioengineering and Biotechnology	Assistant Professor	01/04/2008	50	50	50	Regular
Dev Mani Panc	ARCPP5649M	Ph.D	No	26/03/2000	Bioengineering and Biotechnology	Professor	08/01/2007	10	10	10	Regular
Dinesh Prasad	ATZPP7907R	Ph.D	No	12/02/2011	Bioengineering and Biotechnology	Assistant Professor	01/10/2011	26	13	0	Regular
Hare Ram Sing	BLHPS5057E	Ph.D	No	11/05/1999	Bioengineering and Biotechnology	Assistant Professor	01/10/2007	20	25	20	Regular
Ritesh Kumar S	ARTPS0018A	Ph.D	Yes	17/08/2006	Production and Industrial Engineering	Associate Professor	01/02/2003	44	44	47	Regular
Sanjay Kumar	ABSPJ6252E	Ph.D	Yes	01/07/2006	Production and Industrial Engineering	Associate Professor	04/03/1997	50	47	50	Regular

Sanjiv Kumar T	AJUPT9071D	Ph.D	Yes	30/04/2019	Production and Industrial Engineering	Assistant Professor	18/09/2012	22	50	32	Regular
Koel De Mukherjee	AZIPM5064H	Ph.D	No	14/12/2014	Bioengineering and Biotechnology	Assistant Professor	18/09/2009	50	0	50	Regular
Shubha Rani S	CFQPS2914Q	Ph.D	No	10/03/2010	Bioengineering and Biotechnology	Assistant Professor	02/01/2010	50	0	50	Regular
Yogender Aggarwal	ALKPA0856F	Ph.D	No	23/01/2012	Bioengineering and Biotechnology	Assistant Professor	01/06/2007	50	50	50	Regular
Anirban Pradhan	AYRPP3968M	Ph.D	No	23/09/2013	Chemistry	Assistant Professor	23/09/2021	50	50	50	Regular
Atul Kumar	CLSPK4989F	Ph.D	No	06/08/2020	Chemistry	Assistant Professor	06/09/2021	50	50	50	Regular
Barnali Dasgupta	BDVPD4539E	Ph.D	No	16/05/2011	Chemistry	Assistant Professor	11/01/2012	38	26	32	Regular
Debdutta Chakrabarti	APDPC3197C	Ph.D	No	20/07/2018	Chemistry	Assistant Professor	01/10/2021	45	39	42	Regular
Deep Shikha	CHXPS5382P	Ph.D	No	01/10/2009	Chemistry	Associate Professor	01/08/2008	50	50	50	Regular
Gautam Sen	BLSPS7748M	Ph.D	No	15/02/2011	Chemistry	Assistant Professor	01/08/2009	50	50	50	Regular
Monochura Sai	FABPS4158B	Ph.D	No	18/08/2020	Chemistry	Assistant Professor	16/09/2025	50	0	0	Regular
Pradip Kar	BLHPK2023E	Ph.D	No	30/12/2009	Chemistry	Associate Professor	01/08/2009	50	50	50	Regular
Subhendu Nas	AJYPN1406G	Ph.D	No	18/04/2006	Chemistry	Professor	10/08/2009	50	50	50	Regular
Susanta Sinha	AQFPM4922N	Ph.D	No	27/01/2010	Chemistry	Assistant Professor	18/08/2009	50	50	50	Regular
Neeta Kumari	AQZPK3463C	Ph.D	No	10/01/2018	Civil Engineering	Assistant Professor	12/08/2008	50	50	50	Regular
Radhakrishnan	AQBPN6595N	Ph.D	No	14/12/2007	Civil Engineering	Associate Professor	04/05/2012	25	20	36	Regular
Sukalyan Chakrabarti	AGPPC4830R	Ph.D	No	01/06/2006	Civil Engineering	Associate Professor	16/07/2012	50	50	50	Regular
Tanushree Bhattacharya	ANMPB3222C	Ph.D	No	30/06/2007	Civil Engineering	Associate Professor	14/09/2012	17	50	50	Regular
Kishore Kumar	AOLPS5712E	Ph.D	No	26/11/2014	Computer Science and Engineering	Associate Professor	13/07/2005	50	50	50	Regular
Vishal H Shah	AYKPS1947E	Ph.D	No	30/07/2004	Electronics and Communication Engineering	Assistant Professor	30/10/2006	50	0	50	Regular
Jawed Iqbal	AAVPI5896D	Ph.D	No	10/12/2014	Environmental Science	Assistant Professor	30/04/2008	17	0	0	Regular

Ananya Saha	DIEPS1968C	Ph.D	No	14/09/2020	Humanities and Social Sciences	Assistant Professor	03/11/2024	50	100	0	Regular
Ankur Ranjan	BATPR9900A	Ph.D	No	12/01/2026	Humanities and Social Sciences	Assistant Professor	18/08/2025	57	0	0	Regular
Mrinal Kumar F	BSSPP2983A	MBA	No	06/08/1999	Humanities and Social Sciences	Assistant Professor	02/01/2002	50	50	50	Regular
Rohit Kumar P.	ADBPP6497N	Ph.D	No	17/05/2008	Humanities and Social Sciences	Assistant Professor	18/08/2008	100	50	0	Regular
Anand Prasad	BFPPS2013Q	Ph.D	No	14/06/2018	Management Studies	Assistant Professor	15/07/2009	50	0	50	Regular
Anindita Bera	ASMPB0793R	Ph.D	No	03/09/2019	Mathematics	Assistant Professor	01/02/2024	56	43	0	Regular
Aniruddha San	GDVPS5943C	Ph.D	No	27/04/2022	Mathematics	Assistant Professor	01/09/2025	47	0	0	Regular
Ayan Chanda	BLXPC1872K	Ph.D	No	27/08/2021	Mathematics	Assistant Professor	13/02/2024	50	50	0	Regular
Dinesh Kumar	BZIPK3590D	Ph.D	No	09/08/2016	Mathematics	Assistant Professor	16/08/2021	28	0	50	Regular
Koushik Garair	BGCPG5604B	Ph.D	No	24/12/2022	Mathematics	Assistant Professor	15/10/2025	89	0	0	Regular
Nilkantha Das	BZHPD4567Q	Ph.D	No	31/01/2022	Mathematics	Assistant Professor	17/10/2025	55	0	0	Regular
Partha Sarathi	EGHPM9794Q	Ph.D	No	27/08/2019	Mathematics	Assistant Professor	25/05/2023	28	50	50	Regular
Pawan Kumar	DFAPS6145Q	Ph.D	No	08/05/2023	Mathematics	Assistant Professor	23/01/2024	78	50	0	Regular
Payel Das	AUUPD5155F	Ph.D	No	31/07/2016	Mathematics	Assistant Professor	20/03/2023	50	50	50	Regular
Prabal Datta	AGGPD1518G	Ph.D	No	12/03/2007	Mathematics	Assistant Professor	16/08/2002	50	50	50	Regular
Prabjot Kaur	AKCPB0558Q	Ph.D	No	13/03/2010	Mathematics	Assistant Professor	08/12/2008	0	0	50	Regular
Seshadev Padl	ATKPP2696J	Ph.D	No	03/05/2004	Mathematics	Professor	07/01/2004	50	0	50	Regular
Anupam Roy	AOTPR6448E	Ph.D	No	12/12/2011	Physics	Assistant Professor	29/10/2021	31	29	0	Regular
Ela Rout	DIZPS4366F	Ph.D	No	16/01/2010	Physics	Assistant Professor	16/07/2010	65	57	40	Regular
Madhu Priya	BWCPP1699H	Ph.D	No	17/04/2012	Physics	Assistant Professor	24/05/2017	34	36	25	Regular
Pawan Kumar	ARUPT9770B	Ph.D	No	16/10/2005	PhysicsPhysics	Assistant Professor	01/07/2020	50	0	50	Regular

Rajyavardhan I	AWUPR3318N	Ph.D	No	05/07/2013	Physics	Assistant Professor	13/12/2021	31	29	36	Regular
Syeda Darakh	ANOPJ0795N	Ph.D	No	11/10/2010	Mathematics	Assistant Professor	01/04/2015	50	50	50	Regular
Kingshuk Bose	APYPB7167E	Ph.D	No	01/05/2009	Physics	Assistant Professor	01/01/2008	50	50	50	Regular
Rajeev Kumar	DMLPS0975L	Ph.D	No	13/11/2007	Physics	Associate Professor	16/04/2023	50	50	50	Regular
Ram Krishna C	BCTPD1057N	Ph.D	No	20/12/2016	Physics	Assistant Professor	03/07/2021	78	38	56	Regular
Rishi Sharma	BYSPS8065A	Ph.D	No	14/05/2012	Physics	Assistant Professor	01/04/2008	38	48	54	Regular
Sanjay Kumar	AOGPS5739G	Ph.D	No	02/12/1998	Physics	Professor	01/11/2000	50	50	50	Regular
Suman Ghosh	AYIPG2091F	Ph.D	No	22/08/2011	Physics	Assistant Professor	16/12/2021	50	41	36	Regular
Komal Naaz	BBAPN9221J	Ph.D	Yes	01/07/2024	Computer Science and Engineering	Assistant Professor	05/12/2024	0	40	0	Regular
Dilip Kumar Sir	AXKPS4249L	Ph.D	No	13/03/2011	Physics	Assistant Professor	13/06/2017	50	50	50	Regular
Sunita Keshri	ADLPK4026G	Ph.D	No	01/04/1999	Physics	Professor	01/09/1994	50	50	50	Regular
Kumar Rajnish	AFMPR6061D	Ph.D	Yes	14/10/2009	Computer Science and Engineering	Associate Professor	12/09/2002	0	50	50	Regular
Deepti Gola	AWUPG2032Q	Ph.D	Yes	06/01/2021	Electronics and Communication Engineering	Assistant Professor	31/07/2021	0	50	50	Regular
Mohammad Ju	AGXPA1964C	Ph.D	Yes	06/01/2021	Electronics and Communication EngineeringElectrical and Electronics Engineering	Assistant Professor	17/08/2021	0	29	22	Regular
Nishi Srivastav	BCUPS1702E	Ph.D	Yes	16/12/2011	Physics	Assistant Professor	30/08/2012	77	50	50	Regular
Sourabh Lahiri	AGZPL9509L	Ph.D	No	30/08/2013	Physics	Assistant Professor	12/06/2017	56	50	50	Regular
Abhijit Mustafi	AKNPM0355P	Ph.D	Yes	13/09/2013	Computer Science and Engineering	Professor	03/08/2003	0	50	50	Regular
Lopamudra Ho	AKPPH4547J	Ph.D	Yes	10/05/2024	Computer Science and Engineering	Assistant Professor	31/01/2025	0	50	0	Regular
Shamama Anw	ANXPA2024J	Ph.D	Yes	07/10/2017	Computer Science and Engineering	Assistant Professor	06/11/2008	0	16	14	Regular
Aminul Islam	AAGPI2921Q	Ph.D	Yes	11/06/2013	Electronics and Communication Engineering	Professor	01/11/2006	0	50	50	Regular
Kalyan Koley	CFEPK5281A	Ph.D	Yes	09/12/2015	Electronics and Communication Engineering	Assistant Professor	31/08/2021	0	32	50	Regular

