POORNIMA
COLLEGE OF ENGINEERING

Approved by AICTE
Affiliated to Rajasthan Technical University, Kota
Recognized by UGC under Section 2(f) of the UGC Act, 1956

Curriculum Delivery Plans (CDPs)
Department of Mechanical Engineering
(Odd & Even Semester 2021-22 & Odd Semester 2022-23)

ISI-6, RIICO Institutional Area, Sitapura, Jaipur-302022 (Rajasthan)
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POORNIMA
COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

CURRICULUM DELIVERY PLAN

OUTLINE-ODD SEM-2021-22

ISI-6, RIICO Institutional Area, Sitapura, Jaipur-302022 (Rajasthan)

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1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of Continuous Internal Assessment (CIA)

PCE is affiliated to RTU, Kota and follows the planned and prescribed curriculum of University. The Internal Quality Assurance Cell (IQAC) of PCE takes the responsibility of monitoring the effective delivery of the curriculum through a well-planned and documented process. To ensure effective curriculum delivery, a Curriculum Delivery Plan (CDP) is prepared by all PAC's of the respective departments. A CDP includes detailed planning for preparation, verification, execution and adherence to all documents related to academic delivery of all courses. As per the directions received from IQAC, the Examination cell plans for the Continuous Internal Assessment. Examination cell then circulate CIA planning to the PAC. Examination cell sends all the CIE Data to Director's Office for the final approval before its submission to RTU. Detail outlines are as follows.

1. Director Office, PCE receives the curriculum from RTU, Kota through university website.
2. IQAC prepares institute academic calendar aligned with RTU academic calendar considering input received in last GC meeting and other stakeholders. IQAC forwards the Institute Academic Calendar to PAC (Program Assessment Committee) for identifying curriculum gaps and examination cell for CIE. PACs then prepares CDPs after consolidating the course specific planning received from the respective faculty members.
3. A CDP includes activities for gap abridgement which are proposed to be carried out by the faculty members.
4. IQAC also instructs PACs to prepare the department activity calendar. PACs receives approval of department activity calendars and CDPs from DABs before its final approval from IQAC.
5. IQAC also reviews the CDPs approved by DABs and gives suggestions/ approvals periodically. All the activities (SPL, Industrial visit, workshop etc.) planned are taken into consideration for the Department activity calendar after the approval from DABs.
6. Subject wise Course files are prepared by respective faculty, comprising of Syllabus, ABC analysis, Blown-Up, Deployment, Lecture notes, Zero Lecture, Tutorial and Assignment sheets, COs Statements, and Mapping with POs and PSOs.
7. Faculty frequently use ICT tools for more effective content delivery using PPTs, video lectures etc.
8. Student attendance is monitored by tutors and chief proctor office with help of SHARP ERP software. Attendance defaulters are regularly counseled through their tutors for improving their attendance.
9. Institute also conducts Annual Internal Academic Audit for the effectiveness of teaching-learning methodologies and the necessary actions are taken as suggested by the audit team.
10. Conferences, seminars, webinars, workshops, expert lectures, STTPs, and FDPs are organized throughout the year on the recent advances in the field of engineering.
11. Continuous Internal Assessment process includes Midterm exam, Tutorials, Assignments, Quizzes, presentation, Class Test, viva-voce etc.
12. As per the RTU examination scheme, mid semester examinations are conducted centrally by examination cell as per the planning & academic calendar and other assessments are conducted at departmental level.
13. All the evaluations are carried out by the faculty members which include COs-POs attainment, Gap identification & action taken for the fulfillment of gap.
14. Student feedback and attainment of COs-POs are reviewed by the PAC for any revision in planning & Delivery.
15. End term semester examinations are conducted by the RTU, Kota.

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2 Vision & Mission Statements

2.1 Vision & Mission Statements of the Institute

Vision of Institution

To create knowledge-based society with scientific temper, team spirit and dignity of labor to face the global competitive challenges

Mission of Institution

To evolve and develop skill-based systems for effective delivery of knowledge so as to equip young professionals with dedication & commitment to excellence in all spheres of life

2.2 Vision & Mission Statements of the Program B. Tech. (Mechanical Engineering)

Vision and mission are the essential part of the growth of an institute, the vision and mission are as follows

2.2.1 Vision of Department

To be recognized for quality education in the field of Mechanical Engineering and identified for its innovation & excellence

2.2.2 Mission of Department

- To provide education that transforms students through rigorous teaching and thought process to fulfill the needs of the society and industry
- To collaborate with leading industry partners and other academic & research institutes around the world to strengthen the education and research ecosystem.
- To prepare students with life-long learning for their career by fostering in them the ethical & technical capabilities pertinent to mechanical & allied engineering.

2.2.3 PEO of the Department

Program Educational Objectives (PEOs

1. **PEO 1**: Graduate will have Fundamental & multidisciplinary knowledge with an ability to analyze, design, innovates and handles the realistic problems.
2. **PEO 2**: Graduate will possess ethical conduct, sense of responsibility to serve society and protect the environment.
3. **PEO 3**: Graduate will have strong foundation in academics, leadership qualities and lifelong learning for a prosperous professional career.

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2.2.4 Program Specific Outcome (PSOs)

PSO1. Design, analyze and innovate solutions to technical issues in Thermal, Production and Design Engineering.

PSO2. Exhibit the knowledge and skills in the field of Mechanical & Allied engineering concepts.

PSO3. Apply the knowledge of skills in HVAC&R and Automobile engineering.

2.3 Program Outcomes (PO)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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3 Department Academic & Administrative Bodies - Structure & Functions

3.1 Department Advisory Board (DAB)

3.1.1 Primary Objective

Department Advisory Board (DAB) of Department of Mechanical Engineering, PCE, Jaipur is formed to provide necessary suggestions for developing a structured approach for continuous improvement in curriculum delivery, planning and incorporation of Curricular, Extra and Co-Curricular activities needed to abridge the pre-identified curriculum gaps.

3.1.2 Roles & Responsibilities

1. Suggest improvement in academic plans and recommend standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.
2. Provide guidelines for industry-institute interactions to bridge up curriculum/industry gap and suggest quality improvement initiatives to enhance employability.
3. Develop a structured Curriculum Delivery Plan, Department Academic Calendar and seek approval for them from Internal Quality Assurance Cell.
4. Incorporate suggestions received from Program Assessment Committee (PAC) by including proposed activities for bridging curricular gaps identified.
5. To identify and suggest thrust areas to conduct various activities (final year projects, training courses and additional experiments to meet PEOs, and propose necessary action plan for skill development of students, required for entrepreneurship development and quality improvement.

3.1.3 Department-Wise Composition

S. No.	Category	Nominated by	Name of Members	Address
1	Chairman, DAB-ME	Chairman, IQAC	Dr. Mahesh M. Bundele (Principal & Director, PCE)	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
2	Member Secretary	Chairman, DAB-ME	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
3	Faculty representative-1	Chairman, DAB-ME	Dr. Mohhamad Israr	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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4	Faculty representative-2	Chairman, DAB-ME	Dr. Raj Kumar Satankar	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
5	Faculty representative-3	Chairman, DAB-ME	Dr. Surendra Kumar Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
6	Faculty representative-4	Chairman, DAB-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
7	Faculty representative-5	Chairman, DAB-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
8	Special Invitee	Chairman, DAB-ME	Dr. Rekha Nair	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
9	Alumni Representative-1	Chairman, DAB-ME	Kartik Sharma	Pinnacle Infotech Solution
10	Alumni Representative-2	Chairman, DAB-ME	Ayush Arora	NBC, Jaipur
11	Student Representative	Chairman, DAB-ME	Mr. Aashish Sonwal	ME, PCE, Final Year Student
12	Industry Representative	Chairman, DAB-ME	Mr. Ashok Joshi,	HR, Pinnacle Infotech Solution
13	Parents Representative-1	Chairman, DAB-ME	Mr. Mahipal Singh Yadav	Businessman Kalwad, Jaipur
14	Parents Representative-2	Chairman, DAB-ME	Praveen Mittal	Toyota, Jaipur
15	Chairman, DAB-ME	Chairman, IQAC	Dr. Mahesh M. Bundele (Principal & Director, PCE)	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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3.1.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	DAB-1	July First Week	● Consideration of gaps and proposed activities by PAC last meeting to be implemented in DAC and CDP. ● Prepares final draft of CDP and DAC to be proposed in upcoming IQAC meeting
2.	DAB-2	September Second Week	● Approval / Suggestions of proposals from last PAC Meeting. ● Revision of DAB Drafts for being proposed in upcoming GC
3	DAB-3	December First Week	● Draft preparation for DAC and CDP for upcoming semester after considering inputs from PAC. ● Review Semester closure draft from PAC.
4.	DAB-4	April Last Week / May First Week	● Draft of PCE Academic Calendar and CDP proposed ● Previous session closure with gaps and feedback. ● Completion of ATR-2 for current semester based on last GC sessions and compiling it with ATR-1

3.2 Program Assessment Committee

3.2.1 Primary Objective

The primary objective of Program Assessment Committee (PAC) is to identify, bridge and assess the gaps in Program's Curriculum received from university through attainment calculation.

3.2.2 Roles & Responsibilities

1. Identify gaps in curriculum laid down by university and propose activities for bridging identified gaps.

2. Implement academic plans and standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.

3. Regular Monitoring of curriculum gap abridgement and course deployment practices through pre-defined methods.

4. Execute Industry-Institute Interactions to enhance the employability thereby meeting the industry standards and requirements.

5. Implement Curriculum Delivery Plan & Department Academic Calendar.

3.2.3 Department-Wise Composition

Category	Nominated by	Name of Members	Address
Chairman, PAC	Chairman, IQAC /	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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	Head of Institution		
Member Secretary	Chairman, PAC-ME	Dr. Mohhamad Israr	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-1	Chairman, PAC-ME	Dr. Raj Kumar Satankar	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-2	Chairman, PAC-ME	Dr. Surendra Kumar Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-3	Chairman, PAC-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-4	Chairman, PAC-ME	Dr. Akshay Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-6	Chairman, PAC-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-7	Chairman, PAC-ME	Mr. Kalpit Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

3.2.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	PAC-1	July Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
2.	PAC-2	August Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
3	PAC-3	September Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of academic's gaps as previous attainment ● Assessment of activities required for being proposed in upcoming GC ● Submit report to Governing Council about previous semester & planning of next semester.
4.	PAC-4	October Last Week	● Inclusion of suggestions for revising gaps ● Execution of Academic, Extra and Co-Curricular activities according to suggestions in GC ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments

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			● Revision of academic's gaps as previous attainment
5.	PAC-5	November Third Week	● Revision of academic's gaps as previous attainment ● Regular assessment of Academic, Extra and Co-Curricular activities ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester. ● Semester closure report draft to be prepared ● Elective proposals/CBCS
6.	PAC-6	December Third Week	● Incorporation of suggestions from IQAC and DAB meetings in execution of Semester activities ● Execution and assessment of Academic, Extra and Co-Curricular activities ● Revision of academic's gaps as previous attainment ● Calculation of attainments
7.	PAC-7	January Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
8.	PAC-8	February Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
9.	PAC-9	March Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Draft preparation of Semester closure
10.	PAC-10	April Second Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
11.	PAC-11	May Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Report submission of Semester closure ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester.
12.	PAC-12	June Last Week	● Feedback of last IQAC and suggestions for new semester to be implemented in CDP and DAC ● Elective proposals/CBCS

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4 List of Faculty Members & Technical Staff

Sr. No.	Faculty Name	Emp.ID	Designation	Email ID	Mobile No.
1.	Mr. MANOJ SHARMA	1261	9887901464	ASST PROFESSOR	9887901464
2.	Mr. NAVAL KISHORE JAIN	1263	9314535003	ASST PROFESSOR	9314535003
3.	MR. VAIBHAV SHARMA	1282	9529737979	ASST PROFESSOR	9529737979
4.	MR. RAHUL SHARMA	1351	9799695773	ASST PROFESSOR	9799695773
5.	MR. SHAILENDRA KASERA	2972	9983144773	ASST PROFESSOR	9983144773
6.	MR. KALPIT JAIN	3156	9571255627	ASST PROFESSOR	9571255627
7.	MR. DHANANJAY KUMAR	3222	8824599822	ASST PROFESSOR	8824599822
8.	Dr. RAHUL SEN	3430	9782153262	PROFESSOR	9782153262
9.	MR. SANJAY CHHOTURAM KUMAWAT	3554	9784384269	ASST PROFESSOR	9784384269
10.	MR. ASHWANI KAPOOR	3768	9413102801	ASST PROFESSOR	9413102801
11.	DR. AMIT KUMAR MANDAL	3939	9829708558	ASSOCIATE PROFESSOR	9829708558
12.	MR. RATNESH KUMAR SHARMA	4532	9887371157	ASST PROFESSOR	9887371157
13.	MS. ASHABAI SANJAY KUMAWAT	5001	9509069579	ASST PROFESSOR	9509069579
14.	Dr. PEEYUSH VATS	5292	9887082157	ASSOCIATE PROFESSOR	9887082157
15.	Dr. RAJ KUMAR SATANKAR	6144	8561995290	PROFESSOR	8561995290
16.	Dr. AKSHAY JAIN	6371	9685223729	ASST PROFESSOR	9685223729
17.	Dr. SURENDRA KUMAR SAINI	6375	7408719492	PROFESSOR	7408719492
18.	DR. NARAYAN LAL JAIN	6528	9414728922	PROFESSOR	9414728922
19.	DR. MOHAMMAD ISRAR	6601	9724200119	PROFESSOR	9724200119
20.	Mr. PRASHANT MISHRA	4801	9829280933	ASST PROFESSOR	9829280933
21.	Mr. RAVINDRA MAHAWAR	5309	9887882318	ASST PROFESSOR	9887882318
22.	Mr. BHAVESH DEVRA	5362	9584011177	ASST PROFESSOR	9584011177

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23.	Mr. MANISH PRAKASH	5909	9829989306	ASST PROFESSOR	9829989306
24.	DR. YASHPAL	5965	9466748006	PROFESSOR	9466748006
25.	Mr. SAURABH MATHUR	1225	8233034335	ASST PROFESSOR	8233034335
26.	Mr. VINAY BHATT	4596	9752996236	ASST PROFESSOR	9752996236
27.	Mr. MAHESH CHAND SAINI	4940	8058297176	ASST PROFESSOR	8058297176
28.	Mr. BUDDHI PANWAR	3412	9351768001	ASST PROFESSOR	9351768001
29.	Dr. DEVESH KUMAR	6379	9950549899	ASSOCIATE PROFESSOR	9950549899
30.	Mr. RAMANAND SHARMA	3701	9887994018	ASST PROFESSOR	9887994018
31.	Mr. PRATISH RAWAT	4457	9826054814	ASST PROFESSOR	9826054814
32.	Mr. ANKIT TYAGI	7316	8595960341	ASST PROFESSOR	8595960341

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5 Institute Academic Calendar

JULY 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

AUGUST 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

OCTOBER 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

NOVEMBER 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

DECEMBER 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

POORNIMA
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ACADEMIC CALENDAR 2021-22*#

ODD SEMESTER

JULY 2021

RTU THEORY EXAMINATION OF FINAL YEAR [EVEN SEM 2021]

AUGUST 2021

Sunday, 01 to Monday 30	Practical Training [After VI Sem.] [Online]
Sunday, 15	Celebration of Independence Day

SEPTEMBER 2021

Wednesday 01 to 15	Practical Training [After II Sem.] [Online]
Wednesday 01 to 15	Practical Training [After IV Sem.] [Online]
Wednesday 01	Commencement of Classes - B. Tech. VII Sem.
Monday 20	Commencement of Classes - B. Tech. V Sem.
Monday 20	Commencement of Classes - B. Tech. III Sem.
Wednesday 01 to Saturday 04	Orientation programme-B. Tech. VII Sem.
Monday 20 to Saturday 25	Orientation programme-B. Tech. V & III Sem.
Sunday 05	Faculty Felicitation Program, Celebration of Teachers' Day, Blood Donation Camp & activities under WISE
Wednesday 15	Engineers' Day • Manthan- Inter-college Debate Competition

OCTOBER 2021

Saturday 02	Annual Day KALANIDHI' 2020 & Prize distribution ceremony
Monday 18 to Thursday 21	Department Day (PCE)
Friday 22 to Saturday 23	Department Day (PIET)
Monday 25 to Saturday 30	I - Mid Term Theory & Practical Exam for B.Tech VII Sem

NOVEMBER 2021

Thursday 11 to Wednesday 17	I - Mid Term Theory & Practical Exam for B.Tech V & III Sem

DECEMBER 2021

Saturday 18 to Friday 24	II - Mid-Term Theory & Practical Exam for B.Tech VII Sem
Saturday 25	Last Teaching Day for B.Tech VII Sem

JANUARY 2022

Monday 03 to Wednesday 05	End-Term Practical Exams for B.Tech VII Sem
Monday 03 to Saturday 08	II - Mid Term Theory & Practical Exam for B.Tech V & III Sem
Saturday 15	Last Teaching Day for B.Tech V & III Sem
Thursday 20 Saturday 22	End-Term Practical Examination for B.Tech V & III Sem

HOLIDAYS IN ODD SEMESTER 2021-22

1	Bakri Id / Eid ul-Adha	Wednesday, July 21, 2021
2	Raksha Bandhan	Sunday, August 22, 2021
3	Vijay Dashmi	Friday, October 15, 2021
4	Diwali Break	Monday, November 01 to Saturday, 06, 2021

HOLIDAYS IN EVEN SEMESTER 2021-22

1	Winter Break	As per RTU Examination Schedule
2	Makar Sankranti	Friday, January 14, 2022
3	Celebration of Republic Day	Wednesday, January 26, 2022
4	Holi	Saturday, March 19 to Sunday, March 20, 2022
5	Ramzan Id/Eid-ul-Fitar	Tuesday, May 3, 2022
6	Summer Break	As per RTU Examination Schedule

*Subject to revision as per RTU notifications

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6 Department Activity Calendar

Poornima College of Engineering, Jaipur

Calendar for Mechanical Engineering : Odd Semester - Session 2021-22

(A) Academic Processes

S. No.	Activity/ Process	B.Tech. I Sem.	B.Tech. III Sem.	B.Tech. V Sem.	B.Tech. VII Sem.
1	Date of Registration & start of regular classes for students	Yet to be decided as per RTU calendar	Monday 20, September 2021	Monday 20, September 2021	Wednesday 01, September 2021
2	Orientation programme	Yet to be decided as per RTU calendar	Monday 20 to Saturday 25, September 2021	Monday 20 to Saturday 25, September 2021	Wednesday 01 to Saturday 04, September 2021
3	Date of submission of question papers by faculty members to secrecy for 1st Mid-term		Saturday 30, October 2021	Saturday 30, October 2021	Monday 18, October 2021
4	I Mid Term Theory & Practical Exam	Yet to be decided as per RTU calendar	Thursday 11 to Wednesday 17, November 2021	Thursday 11 to Wednesday 17, November 2021	Monday 25 to Saturday 30, October 2021
5	Showing evaluated answer books of 1st Mid-term exam to students in respective classes		Wednesday 24, November 2021	Wednesday 24, November 2021	Wednesday 10, November 2021
6	Last date of submission of Evaluated Answer Books and Mark of First Mid-term Theory & Practical exam to Exam and Secrecy Cell respectively		Monday 29, November 2021	Monday 29, November 2021	Monday 15, November 2021
7	Date of submission of question papers by faculty members to secrecy for 2nd Mid-term		Monday 27, December 2021	Monday 27, December 2021	Saturday 11, December 2021
8	Revision classes	To be declared later according to RTU Exam Schedule			
9	Last Teaching Day	Yet to be decided as per RTU calendar	Saturday 15, January 2022	Saturday 15, January 2022	Saturday 25, December 2021
10	2nd Mid-term theory & Practical Exams	Yet to be decided as per RTU calendar	Monday 03 to Saturday 08, January 2022	Monday 03 to Saturday 08, January 2022	Saturday 18 to Friday 24, December 2021
11	End-Term Practical Exams	Yet to be decided as per RTU calendar	Thursday 20 Saturday 22, January 2022	Thursday 20 Saturday 22, January 2022	Monday 03 to Wednesday 05, January 2022

(B) Events and Activities

12	Industry Expert Session on Metallography Principles and Practices by MetaTech Industry Pune	Saturday, July 3, 2021			
13	India's Strides in Space	Saturday, July 10, 2021			
14	National Webinar on Computer aided drug designing tools	Saturday, July 17, 2021			
15	Advancement and Innovation in Hybrid Vehicle Technology	Wednesday, August 4, 2021	(Under MoU with RIII and RINZTECH, New Zealand)		
16	An International Webinar on "Energy Efficiency and Electric Car".	12 Aug, 2021	(Under MoU with RIII and RINZTECH, New Zealand)		
17	Five Days Online FDP on Digital Manufacturing Evolutions for Smart Industries	16-20 Aug, 2021	TEQIP III, RTU (ATU)		
18	An Expert Talk on Toyota Hybrid System	Tuesday, August 31, 2021			
19	Teachers Day Celebration	Monday, September 6, 2021			
20	A National Workshop on Role of CFD in Manufacturing Processes.	18-Sep-21	Under MoU with GEC, Dahod, Gujrat		
21	Basics of CNC Machines and its programming	Friday, November 26, 2021			
22	Industrial Visit at CIPET, Jaipur	Thursday, December 2, 2021			
23	National Webinar on Journey from Engineering to Medical Healthcare Startup	Tuesday, December 21, 2021	Under MoU with GEC, Dahod, Gujrat		
24	An Expert Lecture on "Introductory Session by Siemens Centre of Excellence", with NIT, Kurukshetra, India	11 August, 2021	Under MoU with NIT Kurukshetra		
25	Two day workshop on Programming and Practices on CNC & VMC Machines	Dec 9-10, 2021	Under MoU with Advance Valves Pvt. Ltd		
26					
27					
27					
28					
29					
30					

(C) Holidays

30	Eid-ul-Fitar	Wednesday, July 21, 2021
31	Raksha Bandhan	Sunday, August 22, 2021
32	Vijay Dashmi	Friday, October 15, 2021
33	Diwali Break	Monday, November 01 to Saturday, 06, 2021
34		

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7 Teaching Scheme

7.1 RTU Teaching Scheme

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme

B.Tech. : Mechanical Engineering
2nd Year - III Semester

SN	Category	Course Code	Course Title	Contact hrs/week L	T	P	Marks Exm Hrs	IA	ETE	Total	Cr
THEORY											
1	BSC	3ME2-01	Advance Engineering Mathematics-I	3	0	0	3	30	70	**100**	**3**
2	HSMC	3ME1-02/ 3ME1-03	Technical Communication/ Managerial Economics and Financial Accounting	2	0	0	2	30	70	**100**	**2**
3	ESC	3ME3-04	Engineering Mechanics	2	0	0	2	30	70	**100**	**2**
4	PCC	3ME4-05	Engineering Thermodynamics	3	0	0	3	30	70	**100**	**3**
5		3ME4-06	Materials Science and Engineering	3	0	0	3	30	70	**100**	**3**
6		3ME4-07	Mechanics of Solids	3	1	0	3	30	70	**100**	**4**
			Sub Total	16	1	0					**17**
PRACTICAL & SESSIONAL											
7	PCC	3ME4-21	Machine drawing practice	0	0	3		60	40	**100**	**1.5**
8		3ME4-22	Materials Testing Lab	0	0	3		60	40	**100**	**1.5**
9		3ME4-23	Basic Mechanical Engineering Lab	0	0	3		60	40	**100**	**1.5**
10		3ME4-24	Programming using MATLAB	0	0	3		60	40	**100**	**1.5**
11	PSIT	3ME7-30	Industrial Training	0	0	1		60	40	**100**	**1**
12	SODECA	3ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0				**100**	**0.5**
			Sub- Total	0	0	13					**7.5**
			TOTAL OF III SEMESTER	16	1	13					**24.5**

L: *Lecture,* ***T:*** *Tutorial,* ***P:*** *Practical,* ***Cr:*** *Credits*

ETE: *End Term Exam,* ***IA:*** *Internal Assessment*

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme
B.Tech. : Mechanical Engineering
3rd Year –V Semester

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	ESC	5ME3-01	Mechatronic Systems	2	0	0	2	20	80	**100**	**2**
2	PCC/ PEC	5ME4-02	Heat Transfer	3	0	0	3	30	120	**150**	**3**
3		5ME4-03	Manufacturing Technology	3	0	0	3	30	120	**150**	**3**
4		5ME4-04	Design of Machine Elements I	3	0	0	3	30	120	**150**	**3**
5		5ME4-05	Principles of Management	2	0	0	2	20	80	**100**	**2**
6		Professional	Elective I (any one)	3	0	0	3	30	120	**150**	**3**
		5ME5-11	Steam Engineering								
		5ME5-12	Automobile Engineering								
		5ME5-13	Non Destructive Evaluation & Testing								
			Sub Total	**16**	**0**	**0**		**160**	**640**	**800**	**16**
PRACTICAL & SESSIONAL											
7	ESC	5ME3-21	Mechatronic Lab	0	0	2	2	30	20	**50**	**1**
8	PCC	5ME4-22	Heat Transfer lab	0	0	2	2	30	20	**50**	**1**
9		5ME4-23	Production Engineering Lab	0	0	2	2	30	20	**50**	**1**
10		5ME4-24	Machine Design Practice I	0	0	2	2	30	20	**50**	**1**
11	PSIT	5ME7-30	Industrial Training	0	0	1	1	75	50	**125**	**2.5**
12	SODECA	5ME8-00	Social Outreach, Discipline & Extra Curricular Activities						25	**25**	**0.5**
			Sub- Total	**0**	**0**	**9**		**195**	**155**	**350**	**7**
			TOTAL OF V SEMESTER	**16**	**0**	**9**		**355**	**795**	**1150**	**23**

***L:** Lecture, **T:** Tutorial, **P:** Practical, **Cr:** Credits*
***ETE:** End Term Exam, **IA:** Internal Assessment*

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Scheme & Syllabus

IV Year- VII & VIII Semester: B. Tech. (Mechanical Engineering)

Teaching & Examination Scheme
B.Tech.: Mechanical Engineering
4th Year – VII Semester

SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
THEORY											
1	PEC	7ME5-11	I. C. Engines	3	0	0	3	30	120	**150**	**3**
2		7ME5-12	Operations Research								
3		7ME5-13	Turbomachines								
4	OE		Open Elective-I	3	0	0	3	30	120	**150**	**3**
			Sub Total	**6**	**0**	**0**		**60**	**240**	**300**	**6**
PRACTICAL & SESSIONAL											
5	PCC	7ME4-21	FEA Lab	0	0	3	3	45	30	**75**	**1.5**
6		7ME4-22	Thermal Engineering Lab II	0	0	3	3	45	30	**75**	**1.5**
7		7ME4-23	Quality Control Lab	0	0	2	2	30	20	**50**	**1**
8	PSIT	7ME7-30	Industrial Training *	1	0	0	1	75	50	**125**	**2.5**
9		7ME7-40	Seminar *	2	0	0	2	60	40	**100**	**2**
10	SODECA	7ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0		0	25	**25**	**0.5**
			Sub- Total	**3**	**0**	**8**		**255**	**195**	**450**	**9**
			TOTAL OF VII SEMEESTER	**9**	**0**	**8**		**315**	**435**	**750**	**15**

*for the purpose of counting teaching load

L: *Lecture,* ***T:*** *Tutorial,* ***P:*** *Practical,* ***Cr:*** *Credits*

ETE: *End Term Exam,* ***IA:*** *Internal Assessment*

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8 PCE Teaching Scheme

Department of Mechanical Engineering -Teaching Scheme of Odd Semester 2021-22															
Year	Sem	Students	Teaching				Course Name	Subject Code	No. of Sec	No. of Batch	Batch Size	Total Load	Total Load	Total Load	Total Load	Teaching Dept.
			L	T	P	Credit										
2	3	21	3	1	0	4	Mechanics of Solids	3ME4-07	1	2	F	3	2	0	5	ME
2	3	21	4	1	0	3	Advance Engineering Mathematics-I	3ME2-01	1	2	F	4	2	0	6	Maths
2	3	21	3	0	0	3	Materials Science and Engineering	3ME4-06	1	2	F	3	0	0	3	ME
2	3	21	3	1	0	3	Engineering Thermodynamics	3ME4-05	1	2	F	3	2	0	5	ME
2	3	21	3	0	0	2	Engineering Mechanics	3ME3-04	1	2	F	3	0	0	3	ME
2	3	21	2	0	0	2	Technical Communication	3ME1-02	1	2	F	2	0	0	2	English
2	3	21	0	0	2	1.5	Materials Testing Lab	3ME4-22	1	2	T	0	0	4	4	ME
2	3	21	0	0	2	1.5	Basic Mechanical Engineering Lab	3ME4-23	1	2	T	0	0	4	4	ME
2	3	21	0	0	2	1.5	Machine drawing practice	3ME4-21	1	2	T	0	0	4	4	ME
2	3	21	0	0	2	1.5	Programming using MAT LAB	3ME4-24	1	2	T	0	0	4	4	ME
2	3	21	0	0	1	NA	Industrial training/ Project	3ME4-30	1	2	T	0	0	2	2	ME
3	5	62	3	1	0	3	Heat Transfer	5ME4-02	1	3	F	3	3	0	6	ME
3	5	62	3	0	0	3	Steam Engineering/Automobile Engineering	5ME5-11/ 5ME5-12	2	2	F	6	0	0	6	ME
3	5	62	3	0	0	2	Mechatronic Systems	5ME3-01	1	3	F	3	0	0	3	ME
3	5	62	3	0	0	3	Manufacturing Technology	5ME4-03	1	3	F	3	0	0	3	ME
3	5	62	3	0	0	3	Design of Machine Elements I	5ME4-04	1	3	F	3	0	0	3	ME
3	5	62	2	0	0	2	Principles of Management	5ME4-05	1	3	F	2	0	0	2	ME
3	5	62	0	0	3	1	Mechatronic Lab	5ME3-21	1	3	T	0	0	9	9	ME
3	5	62	0	0	2	1	Heat Transfer lab	5ME4-22	1	3	T	0	0	6	6	ME
3	5	62	0	0	3	1	Production Engineering Lab	5ME4-23	1	3	T	0	0	9	9	ME
3	5	62	0	0	3	3	Machine Design Practice I	5ME4-24	1	3	T	0	0	9	9	ME
3	5	62	0	0	1	2.5	Industrial training/ project	5ME7-30	1	3	T	0	0	3	3	ME
4	7	80	4	0	0	3	I. C. Engines/ Turbo Machine	7ME5-11/ 7ME5-13	2	4	T	8	0	0	8	ME
4	7	80	3	0	0	3	Finite Element Analysis/ Quality Management Quality Management/ISO 9000 (OPEN-ELECTIVE)	7ME6-11/ 7ME6-12	3	4	T	9	0	0	9	ME
4	7	80	0	0	2	1.5	FEA Lab	7ME4-21	2	4	T	0	0	8	8	ME
4	7	80	0	0	2	1.5	Thermal Engineering Lab-II	7ME4-22	3	4	T	0	0	12	12	ME
4	7	80	0	0	2	1	Quality Control Lab	7ME4-23	2	4	T	0	0	8	8	ME
4	7	80	1	0	0	2.5	Industrial Training	7ME7-30	2	4	T	2	0	0	2	ME
4	7	80	0	0	2	2	Seminar	7ME7-40	2	4	T	0	0	8	8	ME
4	7	80	0	0	2	NA	Project-Stage-I	7ME7-Project	3	4	T	0	0	12	12	ME
4	7	80	0	0	1	1	Quality Control Lab	7ME4-23	2	4	T	0	0	4	4	ME
4	7	80	2	0	0	2.5	Industrial Training	7ME7-30	2	4	T	4	0	0	4	ME
4	7	80	0	0	2	2	Seminar	7ME7-40	2	4	T	0	0	8	8	ME
4	7	80	0	0	1	NA	Project-Stage-I	7ME7-Project	2	4	T	0	0	4	4	ME