Dipti Prasad M	AHBPM6412A	Ph.D	Yes	16/12/2009	Mechanical Engineering	Professor	19/12/2012	0	50	50	Regular
Ritwik Maiti	AVBPM9903A	Ph.D	Yes	05/08/2017	Mechanical Engineering	Assistant Professor	31/08/2021	0	35	14	Regular
Bappa Acherje	AQQPA1751N	Ph.D	Yes	10/10/2012	Production and Industrial Engineering	Associate Professor	05/09/2012	0	11	0	Regular
Joyjeet Ghose	AKSPG4509J	Ph.D	Yes	16/12/2011	Production and Industrial Engineering	Associate Professor	02/01/2006	0	16	43	Regular
Sneha Singh	BGSPS8812B	Ph.D	No	14/10/2015	Bioengineering and Biotechnology	Assistant Professor	21/07/2009	0	50	0	Regular
Kirti Avishek	AHAPA2145F	Ph.D	No	02/02/2011	Remote Sensing and Geoinformatics	Associate Professor	15/09/2004	0	50	50	Regular
Abhinav Tando	ADVPT6990J	Ph.D	No	03/03/2011	Mathematics	Assistant Professor	04/11/2011	0	56	45	Regular
Shelly Biswas	ASQPB5904L	Ph.D	No	02/11/2014	Space Engineering and Rocketry	Assistant Professor	24/06/2016	0	12	14	Regular
Amritanjali	ADOPA3810F	Ph.D	Yes	26/11/2014	Computer Science and Engineering	Assistant Professor	05/07/2006	0	0	27	Regular
Santashraya P	BCMPP7017H	Ph.D	Yes	26/08/2022	Electronics and Communication Engineering	Assistant Professor	01/11/2008	0	0	50	Regular
Apurba Kumar	ADBPR4872R	Ph.D	Yes	10/01/2005	Mechanical Engineering	Associate Professor	13/12/2010	0	0	50	Regular
Ramesh Chandra	AAPPC7854H	Ph.D	No	04/05/2007	Bioengineering and Biotechnology	Professor	01/07/1996	0	0	50	Regular
Sumit Mishra	AYHPM0348J	Ph.D	No	01/02/2010	Chemistry	Professor	01/09/2024	0	0	50	Regular
Anupam Roy	CDPPR8321H	Ph.D	No	12/12/2011	Physics	Assistant Professor	29/10/2021	0	0	38	Regular
Manish Kumar	AWYPP1261A	Ph.D	No	30/08/2017	CQEDS	Assistant Professor	20/09/2021	0	50	0	Regular
Shashank Puri	AUJPP4054C	Ph.D	Yes	08/02/2012	Computer Science and Engineering	Associate Professor	06/03/2008	0	0	14	Regular
Soumya Sidhis	AZLPS3774P	Ph.D	Yes	14/05/2013	Electronics and Communication Engineering	Assistant Professor	01/04/2009	0	0	50	Regular
Ravishankar M	ARZPM4094L	Ph.D	Yes	13/01/2024	Computer Science and Engineering	Assistant Professor	19/12/2024	69	50	0	Regular
Prateem Pan	BVAPP1910Q	Ph.D	Yes	24/12/2023	Electrical and Electronics Engineering	Assistant Professor	18/12/2024	50	50	0	Regular
Aftab Alam	ATSPA6331K	Ph.D	Yes	08/12/2018	Electrical and Electronics Engineering	Assistant Professor	29/06/2016	0	86	0	Regular
Vijay Nath	ADUPN6384R	Ph.D	Yes	13/10/2008	Electronics and Communication Engineering	Associate Professor	14/07/2006	0	0	50	Regular

Abhishek Kum:	BAFPS9402N	Ph.D	Yes	19/05/2016	Production and Industrial Engineering	Assistant Professor	14/08/2008	0	15	18	Contractual
Amrita Mandal	BHVPM5245C	Ph.D	No	25/12/2022	Mathematics	Assistant Professor	29/01/2024	50	50	0	Regular
Anjini Kumar Ti	AFQPT3986F	Ph.D	Yes	06/03/2013	Electronics and Communication Engineering	Assistant Professor	03/01/2005	0	0	50	Regular
Satish Chande	ADYPC0354J	Ph.D	Yes	05/10/2018	Computer Science and Engineering	Assistant Professor	23/02/2001	50	0	50	Regular
Randhir Singh	FZRPS1459A	Ph.D	No	14/07/2014	Mathematics	Assistant Professor	02/03/2015	50	50	50	Contractual
Sitanshu Sekh:	BIMPS0455G	Ph.D	Yes	12/10/2011	Electronics and Communication Engineering	Associate Professor	20/09/2011	0	0	50	Regular
Subrat Kumar :	BBCPS7930R	Ph.D	Yes	23/08/2024	Electrical and Electronics Engineering	Assistant Professor	16/04/2015	0	50	50	Regular
Brij Mohan Pra	AXRPP2405J	M.E.	Yes	26/03/2010	Electrical and Electronics Engineering	Assistant Professor	02/01/2008	50	50	0	Regular
Indrajit Mukher	AHCPM4601J	Ph.D	Yes	26/11/2014	Computer Science and Engineering	Associate Professor	18/07/2000	50	0	50	Regular
Jayasree Seng	FUKPS7129P	Ph.D	Yes	14/12/2022	Computer Science and Engineering	Assistant Professor	15/04/2024	50	50	0	Regular
Joydeep Dhar	CHAPD6091F	Ph.D	No	20/06/2015	Chemistry	Assistant Professor	25/08/2021	36	0	0	Regular
Ratan Kumar F	AIQPP5818D	Ph.D	No	03/10/1996	Physics	Associate Professor	01/11/2001	0	50	50	Regular
Sanat Kumar M	AGCPM7203M	Ph.D	No	23/01/2012	Physics	Assistant Professor	01/09/2009	0	50	50	Regular
Dheeresh	AGDPM7358N	Ph.D	Yes	10/03/2010	Computer Science and Engineering	Associate Professor	07/07/1999	0	50	0	Regular
Deepak Kumar	AWAPK4263F	Ph.D	Yes	29/01/2016	Electrical and Electronics Engineering	Assistant Professor	02/06/2015	50	50	0	Regular
Anil Chandra M	BOKPM4975H	Ph.D	Yes	05/03/2018	Mechanical Engineering	Assistant Professor	22/08/2019	0	10	80	Regular
Suvendu Kanu	AJLPK1519N	Ph.D	Yes	22/03/2013	Computer Science and Engineering	Assistant Professor	01/08/1995	10	50	50	Regular
Bikash Kanti S.	AOYPS7911N	Ph.D	Yes	04/09/2013	Computer Science and Engineering	Associate Professor	03/01/2000	10	50	50	Regular
Pankaj Gupta	AFZPG7001F	Ph.D	Yes	18/02/2019	Computer Science and Engineering	Assistant Professor	05/07/2002	10	0	50	Regular

Year	Sanctioned intake of all UG programs (S4)	No. of required faculty (RF4= S4/20)	No. of faculty members in Basic Science Courses & Humanities and Social Sciences including Management courses (NS1)	No. of faculty memt Science Courses (N
2023-24(CAYm2)	930	46	58	94
2024-25(CAYm1)	930	46	62	100
2025-26(CAY)	960	48	64	105
				Ave

The Institute implements a structured Mentor–Mentee Interaction System as per a documented Standard Operating Procedure to support students' academic, career, and personal development. Each student is assigned a faculty mentor from the same department at the beginning of the academic year, who normally continues throughout the programme.

Mentors interact with mentees at least twice per semester, providing academic advising, career guidance, personal support, monitoring of academic performance, and parent communication where required. Mentees actively participate in mentoring sessions, share concerns openly, and implement the guidance provided.

All mentoring activities are formally documented using standardized formats. At the end of each semester, mentees submit structured feedback on the mentoring process. Any mentoring-related issues are addressed through the Head of the Department, with provisions for reassignment if necessary. Flowchart of Mentor–Mentee Interaction Process has been presented in Figure 9.2.1.

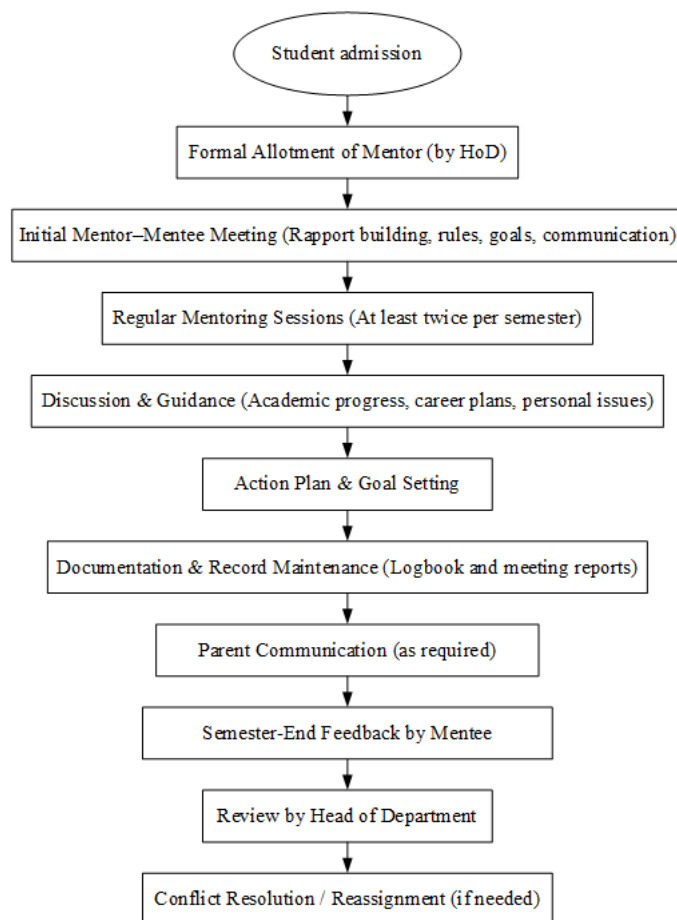


Figure 9.2.1: Flowchart of Mentor–Mentee Interaction Process

9.3 Feedback Analysis (10)

Total Marks 10.00

9.3.1 Feedback on Teaching and Learning Process and Corrective Measures Taken, if any (5)

Institute Marks : 5.00

The institute follows a structured SOP to collect and act on student feedback each semester.

Feedback is gathered through ERP, analysed question-wise, and deviations from average scores are identified.

Courses with negative deviations (more than –20%) trigger corrective measures through meetings with concerned faculty/students, while positive deviations (+10%) are acknowledged and best practices shared.

If an entire batch's feedback falls below 60%, special meetings and action plans are initiated.

Each department prepares a **Feedback Analysis and Action Taken Report (FAATR)**, documenting feedback trends, corrective measures, and appreciations. This is presented in faculty meetings and submitted to IQAC within three weeks. Continuous review ensures ongoing improvement.

9.3.2 Feedback on Academic Facilities (5)

Institute Marks : 5.00

As part of our continuous quality improvement process at Birla Institute of Technology, Mesra, we have established a robust feedback mechanism to evaluate academic facilities and implement necessary enhancements. The following details our feedback collection process, analysis methodology, and subsequent corrective actions during the assessment period:

Feedback Collection Process on Facilities

Our Institution has implemented a structured feedback system administered by the Internal Quality Assurance Cell (IQAC). Feedback is collected from graduating students through an online questionnaire. The feedback instrument utilizes a 4-point Likert Scale (Excellent, Good, Average, Poor) covering various parameters such as Classrooms and academic facilities, hostel, canteen, campus and environment, computer and internet facilities, library, etc.

Analysis Methodology

The analysis follows a systematic approach:

- Analysing distribution of feedback across the scale (Excellent to Poor)
- Generating visual representations through charts for data interpretation
- Identifying strengths and improvement areas based on response distribution

The feedback analysis report is uploaded on the website at: <https://conference.bitmesra.ac.in/content/iqac/239> (<https://conference.bitmesra.ac.in/content/iqac/239>)

9.4 Training and Placement Support (10)

Total Marks 10.00

The Training & Placement Division of the Institute works towards generating a symbiotic association with leading industries. It nurtures contacts with organisations for generating internship as well as campus placement opportunities for the students of the Institute. It also initiates and organises training programmes for the development of skills necessary to face the selection process. A mentorship programme has also been initiated where senior alumni are connected to the students for career guidance.

Details of the training and placement supports:

	2021-22	2022-23	2023-24	2024-25
No. of Offers (All)	934	737	630	771
No. of Offers (B.Tech)	531	522	471	530
Average CTC (Rs Lakhs)	13.03	14.68	12.05	11.82
Maximum CTC (Rs Lakhs)	58.34	51	52	1.44cr
Minimum CTC (Rs Lakhs)	4	3.5	3.3	3
No. Internship Offers	371	312	267	326
No of companies visited	235	197	183	320

Every year we send invitations to approx. 400 to 500 companies for campus recruitment.

Trainings Sessions conducted

- Interpersonal Skill Enhancement Session

Speaker: Mr. Vineet Barnwal

Date & Time: 17-18th August, 2024 - 9 AM

- Placement Mentorship Programme:

An alumni-led mentorship program pairs current students or young professionals with experienced alumni to provide guidance and support for career development and personal growth. The goal is to connect students with professionals in their desired field, offering valuable insights and networking opportunities

- GD & PI Etiquettes Session by Cambridge

Speaker: Ms. Ruchi Tomar

Date & Time: 28th-29th September, 2024, 10 AM

- ETS India - Session on TOEFL & GRE at BIT Mesra

Date & Time: 9th Jan25 from 5.30pm-6.30pm

- Alumni-Led Mentorship Program (Skill Turtle): The session was on a 6-month mentorship program designed to help you ace your placements and internships. This program, led by our alumni and founder of Skill Turtle, offers a comprehensive approach to preparing for the competitive job market. The session was conducted by BIT Mesra alumni from CSE : Siddhant Jain (CRED), Shivam Kumar (Cisco), Priyanshu Deep (NPCL), and Harshavardhan Sinha (Wisetech).

Date: 5th April, 2025 | 9:30 AM - 11 AM

- Training Session on Public Speaking, GD & PI for MBA students

Speaker: Capt. Purba Panchbhai

Date: 17th -24th January, 2025

- Placement Training Session

Trainer from B Factory

Date: 9th to 19th April 2025

- Placement Training Session

Trainer from IMS

Date: 5th to 20th April 2025

Sessions on Career guidance:

Industry interaction exclusively for pre-placement/ internship/placement/counseling:

- Trailblazers' Talk Leadership Insights and Experience sharing session

Speaker: Mr. Uttam Singh, Vice President of Iron Making at Tata Steel

Date & Time: 8th October, 2023 6:30 PM

- Trailblazers' Talk Leadership Insights and Experience sharing session

Speaker: Mr Peeyush Gupta, Vice President GSP and Supply Chain at Tata Steel

Date & Time: 31st October, 2023 6:30 PM

- Trailblazers' Talk Leadership Insights and Experience sharing session

Speaker: Jaya Singh Panda, Chief L&D & Chief Diversity Officer at Tata Steel.

Date & Time: 9th November, 2023 6:30 PM

- Trailblazers' Talk Leadership Insights and Experience sharing session

Speaker: Mr Hemant Gupta, Head, Tata Steel Adventure Foundation (TSAF)

Date & Time: 31st January, 2024 6:30 PM

- Trailblazers' Talk - Decoding Salary Structures

Speaker: Mr. Pritam Roy Choudhury, Head HRM Rewards, Tata Steel

Date & Time: 31st January, 2025 6:30 PM

- ISBs Young Leaders Programme (YLP) Counselling and Mentoring session

Date & Timings: 13 February 2024, 5:30 PM onwards

- Deloitte Tech Talk

Date & Time: 8th May, 2023; 11 AM

Topic: Artificial Intelligence

- WiseTech Global

Speaker: Director HR

Date & Time: 21st January, 2024; 2PM

- Vision IAS Talk Session

Date & Time: 24th January, 2024; 6:30 PM

- Worldquant - Introduction to Quantitative Finance and HFT

Speaker: Adarsh Kumar

Date & Time: 8th April, 2024; 6PM

- Broadridge Financial Solutions Campus Interaction

Speaker: Director, Broadridge

Date & Time: 7th October, 2024 - 2 PM

Topic: Databases

- Session with Mr. Sri Srinivasan, MD, Hellman & Friedman
 Date: 8th November, 2024, 1:30 PM
- Career Opportunities in the Department of Atomic Energy through Bhabha Atomic Research Centre (BARC) Training Schools" organized by the Variable Energy Cyclotron Centre (VECC), Kolkata

 Speaker: Shri Suman Guha and Dr. Arindam Sikdar

 Date & Time: Tuesday, 21st January 2025, 5:00 PM
- NXP Campus Connect Program : SoC Design Flow Overview. In this session, NXP India experts will discuss how the SoCs are designed starting from RTL to GDS, their various functions involved in SoC design flow and the importance of each function.

 Speaker: Amol Agarwal and Hukum Singh Rathore

 Date & Time: Tuesday, 4 February 2025, 5:00 PM
- Mr. Sanjay Mohan, the group CTO of Make My Trip and an alumnus of BIT Mesra; delivered a campus connect talk on 12th February, 2025 in the CAT Hall for the pre-final students of CSE, AI-ML, Maths & Computing and Quantitative Economics & Data Science. He talked about his life journey as well as data decisions at Make My Trip.
- MSCI Career Day @ BIT Mesra:** In this session, MSCI professionals shared insights into MSCI's business, the career opportunities available for junior talent, and essential tips for interviews. The discussion highlighted the experiences of industry leaders and the dynamic work environment at MSCI.

Speakers: Bhavana Naik (Executive Director, Data - Technical) and Shemina Salvi (Executive Director, Data - HR)
Date & Time: Monday, 24 March 2025, 1:00 PM
- TCE Ace Talk: Ms. D Geethalakshmi, General Manager at TCE,

 Topic: Green Transportation – Electric Mobility and Battery Storage Systems

 This session presented an excellent opportunity for engineering students to explore the latest trends and developments in sustainable transportation and energy storage systems.

 Event Details:

 Date: 21st February 2025 | Time: 4:00 PM to 5:00 PM | Platform: Microsoft Teams
- TCE Ace Talk: Mr. Anupam Roy, Senior General Manager at TCE,

 Topic: Renewable Energy & Landscapes

 Event Details:

 Date: 12th December 2024 | Time: 11 AM to 12 PM | Platform: Microsoft Teams
- Tata Power: Campus Engagement Session

 Topic: Renewable Energy Overview & Trends in India

 Speaker: Gaurav Lodha (Group Head - Solutioning & Modelling).

 Event Details:

 Date: 14th April 2025 | Time: 3:00 PM to 4:00 PM | Platform: Microsoft Teams

Few Webinars conducted by our Alumni

Alumni event name	Date conduct ed	Location	Footfall	Event objective/outc ome
Webinar by Prof Aatmesh Shrivastava Unveiling the Blueprint: Engineering the Future with Hardware Design for Machine Learning Systems	2/09/23, 16/09/23 , 30/09/23 & 14/10/23	Online	20	Webinar Series

Nikhil Verma (1996-2000 CSE) delivered a webinar on "Evolving to a Decentralized Autonomous system"	18/02/23	Online	25	Webinar
Mr Rajesh Sharma (1985 – 1989 CSE Graduate from BIT Mesra) delivered a webinar on 'Demystifying Artificial	18/03/23	Online	30	Webinar
Prof. Aatmesh Shrivastava (2002 - 2006) Unveiling the Blueprint: Engineering the Future with Hardware Design for Machine Learning Systems	02-09-2023	Online	35	Webinar
Prof. Aatmesh Shrivastava (2002 - 2006) Unveiling the Blueprint: Engineering the Future with Hardware Design for Machine Learning Systems	16-09-2023	Online	37	Webinar
Prof. Aatmesh Shrivastava (2002 - 2006) Unveiling the Blueprint: Engineering the Future with Hardware Design for Machine Learning Systems	30-09-2023	Online	24	Webinar
Prof. Aatmesh Shrivastava (2002 - 2006) Unveiling the Blueprint: Engineering the Future with Hardware Design for Machine Learning Systems	14-10-2023	Online	21	Webinar
Mr. Raweesh Chaudhary (1988-1992), Digital Transformation	22-02-2025	Online	65	Webinar

Support for higher study etc:

We are in the process of initiating this activity

9.5 Start-up and Entrepreneurship Activities (5)

Total Marks 5.00

Institution's Innovation Council BIT Mesra has been established on October 2018 onwards under the Ministry of Education (MoE) and Innovation Cell, New Delhi which has been consistently made the requisite efforts to thrust the innovation and start-up ecosystem amongst the students of BIT Mesra and their off campuses. A separate deanship has been created for Dean, Research, Innovation and Entrepreneurship, R&D Cell BIT Mesra. The Research and Development Cell under the Dean of Research, Innovation, and Entrepreneurship (DRIE) has been promoting and funding diverse innovation related activities for BIT students.