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8.1 Marking Scheme

MARKING SCHEME FOR PRACTICAL EXAM, ODD SEM., 2021-22,		EXAM & SECRECY CELL, PCE									
		I+II Mid Term Exam			Atten & Performance.			End Term Exam			Max.
Code	SUBJECT	Exp.	Viva	Total	Attn.	Perf.	Total	Exp.	Viva	Total	Marks
1FY2-20	Engineering Physics Lab	30	10	40	10	30	40	30	10	40	100
1FY2-21	Engineering Chemistry Lab	30	10	40	10	30	40	30	10	40	100
1FY1-22	Language Lab	30	10	40	10	30	40	30	10	40	100
1FY1-23	Human Values Activities & Sports	30	10	40	10	30	40	30	10	40	100
1FY3-24	Computer Programming Lab	30	10	40	10	30	40	30	10	40	100
1FY3-25	Manufacturing Practices Workshop	30	10	40	10	30	40	30	10	40	100
1FY3-26	Basic Electrical Engineering Lab	30	10	40	10	30	40	30	10	40	100
1FY3-27	Basic Civil Engineering Lab	30	10	40	10	30	40	30	10	40	100
1FY3-28	Computer Aided Engineering Graphics	30	10	40	10	30	40	30	10	40	100
1FY3-29	Computer Aided Machine Drawing	30	10	40	10	30	40	30	10	40	100
3CE4-21	Surveying Lab	30	10	40	10	30	40	30	10	40	100
3CE4-22	Fluid Mechanics Lab	30	10	40	10	30	40	30	10	40	100
3CE4-23	Computer Aided Civil Engineering Drawing	30	10	40	10	30	40	30	10	40	100
3CE4-24	Civil Engineering Maretials Lab	30	10	40	10	30	40	30	10	40	100
3CE4-25	Geology Lab	30	10	40	10	30	40	30	10	40	100
3CE7-30	Training Seminar			60					40		100
3CS4-21	Data Structures and Algorithms Lab	30	10	40	10	30	40	30	10	40	100
3CS4-22	Object Oriented Programming Lab	30	10	40	10	30	40	30	10	40	100
3CS4-23	Software Engineering Lab	30	10	40	10	30	40	30	10	40	100
3CS4-24	Digital Electronics Lab	30	10	40	10	30	40	30	10	40	100
3CS7-30	Training Seminar			60					40		100
3EC4-21	Electronics Devices Lab	30	10	40	10	30	40	30	10	40	100
3EC4-22	Digital System Design Lab	30	10	40	10	30	40	30	10	40	100
3EC4-23	Signal Processing Lab	30	10	40	10	30	40	30	10	40	100
3EC3-24	Computer Programming Lab-I	30	10	40	10	30	40	30	10	40	100
3EC7-30	Training Seminar			60					40		100
3EE4-21	Analog Electronics Lab	30	10	40	10	30	40	30	10	40	100
3EE4-22	Electrical Machine-I Lab	30	10	40	10	30	40	30	10	40	100
3EE4-23	Electrical circuit design Lab	30	10	40	10	30	40	30	10	40	100
3EE7-30	Training Seminar			30					20		100
3IT4-21	Data Structures and Algorithms Lab	30	10	40	10	30	40	30	10	40	100
3IT4-22	Object Oriented Programming Lab	30	10	40	10	30	40	30	10	40	100
3IT4-23	Software Engineering Lab	30	10	40	10	30	40	30	10	40	100
3IT4-24	Digital Electronics Lab	30	10	40	10	30	40	30	10	40	100
3IT7-30	Training Seminar			60					40		100
3ME4-21	Machine drawing practice	30	10	40	10	30	40	30	10	40	100
3ME4-22	Materials Testing Lab	30	10	40	10	30	40	30	10	40	100
3ME4-23	Basic Mechanical Engineering Lab	30	10	40	10	30	40	30	10	40	100
3ME4-24	Programming using MAT LAB	30	10	40	10	30	40	30	10	40	100
3ME7-30	Training Seminar			60					40		100
5CE4-21	Concrete Structures Design	22	8	30	8	22	30	22	8	30	75
5CE4-22	Geotechnical Engineering Lab	22	8	30	8	22	30	22	8	30	75
5CE4-23	Water Resource Engineering Design	15	5	20	5	15	20	15	5	20	50
5CE7-30	Industrial Training			75					50		125
5CS4-21	Computer Graphics & Multimedia Lab	15	5	20	5	15	20	15	5	20	50
5CS4-22	Compiler Design Lab	15	5	20	5	15	20	15	5	20	50
5CS4-23	Analysis of Algorithms Lab	15	5	20	5	15	20	15	5	20	50
5CS4-24	Advance Java Lab	15	5	20	5	15	20	15	5	20	50
5CS7-30	Industrial Training			75					50		125
5EC4-21	RF Simulation Lab	22	8	30	8	22	30	22	8	30	75
5EC4-22	Digital Signal Processing Lab	22	8	30	8	22	30	22	8	30	75
5EC4-23	Microwave Lab	15	5	20	5	15	20	15	5	20	50
5EC7-30	Industrial Training			75					50		125
5EE4-21	Power System - I Lab	15	5	20	5	15	20	15	5	20	50
5EE4-22	Control System Lab	15	5	20	5	15	20	15	5	20	50
5EE4-23	Microprocessor Lab	15	5	20	5	15	20	15	5	20	50
5EE4-24	System Programming Lab	15	5	20	5	15	20	15	5	20	50
5EE7-30	Industrial Training			75					50		125
5IT4-21	Computer Graphics & Multimedia Lab	15	5	20	5	15	20	15	5	20	50
5IT4-22	Compiler Design Lab	15	5	20	5	15	20	15	5	20	50
5IT4-23	Analysis of Algorithms Lab	15	5	20	5	15	20	15	5	20	50
5IT4-24	Advanced Java Lab	15	5	20	5	15	20	15	5	20	50
5IT7-30	Industrial Training			75					50		125
5ME3-21	Mechatronic Lab	15	5	20	5	15	20	15	5	20	50
5ME4-22	Heat Transfer lab	15	5	20	5	15	20	15	5	20	50
5ME4-23	Production Engineering Lab	15	5	20	5	15	20	15	5	20	50
5ME4-24	Machine Design Practice I	15	5	20	5	15	20	15	5	20	50
5ME7-30	Industrial Training			75					50		125
7CE4-21	Road Material Testing Lab	15	5	20	5	15	20	15	5	20	50
7CE4-22	Professional Practices & Field Engineering	15	5	20	5	15	20	15	5	20	50
7CE4-23	Soft Skills Lab	15	5	20	5	15	20	15	5	20	50
7CE4-24	Environmental Monitoring and Design Lab	15	5	20	5	15	20	15	5	20	50
7CE7-30	Practical Training			75					50		125
7CE7-40	Seminar			60					40		100
7CS4-21	Internet of Things Lab	30	10	40	10	30	40	30	10	40	100
7CS4-22	Cyber Security Lab	30	10	40	10	30	40	30	10	40	100
7CS7-30	Industrial Training			75					50		125
7CS7-40	Seminar			60					40		100
7EC4-21	VLSI Design Lab	30	10	40	10	30	40	30	10	40	100
7EC4-22	Advance communication lab (MATLAB	15	5	20	5	15	20	15	5	20	50
7EC4-23	Optical Communication Lab	15	5	20	5	15	20	15	5	20	50
7EC7-30	Industrial Training			75					50		125
7EC7-40	Seminar			60					40		100
7EE4-21	Embedded Systems Lab	30	10	40	10	30	40	30	10	40	100
7EE4-22	Advance control system lab	30	10	40	10	30	40	30	10	40	100
7EE7-30	Industrial Training			75					50		125
7EE7-40	Seminar			60					40		100
7IT4-21	Big Data Analytics Lab	30	10	40	10	30	40	30	10	40	100
7IT4-22	Cyber Security Lab	30	10	40	10	30	40	30	10	40	100
7IT7-30	Industrial Training			75					50		125
7IT7-40	Seminar			60					40		100
7ME4-21	FEA Lab	22	8	30	8	22	30	22	8	30	75
7ME4-22	Thermal Engineering Lab II	22	8	30	8	22	30	22	8	30	75
7ME4-23	Quality Control Lab	15	5	20	5	15	20	15	5	20	50
7ME7-30	Industrial Training *			75					50		125
7ME7-40	Seminar *			60					40		100

NOTE: - (1) In Attendance & Performance marks should be given on the basis of student overall performance in semester i. e. continuous evaluation.
(2) In Common Pool marks should be given by HOD on the basis of student Assignment,Non Syllabus Activity,Online Exam Exam,Application/Survey / Case Study based Learning, Pre-Placement Activity, Department Level Career Oriented Activities through out the semester.

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9 Department Load Allocation

POORNIMA COLLEGE OF ENGINEERING DEPARTMENT OF MECHANICAL ENGINEERING FACULTY WISE SUBJECT ALLOCATION SESSION 2021-22 (ODD SEM)							
S.No	FACULTY NAME	SEC	CODE	SUBJECT	T	P	LOAD
1	Dr. Narayan Lal Jain	A+B	7ME5-11	I. C. Engines	0	0	4
		NA	3ME4-05	Engineering Thermodynamics	0	0	3
		NA	3MENSP	NSP Project or Seminar	0	1	1
		A	7ME7-Project	Project Stage-I	0	1	1
		NA	3ME7-30	Industrial training	0	1	1
				TOTAL	0	3	10
2	Dr. Mohammad Israr	NA	5ME4-05	Principles of Management	0	0	3
		NA	5MENSP	Project	0	1	1
		NA	7CS6-60.1	Quality Management/ISO 9000	0	0	3
		B	7ME7-Project	Project Stage-I	0	1	1
		NA	5ME7-30	Industrial Training	0	1	2
		A	7ME4-23	Quality Control Lab	0	2	2
				TOTAL	0	3	12
3	Dr. Raj Kumar Satankar	NA	5ME4-04	Design of Machine Elements I	0	0	3
		NA	5ME4-24	Machine Design Practice I Lab	0	3	3
		NA	7ME6-60.1	Finite Element Analysis	0	0	3
		A	7ME7-40	Seminar	0	0	2
		B	7ME7-40	Seminar	0	0	2
				TOTAL	0	5	13
4	Dr. Surendra Kumar Saini	NA	3ME4-06	Materials Science and Engineering	0	0	3
		NA	3ME4-22	Materials Testing Lab	0	2	2
		NA	5ME4-03	Manufacturing Technology	0	0	3
		NA	5ME7-30	Industrial training	0	1	1
		A	7ME7-30	Industrial Training	0	2	2
		B	7ME7-30	Industrial Training	0	2	2
		NA	5MENSP	NSP Project or Seminar	0	1	1
				TOTAL	0	10	14
5	Dr. Amit Kumar Mandal	A+B	7ME5-13	Turbo Machine	0	0	4
		NA	5ME4-02	Heat Transfer	0	0	4
		NA	5ME4-22	Heat Transfer lab	0	3	3
		A	7ME4-22	Thermal Engineering Lab-II	0	2	2
		B	7ME4-22	Thermal Engineering Lab-II	0	2	2
				TOTAL	0	7	15
6	Mr. Sanjay Kumawat	NA	3ME4-07	Mechanics of Solids	0	0	4
		A	7ME4-21	FEA Lab	0	2	2
		B	7ME4-21	FEA Lab	0	2	2
		A	7ME7-40	Seminar	0	0	2
		B	7ME7-40	Seminar	0	0	2
		NA	3ME4-21	Machine Drawing Practice	0	2	2
				TOTAL	0	6	14
7	Dr. Akshay Jain	NA	3ME4-24	Programming using MAT LAB	0	2	2
		NA	5ME5-13	Non Destructive Evaluation & Testing	0	0	3
		A	7ME7-30	Industrial Training	0	0	2
		B	7ME7-30	Industrial Training	0	0	2
		NA	3ME4-30	Industrial training	0	1	1
		B	7ME4-23	Quality Control Lab	0	2	2
				TOTAL	0	5	12
8	Mr. Kalpit Jain	NA	5ME5-12	Automobile Engineering	0	0	3
		NA	3MENSP	Project	0	1	1
		A	7ME7-Project	Project Stage-I	0	1	1
		B	7ME7-Project	Project Stage-I	0	1	1
		NA	5ME4-23	Production Engineering Lab	0	3	3
		NA	3ME4-23	Basic Mechanical Engineering Lab	0	2	2
		NA	7ME6-60.2	Quality Management	0	0	3
				TOTAL	0	8	14
9	Mr. Ratnesh Sharma	NA	3ME3-04	Engineering Mechanics	0	0	3
			PCE FIRST YEAR				15
				TOTAL			18
10	Maths	NA	3ME2-01	Advance Engineering Mathematics-I	0	0	4
				TOTAL	0	0	4
11	Technical Communication	NA	3ME1-02	Technical Communication	0	0	2
				TOTAL	0	0	2
12	Mechatronics-ECE	NA	5ME3-01	Mechatronic Systems	0	0	3
		NA	5ME3-21	Mechatronic Lab	0	3	3
				TOTAL	0	3	6

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10 Time Table

10.1 Orientation Time Table

Poornima College of Engineering

Department of Mechanical Engineering

Orientation Time Table - Even Sem-2020-21 7th to

Date	Year	1 09:30 AM-10:30 AM	2 10:30 AM-11:30 AM	3 11:30 AM-12:30 PM	4 12:30 PM-01:30 PM
07-01-2021 Thursday	III (A+B)	Tutor Interaction (Mr. Buddhi Prakash & Dr. Surendra Saini)	Elective Subject Preference Guidance RAC /NCMM	Enterprenaurship & PIIC (Mr. Ashwani Kapoor)	Microsoft Team Online Platform Session (Sanjay Kumawat)
	IV (A+B)	Tutor Interaction (Mr. Bhavesh Devra & Dr. Sagar Kumar)	Elective Subject Preference Guidance 1. Hybrid and Electric Vehicles 2. Supply and Operations Management 3. Additive Manufacturing		
08-01-2021 Friday	III (A+B)	6ME3-01- Measurement and Metrology (Zero Lecture) Mr. Kalpit Jain (A) + Dr. Rahul Sen (B)	6ME4-02- CIMS (Zero Lecture) Mr. Ashwani Kapoor (A) + Mr. Buddhi Prakash (B)	6ME4-03- Mechanical Vibrations (Zero Lecture) Dr. Sagar Kumar (A) + Mr. Amit Mandal (B)	6ME4-04- Design of Machine Elements II (Zero Lecture) Mr. Sanjay Kumawat (A) + Dr. Raj Kumar Satankar (B)
	IV (A+B)	8ME4-21-Industrial Engineering Lab (Zero Lecture) Mr. Dhananjay Kumar (A) + Dr. Rahul Sen (B)	Research & Publication (Dr. Mohammad Israr)	8MECAD- CAD LAB (Zero Lecture) Mr. Bhavesh Devra (A) + Mr. Rahul Sharma (B)	8ME4-22- Metrology Lab (Zero Lecture) Mr Buddhi Prakash (A) + Mr. Kalpit Jain (B)
09-01-2021 Saturday	III (A+B)	6ME4-05- Quality Management (Zero Lecture) Dr. Akshay Jain (A) + Mr. Kalpit Jain (B)	Session Planning HOD/ Dy. Head Interaction	Research & Publication (Dr. Mohammad Israr)	Alumni Session by Kushagra Jain (Kalpit Jain)
	IV (A+B)	Session Planning HOD/ Dy. Head Interaction	8ME7-50- Project Rubrics Dr. Rahul Sen	Placement (Mr. Bhavesh Devra & Dr. Sagar Kumar)	

Note:- All session will be taken on Microsoft Team- User ID And Password will be sent to you on your mail by 6th Jan 2021

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Orientation Time Table Odd Semester

Poornima College of Engineering
Department of Mechanical Engineering
Orientation Time Table - Odd Sem-2020-21

Date	Year	Time		
		10:00 AM-11:00 AM	11:15 AM-12:15 PM	01:00 PM-02:00 PM
01 July 2020	II	Tutor Interaction- Ms. Asha Kunawat		
	III	Tutor Interaction- Mr. Buddhi P. Prakash (A) + Dr. Surendra Saini (B)		
	IV	Tutor Interaction- Mr. Bhavesh Devra (A) + Dr. Sagar Kumar (B)		
02 July 2020	II	Mr. Kalpit Jain (MOOC Course)	HOD Interaction (Dr. Narayan Lal Jain)	Dr. Rajkumar (NBA- CO-PO)
	III	Mr. Ashwani Kapoor (Project & Seminar)	Dr. Sagar Kumar (Placement)	Dr. Rahul Sen (Lecture on Stress Management)
	IV	Dr. Yashpal (Research & Development)	Dr. Rajkumar (NBA- CO-PO)	Mr. Shailendra Kasera (Introduction of Outcome Based Education- NBA)
03 July 2020	II	Dr. Sagar Kumar (Placement)	Mr. Shailendra Kasera (Introduction of Outcome Based Education- NBA)	Dr. Yashpal (Research & Development)
	III	Mr. Kalpit Jain (MOOC Course)	HOD Interaction (Dr. Narayan Lal Jain)	Online Platform- (Google Classroom, Google Meet.) (Mr. Sanjay Kunawat)
	IV	Mr. Bhuvnesh Sharma (GATE Preparation & Heigher Education)	Dr. Rahul Sen (Lecture on Stress Management)	Summer Internship Interaction by Batch Coordinators (Dr Rahul Sen, Mr. Buddhi Prakash Panwar, Dr. Sagar Kumar.(A) Mr. Ratnesh Sharma, Mr. Kalpit Jain, Mr. Amit Mandal (B)
04 July 2020	II	Summer Internship Interaction by Batch Coordinators	Mr. Ashwani Kapoor (Project & Seminar)	Online Platform- (Google Classroom, Google Meet.) (Mr. Sanjay Kunawat)
	III	Dr. Rajkumar (NBA- CO-PO)	Mr. Bhuvnesh Sharma (GATE Preparation & Heigher Education)	Summer Internship Interaction by Batch Coordinators (Asha Kunawat, Bhavesh Devra, Bhuvnesh Sharmam, Dr Yashpal)
	IV	HOD Interaction (Dr. Narayan Lal Jain)	Online Platform- (Google Classroom, Google Meet.) (Mr. Sanjay Kunawat)	Mr. Kalpit Jain (MOOC Course)
06 July 2020	II	Dr. Surendra Saini (Academic Ethics)	Dr. Narayan Lal Jain & Sanjay Kunawat (Survey & Feedback)	Director/ Vice Principal, Interaction)
	III	Mr. Shailendra Kasera (Introduction of Outcome Based Education- NBA)	Dr. Yashpal (Research & Development)	Zero Lecture of Automobile Engineering Mr. Kalpit Jain (A) & Mr. Ashwani Kapoor (B)
	IV	Dr. Sagar Kumar (Placement)	Zero Lecture of Turbo-Machines (Bhavesh Devra)	Zero Lecture of I. C. Engines Dr. Narayan Lal Jain (A) & Mr. Dhananjay Kumar (B)
07 July 2020	II	Zero Lecture of Engineering Thermodynamics (Mr. Shailendra Kasera)	Zero Lecture of Engineering Mechanics (Dr. BJK Sharma)	Zero Lecture of Materials Science and Engineering (Dr. Rahul Sen)
	III	Dr. Narayan Lal Jain & Sanjay Kunawat (Survey & Feedback)	Dr. Surendra Saini (Academic Ethics)	Director/ Vice Principal, Interaction)
	IV	Zero Lecture Thermal Engineering Lab-II Mr. Bhavesh Devra (A) & Dr. Umesh Kannan (B)	Zero Lecture of Quality Control Lab Mr.Rahul Sharma (A) & Mr. Dhananjay Kumar (B)	Zero Lecture of Seminar (Dr. Surendra Saini & Dr. Rahul Sain)-A (Dr. Rahul Sen & Mr. Shailendra Kasera)-B
08 July 2020	II	Mr. Bhuvnesh Sharma (GATE Preparation & Heigher Education)	Zero Lecture of Advance Engineering Mathematics-I (Dr. Suchi Dave)	Zero Lecture of Basic Mechanical Engineering Lab (Mr. Shailendra Kasera)
	III	Zero Lecture of Mechatronic Systems (Mr. Buddhi P. Panwar)	Email - Writing (Mr. Shailendra Kasera)	Zero Lecture of Mechatronic Lab (Mr. Buddhi P. Panwar)
	IV	Mr. Ashwani Kapoor (Project & Seminar)	Dr. Narayan Lal Jain & Sanjay Kunawat (Survey & Feedback)	Director/ Vice Principal, Interaction)
09 July 2020	II	Alumni - Session on Enterpreneurship	Zero Lecture of Programming using MATLAB (Mr. Bhuvnesh Sharma)	Zero Lecture of Machine drawing practice (Ms. Asha Kunawat)
	III	Zero Lecture of Manufacturing Technology Dr. Yashpal-(A) & Dr. Surendra Saini (B)	Zero Lecture Design of Machine Elements I Mr. Sanjay Kunawat (A) & Dr. Rajkumar (B)	Zero Lecture of Principles of Management (Dr. B. K. Sharma)
	IV	Zero Lecture of Project (Dr. Rajkumar & Mr. Ratnesh Sharma)	Vitual Lab (Amit Mandal)	Dr. Surendra Saini (Academic Ethics)
10 July 2020	II	Zero Lecture of Technical Communication (Mr. Dinesh Sharma)	Dr. Rahul Sen (Lecture on Stress Management)	Vitual Lab (Amit Mandal)
	III	Zero Lecture of Heat Transfer lab Mr. Amit Mandal (A) & Mr. Bhuvnesh Sharma (B)	Zero Lecture of Production Engineering Lab Mr. Kalpit Jain (A) & Dr. Surendra Saini (B)	Zero Lecture of Machine Design Practice I Lab Mr. Sanjay Kunawat (A) & Dr. Rajkumar (B)
	IV	Zero Lecture REA Lab (Dr. Sagar Kumar)	Email - Writing (Mr. Shailendra Kasera)	Alumni - Session on Placement- Mr. Ayush Arora
11 July 2020	II	Email - Writing (Mr. Shailendra Kasera)	Zero Lecture of Mechanics of Solids (Ms. Asha Kunawat)	Mr. Amit Gupta (Discipline & Ragging)
	III	Zero Lecture of Heat Transfer	Vitual Lab (Amit Mandal)	Zero Lecture of Steam Engineering (Dr. Umesh kannan A+B)