As per Ministry of Education (MoE) mandatory requirement, every HEI is required to have National Innovation and Start-up Policy (NISP) for promoting student driven innovations & start-ups and to engage the students and faculty in innovation and start up activities in campus. In order to implement this requirement, BIT has created two policies: (a) Innovation, Incubation & Pre-incubation and Entrepreneurship development policy, (b) Start-up policy. These policies aim to build, streamline and strengthen the innovation and entrepreneurial ecosystem in campus and will be instrumental in leveraging the potential of student's creativity, problem solving and entrepreneurial mind-set, and promoting a strong intra- and inter-institutional partnerships with ecosystem enablers and different stakeholders at regional, national and international level.

The Entrepreneurship Development Cell (EDC) under the R&D Cell BIT Mesra hosts the annual Entrepreneurship-Summit, or E-Summit, every year to promote entrepreneurial thinking among college students and provide aspiring start-ups a platform. A variety of year-round events, including talks by well-known business figures and seminars on entrepreneurship, fundraising, and other pertinent topics, are planned in addition to the E-Summit.

The following Innovation Activities are organized under Institution's Innovation Council BIT Mesra Entrepreneurship Development Cell.

- **Business Plan Competition**

The Institution's Innovation Council (IIC-BIT Mesra as per MoE) organizes a "Business Plan Competition" every year in the months of August and September. This business plan competition aims to identify the innovative entrepreneurial bent of mind of BIT students in different domains of business and allied disciplines where they present their business idea plans. In this event students will showcase their innovative business plan idea and present their idea in front of Jury members. The Business plan event is a Pre-Qualifier event of BIT -NISHAN -an innovation contest. In this business plan competition students will get financial support of Rs 10,000 for up to 15- 20 teams for initial market survey expenses and to make a prototype product and demonstrate their innovation product in the final round of BIT NISHAN Final Innovation Contest.

- **BIT NISHAN -Innovation Contest**

BIT NISHAN is an annual flagship Innovation Contest where NISHAN stands for ***Neoteric-Indigenous-Scientific-Harmonious-Ambitious-Novel***. BIT-NISHAN aims to identify potential startup-idea and to ensure that no idea from BIT with the potential to excel shall go unnoticed and untested due to lack of opportunity, resources and capital. BIT NISHAN event will help to promote the culture of entrepreneurship and innovation amongst students and faculty in BIT. This event major goal is to draw angel investors while also encouraging innovation and entrepreneurship among students from other underfunded colleges in Jharkhand. Students who participate in this innovation competition will get Rs. 1 lakh (One Lakhs) funding to help them create their innovative product and register their new start-up company for implementation and commercialization for their product.

- **"ENIGMA"**

Enigma it's a National Technical Case Study Competition every year in the month of January which provides a platform to the students to showcase their strategic, technical and business acumen.

- **E-Summit**

The E-Summit (i.e., Entrepreneurship-Summit) is organized by the EDC under the Dean Research, Innovation and Entrepreneurship R&D Cell BIT Mesra Ranchi to organize the various activities every year to encourage entrepreneurial thinking in the college, through its events, and provide a stage to the budding start-up(s). A variety of year-round events, including talks by well-known business figures and seminars on entrepreneurship, fundraising, and other pertinent topics, are planned in addition to the E-Summit.

- **Intellectual Property Rights Cell**

BIT has established a dedicated Intellectual Property Rights Cell to promote patenting activities amidst students and faculty. This cell organizes training, workshops, brainstorming discussions, interaction with Patent Attorneys on regular basis in the campus. A dedicated funding support is also provided for registration and processing of patent applications from faculty and students, throughout the year.

Many innovation-related events are funded by Institution's Innovation Council, BIT Mesra and all events are scheduled on a quarterly basis in accordance with the Ministry of Education's (MoE) Innovation Cell mandate in New Delhi. Details of events are mentioned below.

Category	2023-24	2024 -2025	2025-2026 1 st Sep 2025– 13 th Dec 2025
Seminars & Workshops	33	38	11
Innovation Event/ National Level Celebration Activities/ Research Innovation Activities	35	43	12
Total	68	81	23

Total Start-up Supported 2024-2025 with DPIIT Registration & Certificate of Incorporation

SI No.	Start-up Company Name	Registration Year
1	Explorify Trips Private Limited	April 2025
2	Jurixone Ai Private Limited	April 2025
3	Lumbni Enthropic Labs Private Limited	April 2025
4	Olinp Technology Private Limited	April 2025
5	Roboticulus Private Limited	April 2025
6	Tokenzameen Technologies Private Limited	April 2025
7	Mentivisor pvt. Ltd.	April 2025
8	Vinaiak Ai Private Limited	April 2025
9	Aditya Anandd Digital Solutions Private Limited	April 2025
10	Squirrels consultant India Pvt. Ltd.	April 2025
11	Vedafy Technologies Private Limited	April 2025
12	Elyvate Technologies Private Limited	August 2025
13	Rookus Ventures LLP	September 2025

Total Start-up Seed Fund Grant from angel Investor- 1 Cr 68 Lakhs (April 2025 to till Date)

Award – Entrepreneurship Development Cell

- BIT Mesra Received the Entrepreneurship Catalyst Award – **SBI College Youth IDEATHON 2025** at IIT Delhi on 5th March 2025.

- Ministry of Education, Institution Innovation Council, & AICTE, New Delhi organized **Regional Meet 7.0** on **25th Nov 2025** at Kolkata in JIS University. During this Regional Meet-7.0, BIT Mesra Received “**Best Innovation Award**” under the 256 Higher Education Institution from eastern zone and around 450 faculty members/ students has participated.
- The **Grand Finale of Smart India Hackathon 2025**, organised by the **Ministry of Education** and **AICTE, New Delhi** from 8th to 9th Dec 2025. BIT Mesra Students Teams with two faculty mentors has participated and **won the Grand Finale Smart India Hackathon -2025**. The 36-hour national hackathon consisted of three rounds, each involving mentorship and rigorous jury evaluation. The team's innovative, impactful, and accessible solution earned them the top position among competing institutions. The team Led by Krrish Rastogi, with team members Daksh Kweera, Pratyasha Palit, Prashun Raj, Adnan Adil, and Ishan Singh, and guided by faculty mentors Dr. Anand Prasad Sinha and Dr. Vishal H. Shah, the team developed an AI-powered centralized platform to solve the critical problem of beneficiary identification and financial inclusion under the GIA component of PM-AJAY, Ministry of Social Justice and Empowerment.

9.6 Governance and Transparency (25)

Total Marks 25.00

Birla Institute of Technology, Mesra has developed a comprehensive **Institutional Development Plan (IDP)** as a strategic roadmap for achieving academic excellence, research advancement, infrastructure modernization, financial sustainability, industry engagement, globalization, and societal impact. The IDP is aligned with the Institute's Vision and Mission and has been prepared in consonance with NEP 2020, UGC guidelines, and emerging national and global educational priorities.

The strategic plan emphasizes continuous institutional growth through clearly defined short-term, medium-term, and long-term goals. The Institute has formulated:

- Three-Year Institutional Development Plan
- Seven-Year Institutional Development Plan
- Fifteen-Year Institutional Development Plan

covering governance, academics, research, innovation, infrastructure, digital transformation, networking, collaborations, human resource development, and financial sustainability.

The IDP outlines several strategic focus areas for institutional growth and quality enhancement. Under **Academic Excellence**, the Institute plans curriculum enhancement through blended learning, interdisciplinary programs, Outcome-Based Education (OBE), integration of AI, Data Science, IoT, Blockchain, Renewable Energy, Sustainable Development, Industry 4.0, MOOCs, elective flexibility, and alignment with NEP 2020. The Institute also emphasizes faculty development through pedagogical training, faculty exchange programs, research incentives, and industry internships. Student engagement is strengthened through mentorship programs, academic counselling, scholarships, active learning methods, and co-curricular activities.

Under **Infrastructure and Facilities**, the IDP focuses on smart campus initiatives such as solar energy expansion, IoT-enabled classrooms, GIS-enabled campus mapping, RFID attendance systems, ERP systems, high-speed internet, smart waste management, digitized libraries, sustainable infrastructure, and upgraded hostel, sports, and healthcare facilities.

The strategic plan also gives significant emphasis to **Research and Innovation** through establishment of Centres of Excellence in thrust areas such as Artificial Intelligence & Data Science, Cybersecurity, Renewable Energy, Smart Manufacturing, Space Technology, Medical Technology, and Geospatial Data Analysis. The Institute plans to strengthen industry-sponsored research, innovation ecosystems, startup incubation, intellectual property creation, technology transfer, and interdisciplinary research aligned with Sustainable Development Goals (SDGs).

To strengthen employability and industry interaction, the Institute plans to expand MoUs with industries and global institutions, establish Executive Advisory Boards, strengthen internships and industry-sponsored projects, improve placement strategies, and organize career fairs and leadership talks. The Institute also focuses on international collaborations, student mobility, community engagement, CSR initiatives, and skill development programmes.

The Institutional Development Plan has been approved and is implemented through a well-defined governance structure headed by the **Executive Council (EC)**, which acts as the apex governing body responsible for strategic oversight, policy formulation, governance, and monitoring of institutional progress. The governance framework ensures transparency, accountability, participatory decision-making, quality assurance, and alignment with institutional vision and mission.

For effective implementation and monitoring of the strategic plan, the Institute has constituted various statutory and functional committees including:

- Executive Council (EC)
- Finance Committee
- Academic Council (AC)
- Research Advisory Council (RAC)
- Human Resource Committees
- Networking and Collaborations Committee
- Planning and Maintenance Committee
- Digital Infrastructure Committee

These committees are responsible for policy implementation, academic governance, research promotion, infrastructure development, financial planning, digital transformation, industry collaboration, quality assurance, and continuous review of institutional objectives and outcomes.

The Three-Year Institutional Development Plan specifically focuses on strengthening governance mechanisms, implementing ERP-based systems, conducting academic audits, improving NIRF rankings, enhancing placement ecosystems, promoting interdisciplinary education, strengthening internal quality assurance systems, upgrading laboratories and infrastructure, enhancing research productivity, and improving stakeholder engagement through systematic review and monitoring mechanisms coordinated by IQAC and statutory bodies.

The Seven-Year and Fifteen-Year Institutional Development Plans further outline the Institute's vision to evolve into a globally competitive, research-intensive, innovation-driven institution with strong industry integration, international collaborations, advanced research infrastructure, digital governance systems, sustainable campus development, global academic partnerships, and internationally benchmarked governance practices.

Thus, BIT Mesra has a clearly documented and structured Institutional Strategic Plan/Institutional Development Plan with defined objectives, implementation mechanisms, governance structures, monitoring committees, and phased developmental targets to ensure continuous institutional growth, quality enhancement, and alignment with national and global educational priorities.

9.6.2 Governing Body, Administrative Setup, Functions of Various Bodies, Service Rules, Recruitment procedures and Promotion Policies (10)

Institute Marks : 10.00

Birla Institute of Technology operates as a "Deemed to be University" under Section 3 of the UGC Act 1956, with a robust administrative structure aligned with the UGC (Institutions Deemed to be Universities) Regulations, 2023. The Institutes governance framework ensures transparent, accountable, and efficient functioning through various statutory and non-statutory bodies.

Statutory Administrative Bodies

Executive Council

The Executive Council (formerly Board of Governors) serves as the principal executive body of BIT and provides overall supervision and guidance.

The Executive Council shall be the principal executive body of the BIT.

Composition:

- (a) Vice-Chancellor — Chairperson
- (b) Pro-Vice-Chancellor (if any)
- (c) Two members from amongst the Deans of the Institute, by rotation to be appointed by the Vice Chancellor
- (d) One Professor, who is not a Dean, by rotation, to be appointed by the Vice Chancellor
- (e) One Associate Professor, by rotation, to be appointed by the Vice Chancellor
- (f) One Assistant Professor, by rotation, to be appointed by the Vice Chancellor
- (g) One nominee of the Commission
- (h) Up to four nominees of Hindusthan Charity Trust or General Council
- (i) Registrar, the ex-officio Secretary of the Executive Council

Academic Council

The Academic Council, is the principal academic body responsible for maintaining educational standards, curriculum development, and examination frameworks.

Composition:

- a) Vice Chancellor - Chairperson
- b) Pro-Vice-Chancellor (if any)
- c) Dean(s), Heads of the Departments or Centres and Directors/In-charges of Off campuses/Off-Shore campuses
- d) All Professors of the Institute and its Off-campus and Off-shore campuses
- e) Five Associate Professors from the Departments or centres, other than the Heads of the Departments or Centres, by rotation, to be appointed by Vice Chancellor
- f) Five Assistant Professors from the Departments or centres other than the Heads of the Departments or Centres, by rotation, to be appointed by Vice Chancellor
- g) Six persons of repute from amongst the educationists or expert for their specialized knowledge, who are not in the service of the Institution, nominated by the Vice-Chancellor
- h) The Registrar, ex-officio Secretary of the Academic Council

Finance Committee

The Finance Committee oversees financial planning, reviews annual accounts and budget estimates, and advises on financial policies.

Composition:

- (a) Vice Chancellor — Chairperson.

- (b) Pro-Vice-Chancellor (if any)
- (c) One person nominated by the Sponsoring Body i.e. Hindusthan Charity Trust;
- (d) Three persons to be nominated by the Executive Council, out of whom at least one shall be a member of the Executive Council
- (e) One representative nominated by the Commission
- (f) Three persons to be nominated by the Chancellor
- (g) Finance Officer — Secretary - Ex officio

Other Statutory and Non-Statutory Committees

Internal Quality Assurance Cell (IQAC) : Ensures academic quality through continuous improvement processes and benchmarking against national standards.

Link on website: <https://conference.bitmesra.ac.in/content/iqac/55> (<https://conference.bitmesra.ac.in/content/iqac/55>)

Anti-Ragging Committee : Implements UGC regulations for prevention and prohibition of ragging, with representation from faculty, administration, local police, NGOs, and students. Link:

www.bitmesra.ac.in/UploadedDocuments/admindsw/files/GO_Estb_ARC_24-25_1645%20dated%2031-07-2024_Anti%20Ragging_Committee.pdf
(http://www.bitmesra.ac.in/UploadedDocuments/admindsw/files/GO_Estb_ARC_24-25_1645%20dated%2031-07-2024_Anti%20Ragging_Committee.pdf)

Internal Complaints Committee

: Addresses issues related to sexual harassment at workplace, constituted as per the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013

Link:

www.bitmesra.ac.in/UploadedDocuments/user_admingo/MenuUpload/532025131017_d569b8e1-eaec-4f31-bda2-1dfd60e7d577_55%20Internal%20Complaint%20Committee.pdf
(http://www.bitmesra.ac.in/UploadedDocuments/user_admingo/MenuUpload/532025131017_d569b8e1-eaec-4f31-bda2-1dfd60e7d577_55%20Internal%20Complaint%20Committee.pdf)

Student Grievance Redressal Committee: Addresses student and staff grievances through a structured mechanism for timely resolution. Students are enabled to submit their grievances through the website, the link of which is:

www.bitmesra.ac.in/Other-Department-Pages/content/1/191/194 (<http://www.bitmesra.ac.in/Other-Department-Pages/content/1/191/194>)

Service Rules and Policies:

The institute has comprehensive service rules, recruitment procedures, and promotion policies aligned with UGC norms. The Conduct, Discipline and Appeal Rules govern employment conditions, code of conduct, leave rules, performance assessment, and disciplinary procedures. These are available on the institute website for transparency, at the following link:

Rules and Regulations:

www.bitmesra.ac.in/UploadedDocuments/pratyush_869/files/Rules_of_the_Institute.pdf
(http://www.bitmesra.ac.in/UploadedDocuments/pratyush_869/files/Rules_of_the_Institute.pdf)

Conduct, Discipline, and Appeal Rules:

[https://www.bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_ANNEXURE-VI%20\(ITEM%20NO%2046.10\).pdf](https://www.bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_ANNEXURE-VI%20(ITEM%20NO%2046.10).pdf)
([https://www.bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_ANNEXURE-VI%20\(ITEM%20NO%2046.10\).pdf](https://www.bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_ANNEXURE-VI%20(ITEM%20NO%2046.10).pdf))

The Institute website is designed to contain all possible information on policies, rules and processes. The usage of the website is encouraged to the maximum through efforts of even uploading the internal notices/orders on the Institute website.

Examples:

1. Minutes of Meetings (Board of Governors (now Executive Council) and Academic Council): <https://bitmesra.ac.in/content/1/184>
(<https://bitmesra.ac.in/content/1/184>)

2. UG / PG / Ph.D. Rules and Regulations, Ordinances: <https://bitmesra.ac.in/Visit-Other-Department/1/205> (<https://bitmesra.ac.in/Visit-Other-Department/1/205>)

3 . Conduct, Discipline and Appeal Rules:
[https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_AN NEXURE-VI%20\(ITEM%20NO%2046.10\).pdf](https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_AN NEXURE-VI%20(ITEM%20NO%2046.10).pdf)

9.7 Budget Allocation, Utilization, and Public Accounting at Institute Level (12)

Total Marks 12.00

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3

CFY : (Current Financial Year),

CFYm1 : (Current Financial Year minus 1),

CFYm2 : (Current Financial Year minus 2) and

CFYm3 : (Current Financial Year minus 3)

Table 1 - CFY

Total Income 3361833000				Actual expenditure(till...):	Total No. Of Students	Expenditure per student
Fee	Govt.	Grants	Other sources(specify)			
2638332000	0	84057000	639444000	2932845000	7969	368031.75

Table 2 - CFYm1

Total Income 2900755000				Actual expenditure(till...):	Total No. Of Students	Expenditure per student
Fee	Govt.	Grants	Other sources(specify)			
2302174000	0	77585000	520996000	2430427000	7293	333254.76

Table 3 - CFYm2

Total Income 3397772000				Actual expenditure(till...):	Total No. Of Students	Expenditure per student
Fee	Govt.	Grants	Other sources(specify)			
2105937000	860000000	66964000	364871000	2356979000	7415	317866.35

Table 4 - CFYm3

Total Income 1925354000				Actual expenditure(till...):	Total No. Of Students	Expenditure per student
Fee	Govt.	Grants	Other sources(specify)			
1484161000	70557000	49862000	320774000	1913646000	5296	361337.99

Items	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till
Infrastructure Built-Up	2011500	3705990	1194079	2606630	1119478	3395550	6366540	2782540

Library	229590C	185340C	212760C	1568700	279670C	1183200	225820C	204440C
Laboratory equipment	245729C	950900C	265857C	8029300	250363C	1145790	2116270	579470C
Teaching and non-teaching stal	1521173	150817C	148381C	1429231	1314119	1332191	1175614	1116461
Outreach Programs	1100000	1159600	1135000	8496000	105000C	532300C	120000C	462000C
R&D	504800C	1197340	709100C	1149510	655000C	104092C	695420C	853780C
Training, Placement and Indust	510000C	279800C	660000C	3230000	100250C	490700C	750000C	357600C
SDGs	394000C	258350C	400940C	3582400	301410C	187630C	289650C	202880C
Entrepreneurship	620000C	361600C	500000C	1986000	515000C	171800C	963000C	1152000
Others, specify	630202C	776873C	554288C	4800660	563743C	424019C	376877C	325526C
Total	4543743000	2932845000	3653264000	2430427000	3396986000	2356979000	2550991000	1913646000

9.8 Program Specific Budget Allocation, Utilization (8)

Total Marks 8.00

Total Income at Institute level: For CFY,CFYm1,CFYm2 & CFYm3
CFY: (Current Financial Year),
CFYm1 : (Current Financial Year minus 1),
CFYm2 : (Current Financial Year minus 2) and
CFYm3 : (Current Financial Year minus 3)

Table 1 :: CFY

Total Budget 12586000		Actual expenditure (till...): 9741000		Total No. Of Students 522
Demanded	Actual Allocated	Actual Expenditure	% Spent	Expenditure per student
101754000	12586000	9741000	77.395	18660.92