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10.2 Academic Time Table II Year

	1 *09:00 - 10:00AM*	**2** *10:00 - 11:00AM*	**3** *11:00AM - 12:00PM*	**LUNCH** *12:00 - 12:30PM*	**4** *12:30 - 01:30PM*	**5** *01:30 - 02:30PM*	**6** *02:30 - 03:30PM*	**7** *03:30 - 04:30PM*
Mo	3ME4-22 MATERIALS TESTING LAB DR. SURENDRA SAINI	3ME2-01 ADVANCE ENGINEERING MATHEMATICS DR. SHILPI JAIN (MATHS)	3ME4-07 MECHANICS OF SOLIDS MR. SANJAY KUMAWAT		3ME3-04 ENGINEERING MECHANICS MR. RATNESH SHARMA	3ME4-05 ENGINEERING THERMODYNAMICS DR. NARAYAN LAL JAIN	----------	----------
Tu	3ME1-02 TECHNICAL COMMUNICATION MR. KULDEEP SHARMA (HM)	3ME4-24 MAT LAB DR. AKSHAY JAIN	3ME4-06 MATERIAL SCIENCE AND ENGINEERING DR. SURENDRA SAINI		3ME4-05 ENGINEERING THERMODYNAMICS DR. NARAYAN LAL JAIN	3ME4-23 BASIC MECHANICAL ENGINEERING LAB MR. KALPIT JAIN	----------	----------
We	3ME3-04 ENGINEERING MECHANICS MR. RATNESH SHARMA	3ME4-07 MECHANICS OF SOLIDS MR. SANJAY KUMAWAT	3ME7-30 PROJECT & SEMINAR DR.NLJ / KJ		3ME4-06 MATERIAL SCIENCE AND ENGINEERING DR. SURENDRA SAINI	3ME2-01 ADVANCE ENGINEERING MATHEMATICS DR. SHILPI JAIN (MATHS)	----------	----------
Th	3ME1-02 TECHNICAL COMMUNICATION MR. KULDEEP SHARMA (HM)	3ME3-04 ENGINEERING MECHANICS MR. RATNESH SHARMA	3ME4-05 ENGINEERING THERMODYNAMICS DR. NARAYAN LAL JAIN		3ME4-07 MECHANICS OF SOLIDS MR. SANJAY KUMAWAT	3ME2-01 ADVANCE ENGINEERING MATHEMATICS DR. SHILPI JAIN (MATHS)	----------	----------
Fr	3ME4-06 MATERIAL SCIENCE AND ENGINEERING DR. SURENDRA SAINI	3ME7-30 INDUSTRAIL TRAINING/ PROJECT & SEMINAR DR.NLJ / DR.AKJ	3ME4-07 MECHANICS OF SOLIDS MR. SANJAY KUMAWAT		3ME2-01 ADVANCE ENGINEERING MATHEMATICS DR. SHILPI JAIN (MATHS)	3ME4-21 MACHINE DRAWING PRACTICE MR. SANJAY KUMAWAT	----------	----------
Sa	i-3 ACTIVITY 2nd Yr i-3 2nd year				i-3 ACTIVITY 2nd Yr i-3 2nd year			----------
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (HOD-ME-PCE)		DR. MAHESH BUNDELE (DIRECTOR-PCE)		

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Academic Time Table III Year

	1 *09:00 10:00AM*	2 *10:00 - 11:00AM*	3 *11:00AM - 12:00PM*	LUNCH *12:00 - 12:30PM*	4 *12:30 - 01:30PM*	5 *01:30 - 02:30PM*	6 *02:30 - 03:30PM*	7 *03:30 - 04:30PM*
Mo	5ME03-01 MECHATRONICS SYSTEMS MR. MANISH SHARMA (EC)	5ME5-11/12 STEAM/ AUTOMOBILE ENGINEERING KJ / DR.AKJ	5ME4-04 DESIGN OF MACHINE ELEMENTS- I DR. RAJ KUMAR SATANKAR		5ME4-03 MANUFACTURING TECHNOLOGY DR. SURENDRA SAINI	5ME4-04 PRINCIPAL OF MANAGEMENT DR. MOHAMMAD ISRAR	----------	----------
Tu	5ME4-03 MANUFACTURING TECHNOLOGY DR. SURENDRA SAINI	5ME03-01 MECHATRONICS SYSTEMS MR. MANISH SHARMA (EC)	5ME5-11/12 STEAM/ AUTOMOBILE ENGINEERING KJ / DR.AKJ		5ME7-30 INDUSTRIAL TRAINING/PROJECT/ SEMINAR DR.SS / DR. MMR	3RD A-1 AB-01-C-AM 5ME4-22 HT LAB DR. AMIT MANDAL 3RD A-2 5ME3-21 MES LAB MR. MANISH SHARMA (EC)	----------	----------
We	5ME4-03 MANUFACTURING TECHNOLOGY DR. SURENDRA SAINI	5ME5-11/12 STEAM/ AUTOMOBILE ENGINEERING KJ / DR.AKJ	3RD A-1 AB-03-HOD ROOM 5ME4-24 MD-I LAB DR. RAJ KUMAR SATANKAR 3RD A-2 AB-01-C-AM 5ME4-22 HT LAB DR. AMIT MANDAL		5ME4-04 DESIGN OF MACHINE ELEMENTS- I DR. RAJ KUMAR SATANKAR	5ME4-02 HEAT TRANSFER DR. AMIT MANDAL	----------	----------
Th	5ME03-01 MECHATRONICS SYSTEMS MR. MANISH SHARMA (EC)	3RD A-1 5ME3-21 MES LAB MR. MANISH SHARMA (EC) 3RD A-2 AB-09 PP LAB 5ME4-23 PE LAB MR. KALPIT JAIN	5ME4-02 HEAT TRANSFER DR. AMIT MANDAL		5ME4-04 DESIGN OF MACHINE ELEMENTS- I DR. RAJ KUMAR SATANKAR	5ME4-04 PRINCIPAL OF MANAGEMENT DR. MOHAMMAD ISRAR	----------	----------
Fr	3RD A-1 AB-09 PP LAB 5ME4-23 PE LAB MR. KALPIT JAIN 3RD A-2 AB - 04 5ME4-24 MD-I LAB DR. RAJ KUMAR SATANKAR	5ME7-30 PROJECT/ SEMINAR/RESEARCH PAPER DR.SS / DR. MMR	5ME4-02 HEAT TRANSFER DR. AMIT MANDAL		5ME4-04 PRINCIPAL OF MANAGEMENT DR. MOHAMMAD ISRAR	5ME4-02 HEAT TRANSFER DR. AMIT MANDAL	----------	----------
Sa	i-3 ACTIVITY 3rd Yr i-3 3rd year-A				i-3 ACTIVITY 3rd Yr i-3 3rd year-A			----------
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (HOD-ME-PCE)		DR. MAHESH BUNDELE (DIRECTOR-PCE)		

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Academic calendar IV Year section A

	1 *09:00 - 10:00AM*	2 *10:00 - 11:00AM*	3 *11:00AM - 12:00PM*	LUNCH *12:00 - 12:30PM*	4 *12:30 01:30PM*	5 *01:30 02:30PM*	6 *02:30 - 03:30PM*	7 *03:30 - 04:30PM*
Mo	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE TURBO DR.NLJ / DR. AM	4TH A-1 AB -14 LAB 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL 4TH A-2 AB - 04 7ME4-23 QC LAB DR. MOHAMMAD ISRAR		4TH A-1 AB -14 LAB 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL 4TH A-2 AB - 04 7ME4-23 QC LAB DR. MOHAMMAD ISRAR	7ME7-30 INDUSTRIAL TRAINING DR.SS / DR.AKJ	----------	----------
Tu	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE TURBO DR.NLJ / DR. AM	4TH A-1 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT 4TH A-2 AB- 05 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL		4TH A-1 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT 4TH A-2 AB- 05 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL	7ME7-40 SEMINAR SKT / DR. RKS	----------	----------
We	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE TURBO DR.NLJ / DR. AM	4TH A-1 AB- 05 7ME4-23 QC LAB DR. MOHAMMAD ISRAR 4TH A-2 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT		4TH A-1 AB- 05 7ME4-23 QC LAB DR. MOHAMMAD ISRAR 4TH A-2 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT	7ME7- PROJECT KJ / DR.NLJ	----------	----------
Th	7ME7-30 INDUSTRIAL TRAINING DR.SS / DR.AKJ	7ME7-40 SEMINAR SKT / DR. RKS	ADDON-COURSE		ADDON-COURSE		----------	----------
Fr	MOOC COURSE i-3 4th year-A				MOOC COURSE i-3 4th year-A			----------
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (HOD-ME-PCE)		DR. MAHESH BUNDELE (DIRECTOR-PCE)		

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Academic calendar IV Year section B

	1 *09:00 - 10:00AM*	2 *10:00 - 11:00AM*	3 *11:00AM - 12:00PM*	LUNCH *12:00 - 12:30PM*	4 *12:30 01:30PM*	5 *01:30 02:30PM*	6 *02:30 - 03:30PM*	7 *03:30 - 04:30PM*
Mo	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE/ TURBO DR.NLJ / DR. AM	4TH B-1 AB- 05 7ME4-23 QC LAB DR. AKSHAY JAIN 4TH B-2 AB -14 LAB 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL		4TH B-1 AB- 05 7ME4-23 QC LAB DR. AKSHAY JAIN 4TH B-2 AB -14 LAB 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL	7ME7-40 SEMINAR DR. RKS / SKT	----------	----------
Tu	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE TURBO DR.NLJ / DR. AM	4TH B-1 AB- 05 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL 4TH B-2 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT		4TH B-1 AB- 05 7ME4-24 THERMAL LAB-II DR. AMIT MANDAL 4TH B-2 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT	7ME7-30 INDUSTRIAL TRAINING DR.AKJ / DR.SS	----------	----------
We	OPEN ELCTIVE OPEN ELCTIVE-I- 4TH-A+B	7ME5-11 I.C. ENGINE TURBO DR.NLJ / DR. AM	4TH B-1 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT 4TH B-2 AB - 02 7ME4-23 QC LAB DR. AKSHAY JAIN		4TH B-1 AB -14 LAB 7ME4-21 FEA LAB MR. SANJAY KUMAWAT 4TH B-2 AB - 02 7ME4-23 QC LAB DR. AKSHAY JAIN	7ME7- PROJECT KJ / DR. MMR	----------	----------
Th	7ME7-40 SEMINAR DR. RKS / SKT	7ME7-30 INDUSTRIAL TRAINING DR.AKJ / DR.SS	ADDON-COURSE		ADDON-COURSE		----------	----------
Fr	MOOC COURSE i-3 4th year-B				MOOC COURSE i-3 4th year-B			----------
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (HOD-ME-PCE)		DR. MAHESH BUNDELE (DIRECTOR-PCE)		

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11 Course Outcome Attainment Process:

11.1 Course Outcome Attainment Process

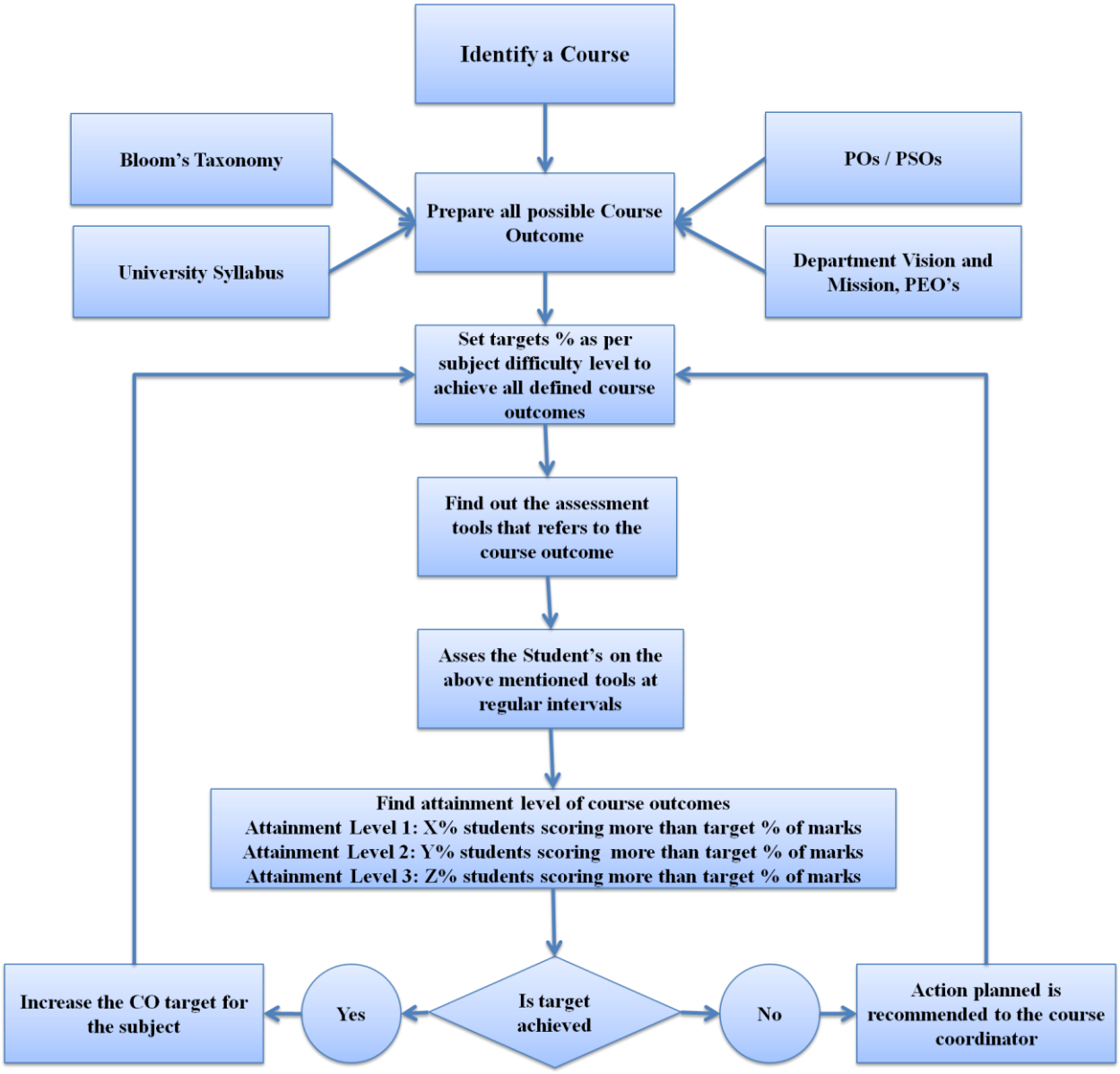

Figure. Course Outcome Attainment Process

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11.2 List of CO & CO mapping with PO

S. No.	Course Code	Course Name	CO No.	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1FY2-01	Engineering Mathematics-I	CO1	Define the sequence ,series and multivariable calculus.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the certain method for the test of series and solution of Fourier series.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Apply the principles of integral to solve a variety of practical problems in sciences and engineering.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyze concepts of functions with several variables, its derivatives in partial forms with other important related concepts, their applications in maxima - minima problems.	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	1FY2-02	Engineering Physics	CO1	Describe the concepts of Wave and Quantum mechanics, Laser and Fiber optics, electromagnetic theory and material science	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the different applications of Laser and optical fibers in communication, engineering, medicine and Science.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Find energy states in 1-D and 3-D box with the application of quantum mechanics.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyze the crystal structure through X-ray Diffraction & wavelength of light through Newton's ring experiment and Michelson- interferometer	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3	1FY1	Human	CO1	Relate sustained happiness through identifying the essentials of human values and skills	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-