Table 2 :: CFYm1

Total Budget 11980000		Actual expenditure (till...): 10176000		Total No. Of Students 509
Demanded	Actual Allocated	Actual Expenditure	% Spent	Expenditure per student
19066000	11980000	10176000	84.94	19992.14

Table 3 :: CFYm2

Total Budget 15231000		Actual expenditure (till...): 11079000		Total No. Of Students 479
Demanded	Actual Allocated	Actual Expenditure	% Spent	Expenditure per student
17331000	15231000	11079000	72.73	23129.44

Table 4 :: CFYm3

Total Budget 16734000		Actual expenditure (till...): 17372000		Total No. Of Students 476
Demanded	Actual Allocated	Actual Expenditure	% Spent	Expenditure per student
17510000	16734000	17372000	103.8	36495.80

Items	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till	Budgeted in	Actual Expenses in till
Laboratory equipment	2540000	2769000	3414000	1156000	6084000	3835000	7419000	8507000
Software	3138000	3041000	1956000	2702000	2180000	1698000	2900000	2700000
SDGs	1200000	1702000	1200000	2431000	1000000	1260000	1000000	1781000
Support for faculty developmen	550000	79000	550000	254000	500000	345000	550000	291000
R & D	3500000	1092000	3500000	2126000	3450000	2938000	3100000	2910000
Industrial Training, Industry exp	100000	68000	100000	24000	100000	121000	100000	15000

Miscellaneous Expenses	155800C	990000	126000C	1483000	191700C	882000	166500C	1168000
Total	12586000	9741000	11980000	10176000	15231000	11079000	16734000	17372000

9.9 Quality of Learning Resources (Hard/Soft) (5)

Total Marks 5.00

Overview of Learning Resources

Physical Infrastructure

- **Library Space:** 3,900 m² (Ground + 2 Floors)
- **Reading Capacity:** 350+ seating spaces
- **Digital Lab:** 15+ PCs for digital access
- **Operating Hours:**
 - Monday to Friday: 09:00 AM to 09:00 PM
 - Saturday & Sunday: 10:00 AM to 06:00 PM
- **Daily Usage:** 450-500 users visit the library per day

Print Resources (Hard Copy)

Books Collection

- **Total Print Books:** 1,52,801 volumes
- **Unique Titles:** 49,675 titles
- **Subject Coverage:** Science, Engineering, Pharmacy, Management, and Hotel Management

Print Journals

- **Current Print Journals:** 108+ titles

Electronic Resources (Soft Copy)

E-Journals Collection

Total Online Journals: 48,683+ journal titles

Major Database Subscriptions:

1. **Elsevier (Science Direct)** - 855 Journal Titles
 - Engineering: 267 titles
 - Chemical Engineering: 122 titles
 - Chemistry: 149 titles
 - Pharmaceutical, Toxicology, and Pharmaceutics: 122 titles
 - Material Science: 195 titles
2. **IEEE Online E-Journals** - 51,040+ titles
3. Journals: 391+
4. Conference Proceedings: 45,392+
5. Standards: 5,258+
6. Total Titles: 9,775+
7. Comprehensive statistical and business intelligence database
8. **ABI Inform (ProQuest)** - Management Collection
9. **Statista Database** – Management

E-Books Collection:

- **Pearson E-Books:** 183 textbook titles
- **McGraw Hill India:** 72 textbook titles
- **ProQuest E-Book Central:** Perpetual access collection

Technology Infrastructure and Automation

Library Management System

- **Software:** Koha 24.11.01 (Open-source Integrated Library Management System)
- **RFID Technology:** Self-service facilities for book issue/return using smart ID-cum-library cards
- **OPAC Access:** Multiple terminals within library + Web-based remote access

Research and Academic Tools

- **iThenticate 2.0:** Plagiarism detection tool
- **Grammarly:** Writing assistance and grammar checker
- **Knimbus mLibrary:** Remote access platform for e-resources

Accessibility of Resources

Remote Access Capabilities

- **Web-OPAC:** Online catalogue search from anywhere
- **Knimbus M-Library:** Remote access to all subscribed resources via institute email
- **Digital Repository Access:** Through various online platforms

User Support Infrastructure

- **Wi-Fi & Study Zones:** Available throughout the library
- **Digital Lab:** 15+ PCs for electronic resource access
- **Multiple Access Points:** OPAC terminals strategically placed

Support for Self-Learning Activities

Research Support Services

1. **Literature Search Assistance:** Access to academic databases and e-resources
2. **Citation & Reference Management:** Guidance on Zotero, Mendeley, and EndNote
3. **Research Writing Support:** Grammarly access for document polishing
4. **Plagiarism Checking:** iThenticate service for originality verification
5. **Publication Support:**
 - Journal selection assistance (Elsevier, Springer, IEEE, ABDC, UGC-CARE)
 - Conference alerts
 - Predatory journal identification

Academic Profile Development

- **Academic ID Creation:** Support for Vidwan, IRINS, Google Scholar, Scopus, Researcher ID, ORCID, PubMed, ResearchGate
- **Repository Services:** PhD thesis upload to Shodhganga (243+ theses uploaded as of July 2025)

Training and Awareness Programs

- **Digital Literacy Programs:** User awareness and training workshops
- **NDLI Club Activities:** 600+ registered members participating in various educational events
- **Research Assistance:** Professional guidance throughout research lifecycle

Additional Support Services

- Services for Differently-abled Users
- Citation Analysis
- News Clippings Service
- New Arrivals Display

The Institute has implemented a comprehensive e-governance framework covering academic administration, student services, learning management, and institutional communication, with the objective of enhancing efficiency, transparency, accessibility, and sustainability.

E-Governance Systems and Digital Initiatives

Enterprise Resource Planning (ERP) System:

The Institute operates a centralized ERP system to manage key academic and administrative functions such as admissions, student records, attendance, assessments, feedback collection, examination processes, mark-sheet generation, and billing workflows. The ERP ensures real-time data availability, process automation, and transparency across departments.

Unified Digital Communication:

The Institute utilizes integrated digital communication platforms, including institutional email, messaging, and notification systems, to ensure timely dissemination of information to students, faculty, and staff, while enabling effective inter-departmental coordination.

E-Learning and Digital Academic Resources

Digital Library and Repository:

Students and faculty have access to a digital library ecosystem that provides e-journals, e-books, and research publications through subscribed academic databases. Remote access capabilities enable off-campus learning and research, supporting blended and self-directed learning practices.

Campus-wide IT Infrastructure

Internet and Network Infrastructure:

High-speed internet connectivity of 6 Gbps (supported by SIFY Technologies, Vodafone Idea, and Reliance Jio) connects academic buildings, hostels, and residential areas. Secure campus-wide Wi-Fi ensures continuous digital access.

Computing Resources and Security:

The Institute provides 1800+ computers across multiple laboratories for academic and professional activities. Institutional IT security is ensured through ESET Endpoint Security (2500-user license). Video-conferencing facilities, LAN infrastructure, and regular upgrading and maintenance of hardware and software systems support teaching, meetings, and collaborative activities.

Accessibility and Availability

Critical digital services such as the ERP system, digital library, and online academic platforms are available 24×7, ensuring uninterrupted access for students and faculty. Remote access facilities support off-campus learning, research, and academic engagement, thereby strengthening digital inclusion and sustainability.

Overall, the Institute's e-governance initiatives effectively integrate digital tools, campus-wide computing resources, and online academic services to support academic excellence, administrative efficiency, and professional development.

9.11 Initiatives and Implementation of Sustainable Development Goals (SDGs) (10)

Total Marks 10.00

Implementation of Sustainable Development Goals (SDGs)

Birla Institute of Technology (BIT) has demonstrated a strong commitment to implementing Sustainable Development Goals through various initiatives across campus operations, research, education, and community outreach. The following details highlight our multi-faceted approach:

Water Conservation and Management (SDG 6)

Comprehensive Rainwater Harvesting (Target 6.4):

The Institute has implemented multiple rainwater harvesting systems:

Rooftop Rainwater Harvesting System Surface Runoff Harvesting System Recharge Wells

Our rainwater harvesting capacity increased from 18,278,340 litres in 2022-23 to 20,725,080 litres in 2023-24 and 21,555,100 litres in 2025-26 demonstrating ongoing improvement in water conservation infrastructure.

Year	2023-24	2024-25	2025-26 (till Nov 2025)
Rainwater Harvesting Capacity (in litres)	2,07,25,080	1,98,95,060	2,15,55,100

Water Consumption Monitoring:

Total water consumption was monitored at 62,23,71,000 litres in 2024-25, and 62,86,71,000 litres in 2025-26 with systematic tracking enabling better resource management.

Year	2023-24	2024-25	2025-26 (till Nov 2025)
Water Consumption (in litres)	62,31,82,000	62,23,71,000	62,86,71,000

Water Treatment Plant (Target 6.1):

A plant with a capacity of 80,000 litres per hour for drinking water supply for the entire campus has been installed.

RO Water System (Target 6.1)– 16 RO plants, with capacity ranging from 2 litres per hour to 500 litres per hour, are installed.

Waste water treatment (SDG 6)

Sewage is treated in 1.5-meter depth soak pits built for hostels, academic buildings, residential quarters of faculties and staff. The total capacity of this sewage septic tank is 0.8 MLD. All the sewage generated is treated in this way and not discharged on the land or in the rivers. Total number of septic tanks on the campus for sewage treatment is 96.

Green Energy Initiatives (SDG 7)

Electrical System (Target 7.1):

33kV GIS (Gas Insulated Substation) with SCADA for the whole distribution system has been installed.

Solar Panel Installation (Target 7.2):

The Institute has implemented renewable energy sources with solar panels across campus, generating a significant portion of our energy needs. In 2024-25, the campus generated 12,65,201 kW and in 2025-26 till Oct 2025 - 3,56, 220 kW energy on campus, demonstrating our commitment to reducing dependence on conventional energy sources.

Year	2023-24	2024-25	2025-26
Solar Energy Generated (kWh)	1282758	1258573	1301818

Energy Consumption Monitoring (Target 7.3):

The Institute maintains detailed records of energy consumption, with total energy consumed based on electricity bills, allowing us to track efficiency and identify areas for improvement.

Year	2023-24	2024-25	2025-26
Total Energy Consumed (based on Electricity Bills) (kWh)	6805590	6330558	7851496

Waste Management and Circular Economy (SDGs 7 and 11)

Total Waste Management (Target 11.6):

In 2024-25, the campus generated 19,20,552 kg and in 2025-26, 19,60,000 kgs of waste, with structured systems to handle different waste streams.