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	-05	**Values**	CO2	Find the happiness and human values in terms of personal and social life to create harmony in them	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO3	Use and understand practically the importance of trust, mutually satisfaction and human relationship	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
			CO4	Identify the orders of nature for the holistic perception of harmony for human existence	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO5	Implement professional ethics and natural acceptance of human values in his/her life	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.33**	**-**	**-**	**-**	**2.00**	**-**	**-**	**-**
4	**1FY3-07**	**Basic Mechanical Engineering**	CO1	Describe concepts of thermal, functional design of machine elements, materials and primary manufacturing process.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Classify different types of turbines and power plants, pumps and IC engines, refrigeration system, transmission of power, engineering materials and primary manufacturing processes	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Apply the fundamental knowledge of thermal engineering, in addition to understanding of materials and primary manufacturing process to solve the industrial and societal issues.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO4	Examine about the turbine & pumps, IC engines, refrigeration system, modes of transmission of power, materials and primary manufacturing process	-	1	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO5	Evaluate problems related to refrigeration, turbine, pump, power transmission and primary manufacturing process.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	1
					2.00	**1.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.67**	**2.00**	**1.00**
5	**1FY3-09**	**Basic Civil Engineering**	CO1	Describe basics of surveying, types of building, mode of transportation and different causes of air and noise pollution	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
			CO2	Explain solid waste management, building by law, chemical cycle, biodiversity, causes of road accident, sanitary landfill and on-site sanitation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Illustrate method of levelling, road safety measures, building component, hydrological cycle and environ different types of foundation, treatment and disposal of waste water, chemical cycle, traffic sign and symbol and rain water harvestingmental act	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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			CO4	Compute bearings and elevations of respective points on the ground, various road traffic sign, food chain and contour maps.	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**
6	**1FY2-20**	**Engineering Physics Lab**	CO1	Find out the characteristics of optical fiber and laser	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Determine wavelength of different spectral lines and height of an object by sextant	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analyze the band gap of semiconductor and type of semiconductor through hall effect	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-
					1.50	**1.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**
7	**1FY1-23**	**Human Values Activities and Sports**	CO1	Recall the natural and social issues and their remedies.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
			CO2	Describe the nature of human values and the impact of external factors over it.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO3	Validate through actions the significance of trust, respect and harmony with self and surroundings.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO4	Outline the relation of human with nature and other factors in terms of human existence	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO5	Associate the knowledge of self and society with clear understanding of social issues and the human beings.	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**1.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8	**1FY3**	**Manufacturi**	CO1	Describe the working of Lathe machine.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	

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	-25	**ng Practices Workshop**	CO2	Apply the basic concepts of Foundry Shop	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Develop various carpentry joints, welding joints and sheet metal objects.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					1.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**-**	**-**	**-**	**1.00**	**-**	**-**
9	**1FY3-27**	**Basic Civil Engineering Lab**	CO1	Describe various sanitary fittings and water supply fittings	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Examine pH, Turbidity, Hardness and Total solids of given water sample	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Use of EDM and Total Station in the field	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Investigate the linear and angular measurements of the points on the ground and levelling	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-
					2.00	**1.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**
10	**1FY3-28**	**Computer Aided Engineering Graphics**	CO1	Describe engineering drawing terminology, concept of scales and conic sections.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Draw Projection of Points, lines, planes, solids and section of solids	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Draft 2D engineering problems on CAD software.	-	-	-	-	3	-	-	-	-	-	-	-	-	1	1
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-

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					1.00	**1.00**	**-**	**-**	**3.00**	**-**	**-**	**2.00**	**3.00**	**-**	**-**	**-**	**1.50**	**1.00**	**1.00**
11	**2FY2-01**	**Engineering Mathematics-II**	CO1	Define the characteristics of matrices, ordinary and partial differential equation of first and higher order	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the certain type of method for solution of linear system of equation, ordinary and partial differential equation of first and higher order	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Apply the method of separation of variables to solve the higher order partial differential equation including two dimensional Laplace, one dimensional Heat and one dimensional Wave equations.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Enhance and develop the ability of using the language of mathematics in analyzing the real world problems of sciences and engineering	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
12	**2FY2-03**	**Engineering Chemistry**	CO1	Describe characteristics of water, fuel and Engineering materials	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Determine of hardness of water and calorific value of fuels for Industrial as well as domestic purposes	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Compare different techniques of water treatment, fuel analysis, Manufacturing of engineering materials and corrosion protection methods	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Prepare the generic drugs or medicines by understanding the applications of organic reaction mechanism and manufacturing of engineering materials	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
13	**2FY1-04**	**Communication Skills**	CO1	Describe the process of communication, basics of Grammar and Writing and Literary Aspects	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
			CO2	Explain the types of communication, barriers and channels of communication and the concept of Literature through Short Stories and poetry	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
			CO3	Write and prepare professional reports, paragraph and business letters with the correct use of grammar	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-

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			CO4	Discuss and illustrate the impact of social and moral values by implying the basics of English Writing Skills through literary aspects	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO5	Restate and outline the basic areas of English Language Skills with the applications of literature	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.00**	**-**	**2.00**	**-**	**-**	**-**
14	**2FY3-06**	**Programming for Problem Solving**	CO1	Describe an algorithm using flowchart/pseudo code for a given problem and fundamental of computer system	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Write a c program to compare various Conditional, Iterative statements using arrays, string, pointers, file structure and classify different Representation of numbers	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Examine the concept of Operators, Pointer, Array, String, structure, union using modularization to solve complex problems using C Programming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Assess the User Defined functions, Memory management and File concepts to solve real time problems using C Programming	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
15	**2FY3-08**	**Basic Electrical Engineering**	CO1	Define various ac and dc circuit related problems	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain electromechanical energy conversion process	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Classify characteristics of various power electronic devices.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Identify knowledge of protective devices and energy consumption calculations.	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.50**	**-**	**-**
16	**2FY2**	**Engineering**	CO1	Determine the strength of unknown solution by volumetric analysis.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	-21	**Chemistry Lab**	CO2	Examine the characteristics of lubricating oil in groups	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
			CO3	Analyze different characteristics of water and fuel to solve societal and enviornmental problems	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					1.00	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**
17	**2FY1-22**	**Language Lab**	CO1	Use and pronounce the words correctly.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
			CO2	Acquire knowledge of the correct expressions,vocabulary etc. in personal and professional lives.	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
			CO3	Plan successfully for leadership and teamwork,crack GD's, interviews and other professional activities.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
			CO4	Synthesize the process of communication using LSRW.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**
18	**2FY3-24**	**Computer Programming Lab**	CO1	Relate the fundamental of C Programming as variable, operators and taxonomy to write a basic C Program	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Write programs that perform operations using condition control statements and loop control statements, single and multi-dimensional arrays along with specific program of matrix multiplication.(Examine)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Use C programs to implement operations related to Array, Macros and inline functions, Dynamic memory allocations, concept of Structure, Unions and Pointers	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to communicate effectively and work ethically	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-
					2	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**2**	**-**	**-**	-	-	-
19	**2FY3**	**Basic Elec**	CO1	Discuss measurement of electrical quantites	1	-	-	-	-	-	-	-	-	-	-	-	1	2	-

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	-26	**trical Engineering Lab**	CO2	Compare different connections of transformer	2	-	-	-	-	-	-	-	-	-	-	-	1	2	-
			CO3	Demonstrate constructional features of electrical machines and converters	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-
					2	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**2**	**-**	**-**	**1.33**	**2**	**-**
20	**2FY3-29**	**Computer Aided Machine Drawing**	CO1	Describe orthographic projections and basic Geometrical Concept	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Analyze Sectional Views of different mechanical Components and assembly drawing	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Draft a engineering product using CAD software	-	-	-	-	2	-	-	-	-	-	-	-	2	-	1
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					2	**1**	**-**	**-**	**2**	**-**	**-**	**2**	**3**	**-**	**-**	**-**	**1.67**	**-**	**1**
21	**3ME1-02**	**Technical Communications**	CO1	Describe the process of technical communication in terms of LSRW	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO2	Comprehend the professional documents like resume, coverletter, reports	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO3	Write the technical documents like project proposals, articles	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO4	Prepare report and present individually or in a team	-	-	-	-	-	-	-	2	2	3	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2.**	**-**	**-**	**-**	**1**	**-**

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2 2	**3 M E2 - 01**	**Advanced Engineering Mathematics**	CO 1	Define the concept of numerical Analysis, Laplace transforms, Fourier transforms and Z-transform.	1	-	-	-	-	-	-	-	-	-	-	-	2	-	2
			CO 2	Apply Numerical methods, numerical differentiation and integration of interpolation to construct new data points for polynomial and transcendental equations whenever and wherever routine methods are not applicable.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	1
			CO 3	Analyze the Fundamentals of the Fourier, Laplace, and Z-Transforms. These systems can be carried out in terms of either a time domain or a transform domain formulation.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	1
			CO 4	Evaluate Laplace transform and Fourier transform techniques to solve differential equations involved in Vibration theory, Heat transfer and related engineering applications and Z-transform in the characterization of Linear Time-Invariant system (LTI), in development of scientific simulation algorithms	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2
					1.67	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**1.50**
2 1	**3 M E3 - 04**	**Engineering Mechanics**	CO 1	Describe Statics and Dynamic forces acting in Simple mechanisms and motions	1	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO 2	Explain the motion characteristics of a body subjected to a given force system	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 3	Illustrate numerous concepts for designing mechanics of various machine/automobile components	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 4	Solve the engineering problems of statics and dynamics for mechanical systems	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
2 2	**3 M E4 - 05**	**Engineering Thermodynamics**	CO 1	Describe the basic concept of thermodynamics	1	-	-	-	-	-	-	-	-	-	-	-	2	2	1
			CO 2	Explain the heat & work, Pure substance and laws of thermodynamics	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO 3	Illustrate the thermodynamic power cycles like Carnot, Otto, Diesel, Brayton, Ericsson and Rankine	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO 4	Solve the thermodyanamic problems using the concepts of Entropy, Availibility and thermodynamics relationship	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3

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					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**2.25**
23	**3ME4-06**	**Material Science And Engineering**	CO1	Describe the various mechanical properties and the testing methods for engineering materials.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Classify general crystal structures and engineering materials on the basis of their properties and applications	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the iron carbon equilibrium diagram and the phase transformation which take place during solidification of metals and alloys.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Justify the isothermal transformation diagrams and heat treatment processes for metallic material to obtain the desired properties in it.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.25**	**2.00**	**2.00**
24	**3ME4-07**	**Mechanics of Solids**	CO1	Explain basic concepts of stress, strain, torsion deflection,bending and strain Energy.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply the concept of stresses and strain, theories of failure, bending & torsion on different types of loading conditions and sections.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the stresses in shafts, cylindrical and sperical thin wall pressure vessels, long and short columns for different end conditions.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the deflection of beams and stresses in principal plane by analytical & graphical method.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**2.00**
28	**3ME4-21**	**Machine Drawing Practice**	CO1	Draw simple mechanical parts using concept of Engineering Graphics	2	-	-	-	-	-	-	_	_	-	-	-	3	2	-
			CO2	Analyse dimensioning, sectioning and development of views of complex feature components	3	-	-	-	-	-	_	-	-	-	-	-	3	2	-
			CO3	Compare 2D and 3D drafting of component using CAD software	-	2	-	-	-	-	-	-	-	-	-	-	3	2	

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			CO4	Construct assemblies from the concepts learnt using drafting softwares	-	3	-	-	-	-	_	-	_	-	-	-	3	2	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
26	**3ME4-22**	**Material Testing Lab-I**	CO1	Identify the engineering material on the basic of its physical appearence and mechanical testings	**3**	-	-	-	-	-	-	-	-	-	-	-	**2**	**2**	**-**
			CO2	Compare and contrast the micro-structures of metallic materials and predict the the heat treatment operation done on it.	-	**2**	-	-	-	-	-	-	-	-	-	-	**2**	**2**	-
			CO3	Prepare the metallic sample and select the suitable heat treatment process to obtain the desired properties in it.	-	**3**	-	-	-	-	-	-	-	-	-	-	**2**	**2**	**2**
			CO4	Make use of different mechanical testing machines to identify and compare various mechanical properties like hardness, toughness, tensile, compression, bending, torsional strength of engineering materials.	-	-	**2**	-	-	-	-	-	-	-	-	-	**3**	**2**	-
			CO5	Students will able to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	**2**	**2**	**2**	-	-	-	-	-
					3.00	**2.50**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.25**	**2.00**	**2.00**
27	**3ME4-23**	**Basic Mechanical Engineering Lab**	CO1	Apply the knowledge of assemble and disassemble of the machines like Bicycle, Pump, sewing Machine, etc and submit the written report indicating the learning achieved .	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze observational study of complex systems via cut sections of AC, refrigerator and I.C engine models for understanding basic Mechanical Engineering concepts	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO3	Conclude the knowledge of basic mechanical engineering	-	-	-	-	-	-	-	-	2	2	-	2	3	2	2
			CO4	Students will able to present the report on study of mechanical systems in individually or in team	-	-	-	-	-	-	-	2	2	2	-	2	3	2	2
					-	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**2.00**	**3.00**	**2.33**	**2.00**
25	**3ME4**	**Programmi**	CO1	Apply Basic commands, built-in functions, applications of MATLAB to solve Array, Graphic functions, Matrix , Loops and numerical problems.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	

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	-24	**ng Using MATLAB**	CO2	Develop code for problems involving different types of mathematical models, plot functions and equations (ODE, PDE, Linear and nonlinear equations).	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Illustrate the graphic features of MATLAB effectively in the various applications	-	-	-	3	-	-	-	-	-	-	-	-	3	2	-
			CO4	Solve mathematical problems encountered in Mechanical Engineering using SimScape and Simulink tool	-	-	-	2	-	-	-	-	-	-	-	-	3	2	-
			CO5	Execute the coding for evaluation and simulation of problems in teamwork ethically	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
					-	**3.00**	**3.00**	**2.50**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
29	**3ME7-30**	**Industrial Training**	CO1	Relating the real time applications to the mechanical engineering concepts.	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO2	Develop the problem solving approach by developing projects in industry	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO4	Create a well organized report employing elements of technical writing and critical thinking.	-	-	-	-	-	-	-	2	-	3	-	3	-	2	1
					-	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**2.00**	**2.50**	**3.00**	**2.00**	**2.33**	**2.00**	**2.50**	**1.50**
31	**4ME1-03**	**Managerial Economics and Financial Accounting**	CO1	Discuss the concepts of economics like demand, supply, market structure and financial management like balance sheet.	-	-	-	-	-	1	-	-	-	3	3	2	-	-	-
			CO2	Apply the economic functions and theories like: demand & supply functions, production & cost functions & pricing theories.	-	-	-	2	-	1	-	-	2	-	3	2	-	-	-
			CO3	Analyze the relationship between economic variables using the concept of elasticity, cash flow analysis, fund flow analysis and ratio analysis	-	3	2	3	-	-	-	-	-	-	3	2	-	3	2
			CO4	Evaluate the real-life problems of business organizations using capital budgeting techniques.	-	3	-	3	-	3	2	-	2	-	3	2	-	3	-

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					-	**3.00**	**2.00**	**2.67**	**-**	**1.67**	**2.00**	**-**	**2.00**	**3.00**	**3.00**	**2.00**	**-**	**3.00**	**2.00**
32	**4ME2-01**	**Data Analytics**	CO1	Apply statistical tools for different types of problems in Data Analytics.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Analyze sample data and interpret the same for given problem.	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Formulate data analysis problems by selecting appropriate analysis model.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Evaluate complex engineering problems Using PCA, Logistic regression and multiple regression	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
33	**4ME3-04**	**Digital Electronics**	CO1	Discuss the concepts of electronics companent like Diode,BJT, Op-Amp and Digital Electronics componants.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Apply the basic concept of elctonics compenents in Robotics,IoT etc.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	classify between different Amplifiers and evaluate their efficiency.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO4	Design bias circuitry of BJT and flip-flop etc.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
					2.33	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.25**	**-**	**-**
34	**4ME4-05**	**Fluid Mechanics and Fluid Mac**	CO1	Explain the basic principles of fluid mechanics and its application	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Apply the concept of pressure, Flow characteristics and theory of rota-dynamic machine	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Analyse basic equation of fluid statics and fluid dynamics	3	2	-	-	-	-	-	-	-	-	-	-	3	2	-

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		hines	CO4	Calculate the work done and efficiencies of pump and turbines	3	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.75	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
35	**4ME4-06**	**Manufacturing Processes**	CO1	Describe the principle and applications of forging, casting, forming,welding and powder metallurgy processes.	1	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Explain the terminologies and concepts associated with manufacturing processes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Identify the possible defects in manufacturing processes and their remedies.	-	1	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Justify the appropriate manufacturing process to manufacture any component.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
					1.67	**1.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
36	**4ME4-07**	**Theory of Machines**	CO1	Explain the basic principles of machines, mechanisms & its inversions and working of various mechanical elements.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Solve the basic problems on various fundamental machine mechanisms by graphical and analytical method.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	1
			CO3	Evaluate the various mechanisms and motion of various mechanical components like Power screw, Clutches, Gears, Gear Trains, Cam & Follower, Gyroscope etc.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO4	Analyse the terms, laws and concepts related with machines, machine parts and mechanisms to solve the problems related with practical applications.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	3
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.25**
36	**4ME3-21**	**Digital Electronics Lab**	CO1	Apply logic formulation and optimization of combinational and Sequential ckts using digital Ics	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Design Arithmatic and Decisions making circuits using digital Ics	-	2	-	-	-	-	-	-	-	-	-	-	2	-	2

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			CO3	Analysis of combinational and sequential circuits using digital Ics	-	-	2	-	-	-	-	-	-	-	-	-	2	-	2
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.33**	**2.00**	**2.08**
37	**4ME4-22**	**Fluid Mechanics Lab**	CO1	Determine the meta centric height of object, flow rate and flow coefficients for venturimeter, orificemeter and notches	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Verify the Bernoullis theorem and calculate the losses in pipes	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Conducting experiments and drawing the characteristic curves of Pelton wheel, Francis and Kaplan turbine	-	-	2	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					3.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**3.00**	**2.00**	**-**
38	**4ME4-23**	**Production Practise Lab**	CO1	Explain the working principle of general machine tools such as Lathe, Milling, Shaper, Grinder machines.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the knowledge of the machining to perform operations like turning, knurling, chamfering and boring on lathe machine.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Analyse the moulding sand properties like moisture content, permeability and strenght.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Appraise the learning and skills of production engineering to make industry need project in a team.	-	-	-	-	-	-	-	2	2	2	-	2	2	3	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**2.00**	**2.25**	**-**
39	**4ME4**	**Theory of**	CO1	Understand the fundamentals of theory of machines	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3