Year	2023-24	2024-25	2025-26
Total Waste Generated (kg)	18,29,097	19,20,552	19,60,000

Recycling and Reuse (Target 11.6):

60,726 kg and 61,936 kg of waste was recycled and reused in 2025-25 and 2025-26 respectively, representing an improvement from previous years (57,834 kg in 2023-24).

Year	2023-24	2024-25	2025-26
Total Recycled and Reused Waste (kg)	57,834	60,726	61,936

Food Waste Management: (Target 7.2)

Year	2023-24	2024-25	2025-26 (as on 15/12/2025)
Volume of Food Waste converted to Biogas Energy (in kg)	81,000	58,000	36,000
Amount of Biogas generated from the Food Waste (in kWh)	1500	1320	700

Organic food waste generated along with dung waste is utilized for Biogas generation Biogas Generation: 58,000 kg of food waste was converted to biogas energy in 2024-25
Energy Production: 1320 kWh of biogas energy was generated from food waste in 2024-25

Composting Systems (Target 11.6):

The Institute has implemented composting systems as a key approach to minimizing yard waste and kitchen waste generated from hostels. The generated compost is used as manure for gardening of the campus.

Sustainable Transportation (SDG 11 and 13)

Less emitting CNG buses are used for transportation.

Pedestrian-Friendly Campus (Target 11.7): The Institute promotes walking paths and pedestrian-friendly infrastructure to reduce vehicle dependency on campus.

Infrastructure for Inclusive Education (Target 11.7)

Accessible Facilities: Over 80% of Institute buildings have lifts/ramps and specially designed toilets for differently abled students.

Transportation Assistance: Provision for walking aids, including wheelchairs and transportation between buildings for physically challenged students.

Biodiversity and Green Campus (SDGs 11 and 15)

Biodiversity Register (Target 15.1): Campus Biodiversity Register is maintained, cataloguing all flora and fauna species available in the campus.

Extensive Green Cover (Target 15.A): The campus maintains 250 acres of green area out of the total 749-acre campus with annual tree plantation drives.

Dedicated Green Spaces (Target 11.7):

Multiple categories of green spaces are maintained: Botanical Garden

Herbal and Medicinal Plant Garden Green Walkways and Lawns Community Garden

Environmental Research Zones

Plastic Waste Reduction (SDG 12)

Ban on Single-Use Plastics (Target 12.5): The Institute has implemented a comprehensive ban on single-

use plastic items including straws, cutlery, and plates. Campus-wide bins, awareness campaigns, and collection systems support the plastic-free campus initiative.

Through these comprehensive initiatives, the Institute demonstrates significant progress toward multiple SDGs, particularly focusing on clean energy, water conservation, waste management, and quality education while creating a sustainable campus ecosystem that serves as a model for other educational institutions.

Innovation, Incubation & Entrepreneurship (SDG 9, Target 9.3 and 9.5)

BIT has been promoting the culture of **Innovation, Incubation & Entrepreneurship (IIE)** since its inception. As a result, it conceptualized and formed as Small Industrial Research and Development Organization (SIRDO), Small Industrial Research, Training and Development Organization (SIRTD0), and Science and Technology Entrepreneurship Park (STEP) which were unique and the first in the country to promote Entrepreneurship amongst students. With Changing time, BIT has been adapting to the challenges and has taken various steps in strengthening the importance of IIE, and in this regard, a proper framework is envisaged through the Innovation, Incubation & Entrepreneurship policy.

BIT Mesra has its own Innovation, Incubation and Entrepreneurship (IIE) Policy, to fulfill the following objectives:

- o To promote critical thinking amongst students for embedding innovations in academic activities.
- o To provide a platform for converting innovative idea into a full-fledged technology embedded product.
- o To create a large number of technology-driven Startups.

BIT Mesra also has a **startup policy** aiming to enable the Institute to motivate and engage students and faculties in startup activities. This policy facilitates creating a sustainable environment to promote students and faculty members to develop a new startup. This policy will lead the academic ecosystem at Institute with excellence through new IP generation, new product development, Institute-Industry relations, employability, along with social responsibility.

Moreover, the institute has an **Institute Innovation Council** which is dedicated to promote and organize events to motivate faculties and students for innovation. This council also conducts outreach programmes for school children to promote innovation mindset. The objectives of this council are to create a vibrant local innovation ecosystem and start-up supporting mechanism in BIT. Prepare institute for Atal Ranking of Institutions on Innovation Achievements Framework. Establish Functional Ecosystem for Scouting Ideas

and Pre-incubation of Ideas. Develop better Cognitive and Design Thinking Ability for Technology Students.

(<https://bitmesra.ac.in/Other-Department-Pages/content/1/424/298> (<https://bitmesra.ac.in/Other-Department-Pages/content/1/424/298>)

<https://www.edcbitmesra.in/> (<https://www.edcbitmesra.in/>))

No tolerance towards alcohol, drug abuse and smoking (SDG: 3, Target 3.5)

The institute has complete no tolerance policy towards, smoking, substance abuse and alcohol.

([https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_A NNEXURE-VI%20\(ITEM%20NO%2046.10\).pdf](https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_A NNEXURE-VI%20(ITEM%20NO%2046.10).pdf)

([https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_A NNEXURE-VI%20\(ITEM%20NO%2046.10\).pdf](https://bitmesra.ac.in/UploadedDocuments/pratyush_869/NewsUPloaded/News_20160303173541669_e482dc26e5c947b099d013093fc7d09f_Menu_634922087114319667_A NNEXURE-VI%20(ITEM%20NO%2046.10).pdf)))

Legacy of Quality Education (SDG 4, Target 4.4, 4.5, 4.7 a, b, c)

The Birla Institute of Technology Mesra has fully embraced the United Nations Sustainable Development Goal 4 (SDG 4) – Inclusive and Equitable Quality Education and Promoting Lifelong Learning for All. BIT Mesra is one of the leading technical and multidisciplinary institutions of the country, which plays a significant role in imparting quality education with its excellent academic setup, research-oriented culture, and emphasis on innovation and sustainability. The institute provides a wide range of programs in Engineering, Environmental Sciences, Management, Architecture, Pharmaceutical Sciences, and Basic Sciences so that students gain an in-depth understanding and practical application of the knowledge skills required in the current society and industry. The institution provides a modern and technologically enriched learning environment with advanced laboratories, digital classrooms, research facilities, e-learning resources and experienced faculty members. BIT Mesra also focuses on skill development, entrepreneurship, and employability through its various collaborations with industries, internships, training programs, seminars, workshops, and innovation and incubation programs and drives the students towards becoming globally capable professionals. Furthermore, the institute aims at fostering inter-disciplinary research with topics ranging from environmental pollution to climate change, renewable energy, sustainable mining, waste management, artificial intelligence, public health, management studies, and humanities which help promote sustainable development and knowledge generation. The institutions inclusive education approach is demonstrated by inclusive scholarships, financial assistance schemes, equal opportunities, and services for students from various socio-economic backgrounds that provide quality education for everyone. Moreover, BIT Mesra incorporates sustainability and environmental awareness in all its academic and extracurricular activities through programs such as MSc Environmental Science & Technology, green campus initiatives, environmental campaigns, Earth Week celebrations and community outreach activities. The campus has 33 student clubs and divyang friendly. These efforts not only support educational processes but also instill values of social responsibility, environmental responsibility and lifelong learning among students and stakeholders. By fostering academic excellence, innovation, research, inclusivity, and sustainability-oriented education, Birla Institute of Technology Mesra plays a vital role in advancing the objectives of SDG 4 and contributing toward the development of a skilled, informed, and sustainable society.

Birla Institute of Technology (BIT), Mesra, has undertaken several initiatives to enhance student mobility, implement the Academic Bank of Credits (ABC), support holistic education, promote inclusivity and equity, and provide assistance to economically, socially, and physically challenged students. Below is an overview of these efforts:

1. Implementation of Academic Bank of Credits (ABC)

- BIT Mesra has adopted the Academic Bank of Credits (ABC) system as envisioned in NEP-2020.
- This allows students to accumulate and transfer credits earned across different recognized institutions.
- It enables flexibility and mobility in higher education and supports lifelong learning.

2. Curriculum Revision as per NEP-2020 and AICTE Guidelines

- The institute has redesigned curricula for programs like B.Tech, IMSc, and other undergraduate/postgraduate programs.
- These revisions are aligned with NEP-2020 framework and AICTE model curriculum, focusing on:
- Flexibility in subject selection.
- Skill-based and outcome-oriented learning.
- Integration of theoretical knowledge with practical application.

3. Standard Operating Procedures for Fast and Slow Learners

- Developed and implemented an SOP specifically tailored for identifying and supporting both fast and slow learners.
- Fast learners are encouraged to:
- Take on research projects.
- Enroll in MOOCs for advanced knowledge.
- Slow learners receive:
- Additional tutorials and mentoring.
- Remedial sessions and personalized academic plans to help them catch up.

4. Integration of Value-Based and Holistic Education

- NEP-aligned courses such as:
- Universal Human Values
- Indian Knowledge System (IKS)
- Constitution of India
- These aim to develop students' ethical, civic, and cultural understanding, aligning technical education with societal values.

5. Introduction of Interdisciplinary and Multidisciplinary Courses

- BIT has embedded interdisciplinary courses into the curriculum, encouraging students to explore domains outside their primary discipline.
- Environmental Science is a mandatory interdisciplinary course, fostering environmental consciousness and sustainability awareness.
- Promotes well-rounded learning and flexibility in academic exploration.

6. Adoption of MOOCs and SWAYAM

- Integration of Massive Open Online Courses (MOOCs) via platforms like SWAYAM allows:
- Access to high-quality content from national and international educators.
- Students to learn at their own pace and expand beyond traditional classroom education.
- Credits from these courses are recognized and included in the final evaluation.

7. Emphasis on Research and Innovation from Early Semesters

- Research projects are now introduced from the 5th semester onwards in B.Tech and similar programs.
- This early exposure:
- Helps build a research mindset.
- Gives students sufficient time to undertake substantive and quality research work.
- Encourages participation in innovation challenges and publications.

8. Mentor-Mentee System

- BIT has institutionalized a Mentor-Mentee System, complete with an SOP to guide faculty and students.
- Each student is assigned a mentor who:

- Tracks academic progress.
- Provides personal and career guidance.
- Assists in resolving academic or emotional difficulties.

9. Inclusivity and Equity Policies

- Offers a range of scholarships and financial aid, including:
- Merit-cum-means scholarships
- GP Birla Scholarship
- SC/ST/OBC/EWS category support as per government norms.
- Provides academic and emotional support to economically weaker sections and differently-abled students to ensure equitable access to education.

10. Modified Evaluation Pattern to Enhance Student Engagement

- Shifted from a traditional exam-centric model to a more interactive evaluation system, including:
- Assignments and project work
- Seminars and presentations
- Class discussions
- Focus is on continuous assessment, active participation, and critical thinking rather than rote memorization.

9.13 Faculty Performance Appraisal and Development System (FPADS) (10)

Total Marks 10.00

The Institute has a structured, transparent, and comprehensive Faculty Performance Appraisal and Development System (FPADS) to ensure continuous improvement in teaching, research, innovation, industry engagement, and academic governance. The system is governed through a formally approved Standard Operating Procedure (SOP) on New Faculty Recruitment, Promotion, and Regularization, aligned with UGC regulations and institutional quality objectives.

Faculty Recruitment and Induction

Faculty recruitment at the Institute follows an open, competitive, and merit-based process through public advertisements on the Institute website and other media. Recruitment is conducted strictly in accordance with UGC minimum qualification norms with additional institutional criteria to maintain academic and research excellence.

The selection process follows a three-stage screening-cum-selection mechanism, comprising:

- Screening of applications by a Departmental Screening Committee to verify eligibility and domain expertise
- Conceptual and technical assessment, including teaching-cum-research seminar presentations and interaction with a Departmental Expert Committee
- Final interview conducted by an Institute-level expert committee chaired by the Vice-Chancellor, with external experts and statutory nominees

This rigorous process ensures assessment of teaching aptitude, research capability, subject expertise, and alignment with institutional goals.

Performance Appraisal and Career Growth Scheme (CGS)

The Institute implements a Career Growth Scheme (CGS) for faculty promotion and regularization. Internal faculty members are eligible to apply under CGS, subject to defined norms and availability of positions. Promotion and regularization follow the same structured assessment process used for recruitment, ensuring uniformity, transparency, and quality assurance.

Faculty members appointed on probation are assessed periodically, and confirmation or extension of probation is based on performance evaluation. Contractual faculty members seeking regularization are required to undergo assessment through an expert committee as per SOP.

Faculty Self-Assessment and Evaluation

As part of FPADS, faculty members submit an Annual Faculty Self-Assessment Report (SAR). The SAR captures performance across multiple dimensions including:

- Teaching load and student feedback
- Research publications and citations
- Sponsored research projects, consultancy, and technology transfer
- Patent filing and intellectual property creation
- PhD, PG, and UG student supervision
- Academic innovations, laboratory and course development
- Administrative roles and institutional responsibilities
- National and international collaborations

The submitted SAR, along with departmental recommendations and a short curriculum vitae, is evaluated by a Faculty Assessment Committee, which then makes recommendations to the competent authority.

Performance-Linked Promotion and Professional Development

Promotion to higher academic levels (AL-10 to AL-14) is based on clearly defined and quantifiable performance parameters, including minimum research publications, citations, patents, research supervision, sponsored projects, and academic leadership contributions. Additional credit is accorded for new course development, laboratory creation, industry liaison, FDPs/workshops, and institutional activities.

The Institute supports faculty development through:

- Seed grants for initiating research
- Encouragement and support for external research funding
- Opportunities for national and international collaboration

- FDPs, workshops, and conference participation
- Sabbatical and research leave provisions as per norms

These measures ensure continual faculty renewal, upskilling, and alignment with emerging academic and technological trends.

Governance, Transparency, and Continuous Improvement

The FPADS framework ensures objectivity, fairness, and accountability through multi-level expert committees, documented assessment criteria, and approvals by competent authorities. Assessment criteria and formats are periodically reviewed and updated to align with evolving academic priorities and quality benchmarks.

Overall, the Faculty Performance Appraisal and Development System effectively integrates recruitment, evaluation, promotion, and professional development, enabling faculty members to contribute optimally to teaching excellence, research innovation, industry engagement, and institutional growth.

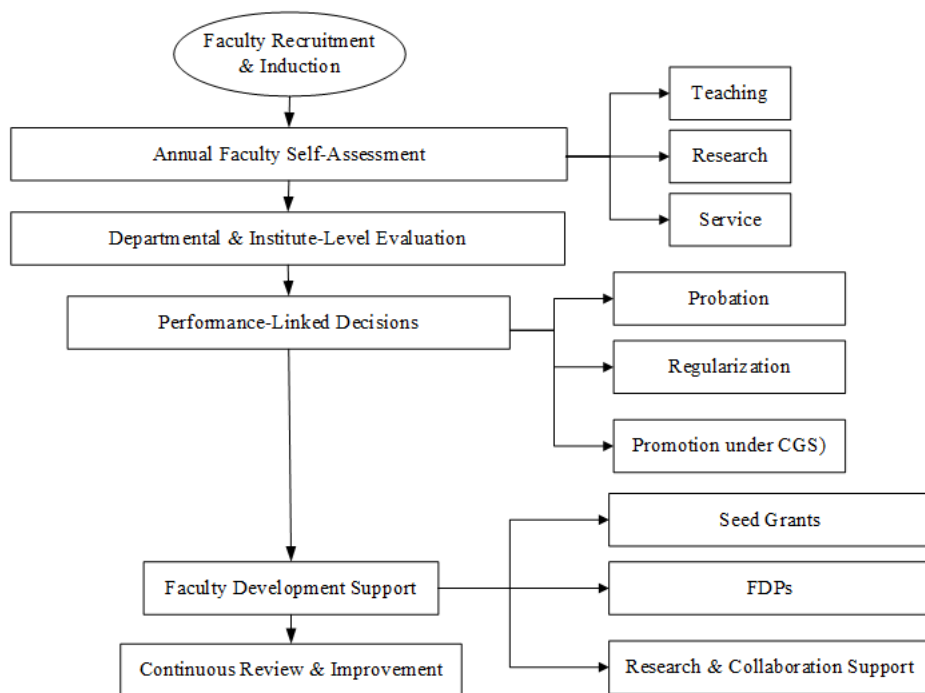


Figure 9.13.1: Block diagram Faculty Performance Appraisal and Development System (FPADS)

- The NSS BIT Mesra has been adopted 10 villages which are as follows:

1. Nawatoli 2. Pancholi 3. Mesra east 4. Mesra west 5. Kedal
6. Humboi 7. Chuttu 8. Newori 9. Kenduatoli 10. Rudiya

- Awareness Programme:

NSS BIT Mesra regularly conducts awareness drives in these villages to educate residents on the following topics:

1. Road Safety 2. Dengue and Malaria 3. Importance Of Education 4. Cyber Fraud
5. Women Empowerment 6. Junk Food 7. Voting Awareness 8. Swachhata Abhiyan
9. Nasha Mukhti

- DRIVES ,CAMPS ,SEMINARS AND VISITS:

NSS BIT Mesra organises these all activities in the campus and villages for the students and residents:

1. Cloth Distribution Drive 2. Book Distribution Drive 3. Health Checkup Camp 4. Blood Donation Camp 5. Eye Checkup Camp 6. Plantation Drive 7. OldAge Home Visit 8. Mask and sanitizer Distribution Drive 9. AIDS Seminar 10. MentalHealth Seminar 11. Organ Donation Drive 12. Plasma Donation Drive 13. Flood Relief 14. Cleanliness Drive

- FLAGSHIP EVENTS:

The flagship events of NSS BIT Mesra which are on a fixed interval are as follows: 1. Prabhat Phari 2. Blood Donation Camp 3. Swachh Bharat

- ACHIEVEMENTS

1. BIT Mesra secured 4th position in India for cashless transactions in year (2016).
2. Mr.Prashant Kumar received the prestigious NSS award for the year (2015-2016) from the honorable President of India Shri.Pranab Mukherjee.
3. Mr.Ravi kumar received Prestigious NSS AWARD for the year (2017-2018) by the honorable President of India Shri.Ram Nath Kovind
4. Dr. Om Prakash Pandey received Prestigious NSS AWARD for the year(2018-2019) by the honorable President of India Shri.Ram Nath Kovind
5. Mr.Rahul Raj received Prestigious NSS AWARD for the year(2020-2021) by the honorable President of India Shri. Ram Nath Kovind
6. Mr. Shivam kumar was selected to be the part of Republic Day Parade on 26th January on Kartavya Path, New Delhi.
7. Highest record of collecting blood units in the year 2024 Blood Donation Camp with the support of volunteers as well as involved blood banks staffs.Record was 400+ units.

- VILLAGE EDUCATION PROGRAMME:

VILLAGE EDUCATION PROGRAMME(VEP) is an initiative taken by NSS BIT Mesra This programme has been successfully running at Four centers for the children of villages

These centers are: 1. Kishlay Vidya Mandir (in Rudiya) 2. BIT School (in Bhatatoli) 3.Pancholi 4.Nawatoli

Engineering Graduates will be able to:

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

(B) PROGRAM SPECIFIC OUTCOME (PSOs)

Program should specify 2-4 program specific outcomes.

PSO1	The student will be able to design mechanical systems in various fields and challenges such as machine elements, thermal systems, manufacturing, and industrial and inter disciplinary fields like additive manufacturing, soft computing to meet the demand of the day in industry as well as society.
PSO2	The student will be capable to start their entrepreneurship, be employable and suitable for various fields like design, manufacturing, production industries, academic and industries, research, and development organizations in and outside the country.
PSO3	The student will be able to pursue advanced degrees in engineering, business or other professional fields through their knowledge and learnt skills through formal as well as informal self-study and motivation.

Declaration

The head of the institution needs to make a declaration as per the format given -

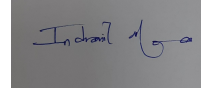
- I undertake that, the institution is well aware about the provisions in the NBA's accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines inforce as on date and the institutes hall fully abide by them.
- It is submitted that information provided in this Self Assessment Report is factually correct.
- I understand and agree that an appropriate disciplinary action against the Institute willbe initiated by the NBA. In case, any false statement/information is observed during pre-visit, visit, postvisit and subsequent to grant of accreditation.

Head of the Institute

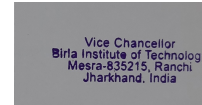
Name : Indranil Manna

Designation : Vice Chancellor

Signature :



Seal of The Institution :



Place : Ranchi

Date : 24-06-2026 15:23:17