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	-24	**Machines Lab**	CO2	Study inversion of various types of mechanism	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Evaluate the various mechanisms and motion of various mechanical components	-	-	2	-	-	-	-	-	-	-	-	-	2	2	3
			CO4	Apply the knowledge and skills to develop working models in team and Examine the real time applications of theory of machines	-	-	-	-	-	-	-	2	2	2	-	-	3	2	2
					3.00	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.50**	**2.00**	**2.50**
42	**5ME3-01**	**Mechatronic Systems**	CO1	Explain the basic fundamentals and applications of Mechatronic systems with various electrical parameters.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the concept of sensors, actuators, pneumatic systems and microcontrollers in Automobile Engg.	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze the role of controls and modeling in mechatronics.	-	1	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO4	Design Instrumentation and Data Acquisition system for robotics.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	1
					2.50	**1.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**1.50**
43	**5ME4-02**	**Heat Transfer**	CO1	Describe the process of heat transfer and relevant applications	1	-	-	-	-	-	-	-	-	-	-	-	2	2	1
			CO2	Explain the concept of heat transfer and its different modes conduction, convection and radiation	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Solve the problems of conduction, convection and radiation	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Design the Heat exchangers and calculate the heat transfer coefficient and effectiveness.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**1.75**

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44	**5ME4-03**	**Manufacturing Technology**	CO1	To list out the different types of machining and finishing processes for manufacturing of desired mechanical component.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Outline the understanding of different types of machining process in assessing the machining time required for a particular machining process.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Apply the learning of various machining process in calculation of the forces acting during metal removal processes	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Examine the theoretical knowledge of machining processes in respect to the industry in accordance to innovation of mechanical component through conventional machining processes.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.33	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
45	**5ME4-04**	**Design of Machine Elements I**	CO1	Explain fundamentals of mechanical components design subjected to static loading based on material & manufacturing consideration	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Apply the basic design concept to design various Mechanical components, such as joints, beam, lever, spring, Keys, shaft, couplings & threaded fasteners.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse and solve the problems of various machine members which are subjected to different loading conditions.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the design stresses & parameters of mechanical components like beam, shaft, joints, Keys, couplings, & threaded fasteners.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
46	**5ME4-05**	**Principles of Management**	CO1	Describe the different concepts of management.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Recognise the functions of management and the nature of organising	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
			CO3	Relate theory of leadership to prepare profiles of business leaders and controlling the system.	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
			CO4	Plan the course of action using case studies to solve behavioural problems in organisation.	-	-	-	-	-	-	-	-	-	-	3	-	2	-	-

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					2.00	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**-**	**-**	**3.00**	**-**	**2.00**	**-**	**-**
47	**5ME5-12**	**Automobile Engineering**	CO1	List out the different parts of the automobile.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO2	Discuss the working of various parts like engine, transmission, clutch, brakes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO3	Categorize how the steering and the suspension systems operate.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO4	Design a strong base of automobile vehicle for understanding the future developments in automobile industry.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	3
					2.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**3.00**
48	**5ME5-11**	**NDET**	CO1	Describe NDT methods used for evaluation of materials	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Explain various inspection in accordance with the established procedure for in service damage in the components	2	-	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO3	Analyze various defect occurs in materials and select the appropriate NDT method for evaluation	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO4	Evaluate effect of Regenerative Feed Heating and Reheating cycle on efficiency of Steam power plant	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.25**	**2.50**	**-**
49	**5ME3-21**	**Mechatronics Lab**	CO1	Explain the fundamental knowledge of Transducers, mobile robot, PLC and MATLAB programming	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the knowledge of programming for mobile robots as an industrial solution.	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Execution of PLC programming.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-

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			CO4	Application of the fundamental knowledge of MATLAB simulink.	-	3	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO5	Students will be able to communicate effectively and work as a team member professionally in a ethical manner.	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**-**	**2.00**	**2.00**
50	**5ME4-22**	**Heat Transfer Lab**	CO1	Apply the concepts of conduction, convection and radiation heat transfer.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO2	Compare the Effectiveness in Parallel and Counter Flow Heat Exchangers	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO3	Evaluate the importance and validity of engineering assumptions through the lumped heat capacity method	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Investigate the rates of heat transfer for different materials and geometries	-	-	3	-	-	-	-	-	-	-	-	-	3	2	2
			CO5	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					3.00	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**3.00**	**2.00**	**2.50**
51	**5ME4-23**	**Production Engineering Lab**	CO1	Apply the principle of metrology for measuring various parameters like length, height, threads,angle, displacement, flatness, roughness, etc., by using different measuring instruments.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Investigate the force generated on the workpiece during various machining operaations.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Appraise the learning and skills of measurement and metrology to make project in a team.	-	-	-	-	-	-	-	2	2	2	-	2	2	2	-
			CO4	Create mini project using various machine tools and prepare report of the lab	-	-	3	-	3	-	-	2	2	2	2	2	2	-	-
					2.50	**2.25**	**3.00**	**-**	**3.00**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.50**

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5 2	**5 ME4 - 24**	**Machine Design Practice - I**	CO 1	Explain the material properties, manufacturing considerations. ISO standards for selection of materials, selection of fits for various applications.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 2	Apply the design procedure and acquire skill of finding resisting areas against failure of designing under static load to various machine elements like shaft, coupling, joints, levers, beams, brackets etc.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 3	Evaluate the efficient design criteria related with manufacturing, production, strength and stiffness, limits, fits and assigning tolerances for a member as per standard.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	-
			CO 4	Synthesize of simple mechanical elements using modern tools and compile the results with help of mini project in team.	-	-	-	-	2	2	-	-	2	-	-	2	3	2	-
					2.00	**3.00**	**2.00**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**
5 3	**5 ME7 - 30**	**Industrial Training**	CO 1	Relating the real time applications to the mechanical engineering concepts.	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO 2	Develop the problem solving approach by developing projects in industry	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO 3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO 4	Create a well organized report employing elements of technical writing and critical thinking.	-	-	-	-	-	-	-	2	-	3	-	3	-	2	-
					-	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**2.00**	**2.50**	**3.00**	**2.00**	**2.33**	**2.00**	**2.50**	**1.67**
5 5	**6 ME3 - 01**	**Measurement and Metrology**	CO 1	Describe the measuring concept and working principle of metrological instruments used in them.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 2	Identify the appropriate measuring device and method as per their application.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 3	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 4	To Evaluate eorros, surface finish of the compoents	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-

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					3.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
56	**6ME4-02**	**CIMS**	CO1	Describe the importance and scope CIM in fabrication/ manufacturing industry.	3	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Explain and compare the different components of CIM.	3	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Applying modern technics use in industry i.e. Computer Aided Process Planning, Group Technology, Computer Aided Production Management Systems, manufacturing resource planning (MRPII), ERP, Computer Aided Quality Control, Computer Aided Material Handling, flexible manufacturing systems (FMS).	-	-	-	-	3	-	-	-	-	-	-	-	-	3	3	-
			CO4	Create program for varies parts made by CNC machine.	-	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					3.00	**-**	**3.00**	**-**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.25**	**-**
57	**6ME4-03**	**Mechanical Vibrations**	CO1	Understand the fundamentals of mechanical vibrations, sound and noise	2	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Apply different methods to formulate the equation of motion for free undamped, damped and force vibation of single degree of freedom system and their solution cases.	3	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse and compute the natural frequencies and mode shapes of 2 degree and multiple degree of freedom system and calculate the critical speed of shaft	-	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the natural frequency of vibrations of continous system.	-	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
58	**6ME4-04**	**Design of Machine Ele**	CO1	Explain the fundamentals on designing of machine elements subjected to variable load.	2	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Apply the basic design concept to design Shaft, IC Engine components, bolts, springs, rope and belt drives and other components based on their applications in industries or on field.	3	-	-	-	-	-	-	-	-	-	-	-	-	3	2	2

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		ments II	CO3	Analyse and solve the problems of components when designed for variable stresses, considering stress concentration, fatigue and combined loading.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the design, stresses & parameters of mechanical components like beam, shaft, bolts, bearings, IC Engine Components, Belt, Rope & Pulley Drive. Etc.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
59	**6ME4-05**	**Quality Management**	CO1	Describe the basic concept of Quality Management.	1	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Explain a system, component, and process to meet desired needs within limits using modeling process quality and learn the concept of control charts.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Illustrate the concept of Quality Assurance, Acceptance sampling and study quality systems like ISO9000, ISO 14000 and Six Sigma.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Identify engineering problems, concept of reliability and Taguchi Method of Design of experiments.	-	2	-	-	-	-	-	-	-	-	-	-	2	3	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.25**	**-**
60	**6ME4-21**	**CIMS Lab**	CO1	To Apply the techniques of CNC programming and cutting tool path generation by using G-Codes and M-codes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Examine Tool Path for different Machining operations of small components using CNC simulator software for CNC Lathe & CNC Milling Machine.	-	2	-	-	3	-	-	-	-	-	-	-	3	3	-
			CO3	Appraise the CNC codes and simulation software to prepare the part of model in the form of project in the team.	-	-	-	-	-	-	-	2	2	-	-	2	2	3	-
			CO4	Create program for varies parts made by CNC machine.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**-**	**-**	**3.00**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**2.25**	**2.50**	**-**
61	**6ME4**	**Vibratio**	CO1	Understanding various aspects of mechanical vibrations and their control	2	-	-	-	-	-	-	-	-	-	-	-	2	2	

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	-22	**n Lab**	CO2	Investigate oscillations of different systems like simple and compound pendulum, damped and un-damped system frequencies of experimental data by computing derived quantities from the measured values	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Construct mathematical models of different vibrating systems	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Measure different mechanical properties like moment of inertia, radius of gyration, natural frequencies of different systems etc.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO5	Examine the real time applications of mechanical vibration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
6 2	**6 ME4 -23**	**Machine Design Practice - II**	CO1	Apply the knowledge of machine design principles to solve various problems related to fatigue Loading.	-	2	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Evaluate & Compare mechanical components (Bolts, Shaft, Bearings, IC Engine Components, Gears etc.) under variable stresses.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze Fatigue life cycle & failure criteria of IC engine and other mechanical components	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Synthesize mechanical components (Shaft, IC Engine components, springs, rope and belt drives, Gear etc.) using data book and document the results by team	-	-	2	-	-	-	-	2	2	2	-	2	3	2	2
					-	**2.33**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**3.00**	**2.00**	**2.00**
6 3	**6 ME4 -24**	**Thermal Engineering Lab I**	CO1	Describe the working of Petrol and Diesel Engine, Boilers and automobile operations	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Categorize all types of accessories of IC Engines, Boiler and Transmission system as per their importance	-	-	3	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
			CO4	Students will be able to review literature survey, write the term paper independently and present the PPT in a group	-	-	-	-	-	-	-	2	2	2	-	3	-	-	-

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					2.00	**-**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**3.00**	**3.00**	**2.00**	**2.00**
64	**6ME5-11**	**Refrigeration and Air Conditioning (Elective-1)**	CO1	Explain the fundamentals of refrigeration and air-conditioning systems	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO2	Determine the performance parameters of refrigeration and air-conditioning system	-	2	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO3	Identify the suitable refrigeration and air conditioning systems as per the applications	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Evaluate parameters to design the refrigeration and air-conditioning system for various applications	-	-	3	-	-	-	-	-	-	-	-	-	3	2	3
					2.00	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**2.75**
65	**6ME5-12**	**Non Conventional Machining Methods (Elective-2)**	CO1	Categorize various non conventional machining methods.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Illustrate the principle and mechanics of metal removal for non conventional machining methods.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Describe the process parameters of non conventional machining methods.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Examine the real time applications of non conventional machining methods.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	1
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**1.00**
68	**7ME5-11**	**I. C. Engines**	CO1	Explain the fundamental concepts and working of I C engine systems and its Components	3	-	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO2	Identify fuel metering, fuel supply, lubricating and Ignition systems for I C engines.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2

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			CO3	Analyze the performance, emission and combustion characteristics of I C engines	-	3	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO4	Evaluate the fuel mixture ratio for different operating conditions	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2
					3.00	**2.33**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.25**	**1.67**
69	**7ME5-13**	**Turbo Machine**	CO1	Describe the fundamentals of turbomachines	1	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze the basic principles of axial and radial turbomachines, and ways to analyze and understand the flow within them.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Compare and contrast various turbomachines and their analysis on the basis of given specification/requirements through their velocity triangles..	3	-	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO4	Comparison and analysis of gas turbine cycles through velocity triangles.	2	-	2	-	-	-	-	-	-	-	-	-	2	1	-
					2.33	**2.75**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**-**	**-**	**2.00**	**-**	**3.00**	**-**	**1.00**	**1.00**
	7EE6-60.1	**Electrical Machines and Drives**	CO1	Understand the constructional details and principle of operation of rotating electrical machines	3	-	-	3	3	-	-	-	-	-	3	-	-	-	-
			CO2	Acquire knowledge about the working principle and various aspects of electric drives.	3	-	-	2	3	-	-	-	-	-	2	-	-	-	-
			CO3	To study and analyze the various control techniques for speed control on various electric drives .	2	-	-	3	3	-	-	-	-	-	3	-	-	-	-
			CO4	Develop design knowledge on how to design the speed control and current control loops of an electric drive	3	-	-	3	2	-	-	-	-	-	3	-	-	-	-
					1.50	**1.75**	**1.00**	**-**	**1.00**	**1.00**	**1.50**	**-**	**-**	**-**	**-**	**1.50**	**-**	**1.00**	**-**
	7EE6-	**Power Gen**	CO1	classify and describe various renewable energy sources.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	60.2	**eration Sources**	CO2	predict possible renewable energy sources.	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	illustrate the renewable energy sources.	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	re-organize energy sources	3	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	prioritize all other renewable energy sources as needed by societal application.	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
					1.50	**1.75**	**1.33**	**1.00**	**1.50**	**1.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**	**-**	
	7CE6-60.1	**Environemental Impact Analysis (EIA)**	CO1	Define terms used in Environmental impact assessment, quality standards for environmental Components	2	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
			CO2	Understand the concepts about EIA i.e; ecological imbalance, effects of pollution, importance of stakeholders in the EIA process	2	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
			CO3	Organize an environmental impact assessment for a proposed project/activity	1	2	1	-	1	1	2	-	-	-	-	2	-	1	-	-
			CO4	Analyze different methodologies and impacts related to EIA	1	3	1	-	1	1	2	-	-	-	-	2	-	1	-	-
					-	**3.00**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**1.00**	**-**	
	7CE6-60.2	**Disaster Management (DM)**	CO1	Understand concept of disasters, risks, hazards, capacity building, coping with disaster and disaster management act and policy in India	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain concept of disasters, risks, hazards, capacity building, coping with disaster and disaster management act and policy in India	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Classify disasters, risks, hazards, management techniques	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Apply the concept of capacity building, coping with disaster and disaster management act and policy in India	1	2	1	-	1	1	-	-	-	-	-	-	-	1		

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			CO5	Investigate natural and manmade disasters	-	2	2	1	2	1	-	-	-	-	-	-	-	1	-
					-	**2.00**	**-**	**-**	**3.00**	**2.00**	**-**	**2.00**	**-**	**-**	**-**	**-**	**1.00**	**-**	**-**
	7CS6-60.1	**Quality Management / ISO 9000 (Open Elective-1)**	CO1	Understand the importance of quality management and the ways individuals can affect quality.	-	3	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	Analyse the components of a quality management system and the role of the quality management system.	-	-	3	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Apply quality management to improve computer based systems.	-	-	-	3	-	-	-	-	-	-	-	-	-	1	-
			CO4	Design Various components of quality system to avoid failures and rectification.	-	-	3	-	-	-	-	-	-	-	-	-	2	-	-
					2.33	**2.75**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**-**	**-**	**2.00**	**-**	**3.00**	**-**	**1.00**	**1.00**
	7CS6-60.2	**Cyber Security (Open Elective-1)**	CO1	Develop The Understanding Of Cybercrime and legal Perspectives of Security Implications for Organizations in respect to the Mobile and Wireless Devices.	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-
			CO2	Analyze different cyber offences & attacks and Determine How a Criminals plan the cyber Attacks.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Understanding the cyber security solutions and use of cyber security Tools in Cybercrime.	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
			CO4	Evaluate and communicate the Management Perspective human role in security systems with an Organizational, emphasis on ethics, social engineering vulnerabilities and training.	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-
					3.00	**3.00**	**2.50**	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
	7EC6-	**Principle of Elec**	CO1	Describe the principles of various digital modulation systems and their properties,including bandwidth, channel capacity, transmission over bandlimited channels, inter-symbol interference (ISI), demodulation methods, and error performance in the presence of noise.	3	2	-	2	-	-	-	-	-	-	-	3	-	-	1

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	60.1	**tronic communication**	CO2	Apply the concepts to practical applications in telecommunication	2	3	-	2	-	-	-	-	-	2	-	3	-	-	1
			CO3	Analyse communication systems in both the time and frequency domains.	2	3	2	-	2	-	2	-	-	-	-	3	-	1	-
			CO4	Design a communication system comprised of both analog and digital modulation techniques.	-	3	2	-	-	-	-	-	-	2	-	3	-	1	-
					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7EC6.60.2	**Micro System Smart Technology**	CO1	Explain the smart grids components and architecture	3	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply different measuring methods and sensors used in smart grid	3	3	2	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze various renewable energy technologies	3	3	-	2	-	-	-	-	-	-	-	-	2	2	2
			CO4	Designing of various smart grid technology based devices.	-	-	3	3	3	-	-	-	-	-	-	-	-	2	2
					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	**7ME4-21**	**FEA Lab**	CO1	Understanding the basic features of an analysis softwares	3	-	-	-	-	-	-	-	-	-	-	2	-	3	2
			CO2	Demonstrate the structural analysis of beams subjected to point, uniformly distributed and varying loads	-	3	-	-	-	-	-	-	-	-	-	2	-	3	2
			CO3	Apply modern tools to formulate and solve problems of bars, truss, beams, and plate to find stress with different loading conditions.	-	-	-	-	3	-	-	-	-	-	-	2	-	3	2
			CO4	Examine the real time applications of Finite element method for developing a mini project	-	-	-	3	-	-	-	-	-	-	-	2	-	3	2
					3.00	**3.00**	-	**3.00**	**3.00**	-	-	-	-	-	-	**2.00**	-	**3.00**	**2.00**
74	**7ME4**	**Thermal Eng**	CO1	Explain the various control of refrigeration and air-conditioning and working of simple steam turbine	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-

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	-22	**ineering Lab-II**	CO2	Perform constant speed load test on a single cylinder diesel engine and exhaust gas analysis, with safty precautions	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Determine the COP of refrigeration system and Mechanical heat pump, and discuss in a group those factors which effect the COP.	-	2	-	-	-	-	-	2	-	2	-	-	3	2	-
			CO4	Plot Performance characteristics of Pelton wheel, Francis Turbine, Kaplan Turbine and Centrifugal pump	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.00**	**-**	**-**	**2.75**	**2.00**	**-**
75	**7ME4-23**	**Quality Control Lab**	CO1	To prepare X, and R control charts for variable from standards.	-	-	3	-	-	-	-	-	2	-	-	-	2	2	-
			CO2	To prepare p, c, and u control charts for attributes from raw data.	-	-	3	-	-	-	-	-	2	-	-	-	2	2	-
			CO3	Demonstrate how to use the corresponding OC curves.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	To understand the generation of random numbers for system simulation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					3.00	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
76	**7ME7-30**	**Industrial Training**	CO1	Understand, learn and practise new technology/tools in mechanical engineering	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Understand industry and society specific applications	-	-	-	-	-	2	-	-	-	-	-	-	3	2	-
			CO3	Understand professional ethics	-	-	-	-	-	-	-	3	-	-	-	-	3	2	-
			CO4	Understand how to work in team, coordinate and lead	-	-	-	-	-	-	-	-	3	-	-	-	-	2	-
			CO5	Understand how to communicate with colleagues & professionals & Understand Technical Report writing, presentation and delivery	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-

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			CO6	Understand and learn how to study, utilize and keep updated in the field of mechanical engineering and allied areas.	-	-	-	-	-	-	-	-	-	-	-	3	-	2	-
					-	**3.00**	**-**	**-**	**-**	**2.00**	**-**	**3.00**	**3.00**	**3.00**	**-**	**3.00**	**3.00**	**2.00**	**-**
77	**7ME7-40**	**Seminar**	CO1	Gather, study and understand advancements in Mechanical Engineering	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	Analyse literature & Understand Challenges and opportunities and identify problems in certain area of Mechanical Engineering	-	3	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Understand use of modern tools and techniques	-	-	-	-	2	-	-	-	-	-	-	-	-	3	-
			CO4	Understand Technical Report writing, presentation and delivery	-	-	-	-	-	-	-	-	-	3	-	-	-	2	-
					2.00	**3.00**	**-**	**-**	**2.00**	**-**	**-**	**-**	**-**	**3.00**	**-**	**-**	**2.00**	**2.50**	**-**
79	**8ME5-11**	**Hybrid and Electric Vehicles**	CO1	Understand the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze the design, component sizing and the power electronics devices used in hybrid electric vehicles.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Construct the hybrid vehicle configuration and performance analysis.	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO4	Discuss different energy storage technologies used for hybrid electric vehicles and their control.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.25**	**-**
80	**8ME5-12**	**Supply and Operations**	CO1	Describe the concept of operations management and productivity along with the use of MRP, JIT & its objectives and SCM.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Identify the elements of operations management and various transformation processes to enhance productivity and competitiveness	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-

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		Management	CO3	Evaluate and rank the capacity locations, plant location and schedule of production.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Construct the various facility alternatives and their capacity decisions; develop a balanced line of production & sequencing techniques in operation environments	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.20**	**2.05**	**-**
81	**8ME5-13**	**Additive Manufacturing**	CO1	Able to define the various process used in Additive Manufacturing	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
			CO2	Able to analyze and select suitable process and materials used in Additive Manufacturing	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO3	Able to Design, analyze and solve problems related to Additive Manufacturing	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO4	Able to apply knowledge of additive manufacturing for various real-life applications	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO5	Able to apply technique of CAD and reverse engineering for geometry transformation in Additive Manufacturing.	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**
					3.00	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
	8EE6-60.1	**Energy Audit and Demand side Management**	CO1	understand the current Energy Scenarios in India.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	understand the energy auditing of motors, lighting system and building, by appropriate analysis methods through survey instrumentations.	3	3	-	-	-	-	-	-	-	-	-	-	2	3	3
			CO3	understand the Electrical-Load Management and Demand side Management.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	apply the Energy Conservation in transport, agriculture , household and commercial sectors.	3	2	2	1	-	-	-	-	-	-	-	-	1	1	1

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					3.00	**2.33**	**2.00**	**1.00**	-	-	-	-	-	-	-	-	**1.67**	**2.00**	**2.00**
	8EE6-60.2	**Soft Computing**	CO1	Learn about soft computing techniques and their applications.	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Analyze various neural network architectures.	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Define the fuzzy systems	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Understand the genetic algorithm concepts and their applications	3	2	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Identify and select a suitable Soft Computing technology to solve the problem.	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
					2.50	**2.25**	**3.00**	-	-	-	-	-	-	-	-	-	-	-	-
	8CE6-60.1	**Composite Materials (CM)**	CO1	Explain the basics of composites, its structure and its properties	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-
			CO2	Compute the physio-mechanical properties of composites from tests	2	1	-	-	-	-	-	-	-	-	-	-	-	1	-
			CO3	Assessment of engineering properties of composite materials	1	2	1	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Analyze the failure and maintenance of composite materials	1	-	1	1	1	-	-	-	-	-	-	-	1	1	-
					1.50	**1.50**	**1.00**	**1.00**	**1.00**	-	-	-	-	-	-	-	**1.00**	**1.25**	-
	8CE6-60.2	**Fire and Safety Engineering**	CO1	Explain the fundamentals of Fire Engineering	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-
			CO2	Apply the learned principles in planning, designing and management of fire safe buildings	2	1	1	-	1	1	-	-	-	-	-	-	1	1	-

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		ring (F& SE)	CO3	Assess fire fighting installations, control technologies and hazardous materials	1	2	1	-	1	1	-	-	-	-	-	-	1	1	-
			CO4	Design of fire safety building for fire resitant construction by following safety legislation	1	-	1	1	1	1	-	1	-	-	-	-	-	1	-
					1.50	**1.50**	**1.00**	**1.00**	**1.00**	**1.00**	**-**	**1.00**	**-**	**-**	**1.00**	**-**	**1.00**	**1.00**	**-**
	8CS6-60.1	**Big Data Analytics (Open Elective-II)**	CO1	Understanding of Big Data and their needs in Industry	3	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Designing of Hadoop and Google File System	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analysis of Map Reduce and their basic programs map reduce.	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Design an Hive Data system.	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
					3.00	**3.00**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**	**-**	**-**
	8CS6-60.2	**IPR, Copyright and Cyber Law of India (Open Elective-II)**	CO1	To Determine and analyse the domain name system (DNS) in internet and various cybercrime offence in cyber space.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	To understand the concept of Intellectual Property and Intellectual Property Rights with special reference to India and abroad.	-	-	-	-	-	-	-	3	-	-	-	-	-	1	-
			CO3	To Apply intellectual property law principles including the copyright law, patents law, designs and trademarks, to real problems and analyse the social impact of intellectual property law and policy.	-	-	-	-	-	3	-	-	-	-	-	-	-	1	-
			CO4	To Study the Jurisdiction Issues in Cyber Space and Competition Law in India	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					3.	**2.**	**-**	**-**	**-**	**3.**	**-**	**3**				**-**	**-**	**1.**	**-**

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					0 0	**0 0**				**0 0**		**0 0**						**0 0**	
	8EC 6.60 .1	**Industrial and Medical applications of RF Energy**	CO 1	Understanding of basic concepts and Principles of EM wave, propagation reflection and transmission. [Understanding]	3	2	-	-	-	-	-	-	3	-	-	-	-	-	-
			CO 2	Apply the knowledge for interest in complex dielectric constant, dipolar loss mechanism and design mechanism to understand the effect of rate rise of temperature.. [Applying & Understanding]	3	2	-	-	-	-	-	-	3	-	-	-	2	2	2
			CO 3	Analyze the structure of RF heating in industrial application. [Analyzing]	3	2	3	-	-	-	-	-	3	-	-	-	-	2	-
			CO 4	Design of Hazards and safety standards in various engineering problem. [Create & Design].	3	3	3	3	-	-	-	-	3	-	-	-	2	2	2
					3.00	**2.25**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**3.00**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
	8EC 6-60 .2	**Robotics and Control**	CO 1	Understand the fundamentals of robotics and its components, methods of linear motion into rotary motion and vice-verse. [Understanding]	3	3	2	2	2	3	3	3	2	-	3	3	2	2	-
			CO 2	Apply the appropriate techniques for movement of robotic joints with computers/microcontrollers. [Applying & Understanding]	3	2	2	2	-	3	2	-	3	2	3	3	-	2	2
			CO 3	Analyze parameters required to be controlled in a Robot for specific application. [Analyzing]	3	2	3	3	3	3	-	-	2	2	2	3	2	2	2
			CO 4	Design and Develop small automatic / autotronics applications with the help of Robotics for solving the real life problems [Create & Design].	2	2	3	2	2	2	2	3	3	2	2	3	2	2	2
					2.75	**2.25**	**2.50**	**2.25**	**2.33**	**2.75**	**2.33**	**3.00**	**2.50**	**2.00**	**2.50**	**3.00**	**2.00**	**2.00**	**2.00**
8 4	**8 ME4 -21**	**Industrial Engineering Lab**	CO 1	Student will demonstrate Commitment to quality, timeliness, and continuous improvement in production rate in manufacturing sector	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO 2	Students also show the ability to formulate, conduct, analyze and interpret experiments and apply experimental results to improve processes in industry	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO 3	Students will able implement the concepts they learned, during Industrial In-Plant Training	-	-	-	-	-	-	-	2	2	2	-	-	2	3	-

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			CO4	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-
					2.00	**3.00**	**2.00**	-	-	-	-	**2.00**	**2.00**	**2.00**	-	-	**2.00**	**2.25**	-
85	**8ME4-22**	**Metrology Lab**	CO1	Apply the principle of metrology for measuring various parameters like length, height, threads, angle, displacement, flatness, roughness, etc., by using different measuring instruments.	**2**	-	-	-	-	-	-	-	-	-	-	-	**2**	**2**	-
			CO2	Investigate the surface generated on the work piece during various machining operations.	-	**2**	-	-	-	-	-	-	-	-	-	-	**2**	**2**	-
			CO3	Demonstrate the necessary skills to collect data, perform analysis and interpret results to draw valid conclusions through standard test procedures using various metrology instruments.	-	-	-	-	-	-	-	**2**	**2**	**2**	-	**2**	**2**	**2**	-
			CO4	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	-	-	**2**	-	-	-	-	-	-	-	-	-	-	**2**	-
					2.00	**2.00**	-	-	-	-	-	**2.00**	**2.00**	**2.00**	-	**2.00**	**2.00**	**2.00**	-
87	**8ME7-50**	**Final Project**	CO1	Apply the knowledge of engineering and scineces to finalize the project topic	3	-	-	-	-	2	2	-	-	-	-	-	2	2	2
			CO2	Analyse the existing research in the field of selected projected	-	3	-	-	-	-	-	-	-	-	-	-	3	3	2
			CO3	Formulate and propose a plan for creating a solution for the research plan identified.	-	-	3	3	2	2	-	-	2	-	-	2	3	3	2
			CO4	Demonstrate an ability to work in teams and manage the conduct of the research study	-	-	-	-	-	-	-	-	3	-	2	3	2	3	2
			CO5	To report and present the findings of the study conducted in the preferred focus area.	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2
					3.00	**3.00**	**3.00**	**3.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.67**	**3.00**	**2.50**	**2.67**	**2.60**	**2.60**	**2.00**

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12 Course File Sample

Outcome Based Process Implementation Guidelines for Faculty

12.1 Labelling your course file

- **Name of faculty:**
- **Class- SEM:**
- **Branch:**
- **Course Code:**
- **Course Name:**
- **Session:**

12.2 List of Documents:

1. **Vision & Mission Statements of the Institute**
2. **Vision & Mission Statements of the Department**
3. **List of PEO, PSO and PO of department**
4. **Personal Time Table**
5. **RTU Syllabus**
6. **Document as per point no. 1-4 in guidelines**
7. **Course Plan**
8. **Document as per point no 6-12 in guidelines**
9. **Document for CO Assessment Stage 1: As per point no 13, up to 13.2.5**
10. **Document for CO Assessment Stage 2: As per point no 13, up to 13.2.5, with comparison to previous**
11. **Document for CO Assessment Stage 3: As per point no 13, up to 13.2.5, with comparison to previous**
12. **Document for CO Attainment through RTU Component: Previous RTU Result: point no. 13.3 upto 13.3.2**
13. **Document for PO attainment through RTU Component: Previous RTU Result: point no. 13.4 upto 13.4.2**
14. **Document for Overall Attainment of PO through CO: As per point no 13.5**
15. **Document for last three years (Repeat process from 6-14 above): Comparative data should be included in course file**
16. **Lecture Notes**
17. **Copy of Assignments questions given from time to time**
18. **Copy of Tutorial Sheets given (if applicable)**
19. **RTU Question Papers with answer**
20. **Internal Assessment Question Papers with answer from time to time**
21. **Topics covered beyond syllabus- References**
22. **Details of any other activity and its assessment through rubric be included**
23. **Mapping department level/ focus activities with your COs**

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13 Outcome Based Process Implementation Guidelines for Faculty

Course CO-PO, Preparation, Assessment Formats

Academic Session: 2021-2022 **Class:** **Semester:**

Name of the Faculty:

Subject: **Subject Code:**

This document is meant as guidelines for implementing Outcome based education system as a part of NBA process.

1. **Vision & Mission of Department: Statement and Mapping with Institute Mission** **Here you have to include department mission & vision statements and show mapping of keywords with institute mission.**
2. **Program Educational Objectives (PEOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PEO statements and show mapping of keywords with department vision & mission.
3. **Program Specific Outcome (PSOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PSO statements and show mapping of keywords with department vision & mission.
4. **Program Outcome (POs): Statement and Mapping with PEO and PSO**
   Here you have to include PO statements and show mapping of keywords with department PEOs & PSOs.
5. **Course Plan (Deployment):**

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.), **for example**

- **coverage of Units by lectures**
- **design exercises**
- **demonstration of models**
- **by assignments**

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Lecture No.	Lect. No.	Topics, Problems, Applications	CO/LO	Target Date of Coverage	Actual Date of Coverage	Ref. Book/Journal with Page No.
1.	1	Introduction of ET	CO1	10/07/2021	10/07/2021	T1 Page 121 - 126
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

Example T1: Principles of OS, By Ramesh Soni, Tata MGHill, Edition 2019

6. **Course Outcomes:** Look for strong mapping of course with specific PO (2-3). Define Generic Course Outcomes (max 4 to 6) using Blooms Taxonomy. (In case of Lab Course define generic Lab Outcomes LO and refer CO as LO in this document).

i. **5ME4-05 (CO1)-**
ii. **5ME4-05 (CO2)-**
iii. **5ME4-05 (CO3)-**
iv. **5ME4-05 (CO4)-**
v. **5ME4-05 (CO5)-**

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7. **CO-PO-PSO Mapping: Mapping Levels: 1- Low, 2- Moderate, 3-Strong**
   First try to find out 2-3 PO those are strongly related to your subject contents. Go through the contents and try to formulate 4-5 Course Outcome as per bloom taxonomy. Map each CO with PO and PSO as above. While mapping please rethink if you map any PO with 3, it means you are planning to deliver the contents of that level and you will also examine the students at that level.

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

7.1 PO Strongly Mapped: (Example):

- **PO2: Write full statement with keywords highlighted**
- **PO3: Write full statement with keywords highlighted**
- **PO4: Write full statement with keywords highlighted**

7.2 PO Moderately Mapped: (Example)

- **PO1: Write full statement with keywords highlighted**
- **PO11: Write full statement with keywords highlighted**

7.3 PO Low Mapped: (Example)

- **PO12: Write full statement with keywords highlighted**

7.4 PSO Strongly Mapped: (Example)

- **PSO 1 : Write full statement with keywords highlighted**

7.5 P S O Moderately Mapped: (Example)

- **PSO 2: Write full statement with keywords highlighted**

6.6 PSO Low Mapped: (Example)

- **PSO 3: Write full statement with keywords highlighted**

8. **Rules for CO/LO Attainment Levels: (Targets)**

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty– (Easy)
According to difficulty level, you can decide specific range for CO attainment targets for Continuous assessment from the following Table.
Remember that targets for internal assessment should be higher.

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Course Category	Level 3	Level 2	Level 1
A	**60 % of students getting > 60% marks**	**50-60 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**
B	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**
C	**90 % of students getting > 60% marks**	**70-90 % of students getting > 60% marks**	**40-70 % of students getting > 60% marks**

9. End Term RTU Component: CO Attainment Levels

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty –(Easy)
According to difficulty level and the results of past 3-5 years, you can decide specific range for CO attainment targets for RTU component from the following table.

Course Category	Level 3	Level 2	Level 1
A	**50 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
B	**60 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
C	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**

For the specific CO/LO attainment levels of your respective course please use the above tables as reference according your subject difficulty level and prepare following table.

S. No.	Course Type	Attainment Level=1	Attainment Level=2	Attainment Level=3
1	**Theory Courses** Mid Semester Exams			
2	**Theory Courses** University Exam			
4	**Practical Courses** – Internal Exams			
5	**Practical Courses** - University Exam			
6	**Assignments/Unit Test**			
7.	**Any other**			

10. CO wise Assessment Activities (as Mentioned in Session Plan):
You can plan for each CO, activities/ assessment tools to be conducted/ used for its achievement.
Use X to those you select for specific CO. Remove all unused columns.

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	Activities															
CO	**Pre Mid I Test**	**Post Mid I Test**	**Quiz 1**	**Quiz 2**	**Pre Mid II Test**	**Post Mid II Test**	**Assignment 1**	**Assignment 2**	**Workshop**	**Seminar**	**Project**	**Training**	**Discussion**	**Mid 1**	**Mid 2**	**Ind. visit**
CO1																
CO2																
CO3																
CO4																
CO5																
CO6																

In case of Lab course some activities are as follows:

LO	Internal Practical exams	Laboratory Tests	Viva	Records	Project Presentation	Project Evaluation	External practical exams
LO1							
LO2							
LO3							
LO4							

11. CO wise Assessment Activities:

Based on CO-PO mapping, determine targets for each CO as average of targets of all relevant POs.

CO	PO												Avg.	PSO		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**CO Targets**	**PSO1**	**PSO2**	**PSO3**
CO1																
CO2																
CO3																
CO4																
CO5																

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12. Activity wise Assessment Tools:

This gives you generalized view of different direct and indirect tools those can be used for assessment / achievement of CO/PO. (Decide which tools are required for assessing a particular CO/LO and in reference to Course A, B, C difficulty level).

Sr. No.	Activity	Assessment Method	Tools	Weightage Marks	Recommendation
1.	Pre-Mid Term 1	Direct	Marks	10	For CO
2.	Post-Mid Term 1	Direct	Marks	10	For CO
3.	Quiz 1	Direct	Marks	10	For CO
4.	Quiz 2	Direct	Marks	10	For CO
5.	Pre Mid Term 2	Direct	Marks	10	For CO
6.	Post Mid Term 2	Direct	Marks	10	For CO
7.	Mid Term 1	Direct	Marks	20	For CO
8.	Mid Term 2	Direct	Marks	20	For CO
9.	Assignment 1	Direct	Marks	10	For CO
10.	Assignment 2	Direct	Marks	10	For CO
11.	Workshop	Indirect	Rubrics	5	For LO
12.	Seminar/ SPL	Indirect	Rubrics	5	For CO/LO
13.	Project (Mini or NSP)	Indirect	Rubrics	20	For LO
14.	Discussion	Indirect	Rubrics	5	For LO
15.	Training	Indirect	Rubrics	20	For LO
16.	Industrial Visit	Indirect	Rubrics	20	For LO
17.	Or any other activity	Direct/ Indirect	Marks/ Rubrics	any	For LO
18.					
Note that for every rubrics you need to decide assessment criteria, range of marks or weightage – above values are indicative					

13. CO Assessment Process:

After every activity (Ideally as per above table): (Frequency of Assessment- Can be taken as monthly). So the assessment can be for all activities held during the month. Do the following.

13.1 Attainment of COs

13.1.1 Attainment Table for CO1: 5ME4-05.1

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CO1: 5ME4-05: Attainment Table (Columns) As Applicable CO wise									
Student	**Pre Mid I Test 10**	**Quiz 1 10**	**Assignment 10**	**Quiz 1 10**	**WS 10**	**Training 10**	**Total (60)**	**% 0f Marks**	**Level of Attainment**
Name1									**3**
Name2									**2**
Name 3									**1**
Name 4									**2**
Name 5									**1**
Name 6									**2**
----									**--**
------									**--**
	No. of Students attained level 3=					**% of Students Attained Level 3=**			
	No. of Students attained level 2=					**% of Students Attained Level 2=**			
	No. of Students attained level 1=					**% of Students Attained Level 1=**			
	Target Achieved= ? (Check Level 3 % attainment -If No Find Gap)								
	Mark X for absent- Take avg. of all present								

(Repeat it for all other COs, (CO2 – CO5))

13.1.2 CO-Gap Identifications

COs	CO 1	CO 2	CO 3	CO4	CO5
Target					
Achieved					
Gap					

13.1.3 Gaps Identified:

Describe what the reasons for gaps are

i.

ii.

Overall CO Attainment Table: Example

COs	CO 1	CO 2	CO 3	CO4	CO5	Co6
Attainment level as per rules set	3	1	3	3	3	3
Average CO attainment through internal assessment	**2.67**					

13.1.4: Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

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13.2 Attainment of POs & PSO:

13.2.1 Target-Expected Attainment of PO by attainment of CO- Put all mappings of 3, 2 and 1. Based on CO-PO mapping, determine targets for each PO as average of targets of all relevant COs.

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
5ME4-05.1															
5ME4-05.2															
5ME4-05.3															
5ME4-05.4															
5ME4-05.5															
Obtain Average-PO/PSO Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets

13.2.2 Attainment of POs & PSO through CO as Continuous Evaluation:

Put all attainment values of CO as per mappings with 3, 2, 1 as evaluated in 13.1.1 (Frequency- Monthly)

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
5ME4-05.1															
5ME4-05.2															
5ME4-05.3															
5ME4-05.4															
5ME4-05.5															
Obtain Avg. PO/PSO Attainment	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

13.2.3 PO Gap Identification:

	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Targets															
Achieved															
Gap															

13.2.4 Gaps Identified:

Describe what the reasons for gap (for PO) are.

i.

ii.

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13.2.5 Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

Repeat whole process after one month, Two months, and three months. Plot bar chart for improvement in CO, PO & PSO. (Every month)

13.3 Attainment of CO through RTU Exam:

This may be possible for previous semester results so overall attainment. If faculty is changed, data will be evaluated by concerned faculty who taught and handed over to current faculty. If faculty not available, then current faculty will do the same.

Attainment of CO: 5ME4-05: Subject:			
Student	**RTU Marks (80)**	**% 0f Marks**	**Level of Attainment**
Name1			**3**
Name2			**2**
Name 3			**1**
Name 4			**2**
Name 5			**1**
Name 6			**2**
----			**--**
------			**--**
No. of Students attained level 3=		**% of Students Attained Level 3=**	
No. of Students attained level 2=		**% of Students Attained Level 2=**	
No. of Students attained level 1=		**% of Students Attained Level 1=**	
CO Attainment = ? (Check Level 3 % attainment -If No Find Gap)			
Mark X for absent- Take avg. of all present			

13.3.1 Attainment of CO through RTU Component:

CO: Course Code: Course Name					
Target					
Achieved					
Gap					

13.3.1 Gaps for CO attainment through RTU Component:

Analyze RTU Question paper with respect to COs formulated, contents delivered and students examined, find out reasons for gaps

i.

ii.

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13.3.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.4 Attainment of PO through CO (RTU) Component

Put RTU Results as per target achieved only and mapping level, in following table

Attainment of PO through CO (RTU) Component															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
5ME4-05															

Attainment of PO through CO (RTU) Component															
5ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.4.1 Gaps in PO through CO from RTU component:

Analyze RTU Question paper with respect to COs formulated & mapped, contents delivered and students examined, find out reasons for gaps

Describe what are the reasons for gap

i.

ii.

13.4.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.5 Overall Attainment of PO & PSO: Through Continuous Assessment & RTU

While combining attainment through Continuous evaluation and RTU component, following weightage be considered.

1. **Internal Assessment – Total weightage- 40 %**
2. **RTU Component ------- Weightage – 60 %**

Put all attainments in the following table and compute.

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13.5.1: Table 1

	RTU Component			Internal Assessment				
Student	**RTU Marks (80)**	**% of Marks**	**60% Weightage X6/100 (A)**	**Overall CO (-----)**	**% of Marks**	**Weightage X4/100 (B)**	**Total (A+B)**	**Level of Attainment**
Name1								**3**
Name2								**2**
Name 3								**1**
Name 4								**2**
Name 5								**1**
Name 6								**2**
----								**--**
------								**--**
No. of Students attained level 3=					**% of Students Attained Level 3=**			
No. of Students attained level 2=					**% of Students Attained Level 2=**			
No. of Students attained level 1=					**% of Students Attained Level 1=**			
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)								
Mark X for absent- Take avg. of all present								

OR

13.5.2: Table 2

	RTU			Internal CO1/ Activity 1 (Weightage %)			Internal CO2/ Activity 2 (Weightage			Internal CO3/ Activity 3 (Weightage %)				
Student	**RTU Marks (80)**	**% 0f Marks**	**60% Weightage X-----/100 A**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 B**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 C**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 D**	**Total (A+B+C+D)**	**Level of Attainment**
Name1														**3**
Name2														**2**
Name 3														**1**
Name 4														**2**
Name 5														**1**
Name 6														**2**
----														**--**
------														**--**

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No. of Students attained level 3= Attained Level 3=	**% of Students**
No. of Students attained level 2= Attained Level 2=	**% of Students**
No. of Students attained level 1= Attained Level 1=	**% of Students**
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)	
Mark X for absent- Take avg. of all present	

13.5.3: Overall PO & PSO Attainment through Course:
Put Overall PO & PSO attainment as per mapping 3,2,1 above:

Attainment of Overall PO for Session 2018-2019															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
5ME4-05															
PO Attainment															

13.5.4: Overall Gaps for Attainment of PO and PSO from the Course
Put Overall PO & PSO targets & attainment as per mapping 3,2,1 above:

Attainment & Gap of Overall PO Session ----------															
5ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.5.5. Overall Gaps for Course taught:
Go through all gaps identified above and summarize. Describe what the reasons are.
i.
ii.

13.5.6 Action to be taken:
Prepare recommendations for improvement in planning & teaching (Internal & RTU) for gaps identified. Decide Activities to be conducted to bridge the gaps in COs.

Repeat whole process after One year before, Two year before, and three year before. Plot bar charts for Continuous improvements check in CO, PO & PSO. (Every Year).

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14 File Formats

14.1 List of File Formats

i. Front Page of Course File
ii. ABC Analysis Format
iii. Blown-up Format
iv. Deployment Format
v. Zero Lecture Format
vi. Tutorial Format
vii. Assignment Format
viii. Lecture Note Format
ix. Mid Term Question Paper Format
x. Mid Term Practical Exam Format
xi. Evaluation Sheets Format
xii. Activity Report Format

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14.2 Front Page of Course File

POORNIMA
COLLEGE OF ENGINEERING

TEACHING MANUAL

COURSE: _____

SEMESTER: _____

SUBJECT: _____

SUB. CODE: _____

CONTENT: **Syllabus, Blown-up, Deployment, Zero Lectures,**
Detailed lecture notes with cover page, Tutorial/Home-Assignment Sheets

_____

SESSION: 20___-___

NAME OF FACULTY: _____

DEPARTMENT: _____

CAMPUS: _____

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14.3 ABC Analysis Format

POORNIMA
COLLEGE OF ENGINEERING

Department of Mechanical Engineering
Even Semester 2021-22

ABC Analysis

Course: B. Tech. **Class/Section: 3rd Year/A** **Date: 10/01/2022**
Name of Faculty: XYZ **Name of Subject: DME-II** **Subject Code: 6ME4-04**

Sr. No.	Category A (Hard topics)	Category B (Topics with average hardness level)	Category C (Easy to understand topics)	Preparedness for "A" topics
1	Bolts subjected to variable stresses.	Goodman line, Soderberg line, Design of machine members subjected to combined, steady and alternating stresses. Design for finite life, Design of Shafts under Variable Stresses,	Variable load, loading pattern, endurance stresses, Influence of size, surface finish, notch sensitivity and stress concentration.	PPT & Notes
2	Design of IC Engine parts: Piston, Connecting rod, Crank shaft	----------	----------	PPT & Notes
3	Design of IC Engine components: Piston, Cylinder, Connecting Rod and Crank Shaft.	Design of helical compression, tension, torsional springs, springs under variable stresses.	Design of belt, rope and pulley drive system,	SPL & PPT
4	Design and force analysis of spur, helical, bevel and worm gears, Bearing reactions due to gear tooth forces.	Design of gear teeth: Lewis and Buckingham equations, wear and dynamic load considerations.		PPT
5	Design of Sliding and Journal Bearing: Methods of lubrication, hydrodynamic, hydrostatic, boundary etc. Minimum film thickness and thermal equilibrium.	Selection of anti-friction bearings for different loads and load cycles, Mounting of the bearings, Method of lubrication.		SPL & PPT

SAMPLE

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14.4 Blown-up Format

POORNIMA
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BLOWN UP SYLLABUS

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date:06/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

Sr. No.	Topic as per Syllabus	BLOWN UP TOPICS (Upto 10 Times Syllabus)
1	**PART-1** **FATIGUE CONSIDERATION IN DESIGN**	
	1.1 Review of Fatigue (Loading pattern)	1.1.1 Types of load 1.1.2 What is fatigue? 1.1.3 Fatigue curve 1.1.4 Endurance limit
	1.2 Factor affecting endurance limit	1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor
	1.3 Notch sensitivity & Stress concentration	1.3.1 factor of safety 1.3.2 stress concentration 1.3.3 stress concentration curve 1.3.4 notch sensitivity 1.3.5 theoretical stress concentration factor
	DESIGN OF MACHINE MEMBER	
	1.4 Goodman, Goderberg line, Design of machine member under steady, Variable and alternating stress Design for variable stresses	1.4.1 Good men line, Soderberg line, Gerber parabola method 1.4.2 Design under axial, bending and torsional stress 1.4.3 Mean and variable stress 1.4.4 Design for combined stress 1.4.4 Numerical approach for the design of member
	1.5 Design for finite life	1.5.1 Requirement of finite life design 1.5.2 Goodman approach toward finite life 1.5.3 Numerical approach for finite life design
2	**PART-2** **DESIGN OF I.C ENGINE PARTS**	
	2.1 Design of I .C Engine Piston	2.1.1 What is Piston and its importance? 2.1.2 Different materials used for the piston. 2.1.3 Effect of materials on the Piston design 2.1.4 Calculation of various pressure and inertia forces

SAMPLE

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14.5 Deployment Format

POORNIMA COLLEGE OF ENGINEERING

SYLLABUS DEPLOYMENT

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date: 05/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

S.No.	TOPIC AS PER BLOWNUP SYLLABUS	LECT. NO.	CO/LO	Target Date of Coverage	Actual Date of Coverage	Teaching method	Ref. Book/Journal with Page No.
1	**ZERO LECTURE**	L-1	CO1	11/01/2022	11/01/2022	PPT	Machine design by V.B Bhandari & R. S Khurmi
2	***Introduction to Unit :1*** **Introduction of the lecture** 1.1.1 Types of load 1.1.2 What is fatigue 1.1.3 Fatigue curve 1.1.4 Endurance limit ***Conclusion of the lecture*** ***Brief of next lecture***	L-2	CO1	12/01/2022	12/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 34-38
3	**Introduction of the lecture** 1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-3	CO1	14/01/2022	14/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 44-52
4	**Introduction of the lecture** 1.3.1 Factor of safety 1.3.2 Stress concentration 1.3.3 Stress concentration curve ***Conclusion of the lecture*** ***Brief of next lecture***	L-4	CO1,2	16/01/2022	16/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 58-62
5	**Introduction of the lecture** 1.3.4 Notch sensitivity 1.3.5 Theoretical stress concentration factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-5	CO1	17/01/2022	17/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 73-82
6	**Introduction of the lecture** 1.4.1 Goodman line, Soderberg line, Gerber parabola method the design of member	L-6	CO1,2	18/01/2022	18/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 82-88

SAMPLE

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14.6 Zero Lecture Format

POORNIMA
COLLEGE OF ENGINEERING

ZERO LECTURE

Session: 20 - (Sem.)

Campus: …… Course: …… Class/Section: ……

Name of Faculty: ……

Zero Lecture

1). Name of Subject: …… Code: ……

2). Self-Introduction:

a). Name:
b). Qualification:
c). Designation:
d). Research Area:
e). E-mail Id: ……@poornima.org
f). Other details: Information about areas of proficiency/ expertise such as subject taught, laboratory taken, Member of Professional body, Academic Proficiency, Book Authored, Paper published in National and International Conference/Journals etc.

3). Introduction of Students:

a*). Records of students in 12th*

Sr. No.	Average result of 12th	Name of student scored highest marks	Marks 60% above (No. of students)	Marks between 40%-60% (No. of students)	English Medium Students (No.)	Hindi Medium Students (No.)	No. of Hostellers	No. of Day Scholar

b*). Name of 05 best students based on previous results: ……, ……, ……, ……, ……*

4). Instructional Language: - ……%English; ……..% Hindi (English not less than 60%)

5). Introduction to subject: - (Pl. separate out subject specific matter and general matter valid for all subjects and group/place them appropriately)

a). Relevance to Branch:
b). Relevance to Society:
c). Relevance to Self:
d). Relation with laboratory:
e). Connection with previous year and next year:

6). Syllabus

a). Unit Name:
b). ABC analysis (RGB method) of unit & topics

7). Books/ Website/Journals & Handbooks/ Association & Institution:

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a). Recommended Text & Reference Books and Websites:

S. No.	Title of Book	Authors	Publisher	Cost (Rs.)	No. of books in Library
Text Books					
T1					
T2					
T3					
Reference Books					
R1					
R2					
R3					
Websites related to subject					
1					
2					

b). Journals & Handbooks: - To give information about different Journals & Handbooks available in library related to the subject and branch.

c). Associations and Institutions: - To give information about different Associations and Institutions related to the subject and branch.

8). Syllabus Deployment: -

a). Total weeks available for academics (excluding holidays) as per Poornima Foundation calendar-

Semester	
No. of Working days available(Approx.)	
No. of Weeks (Approx.)	

- Total weeks available for special activities (as mentioned below)- 02 weeks (Approx.)

Note: Individual faculty must calculate the exact no. of lectures available according to time table etc. after consultation with HOD.

b). Special Activities (To be approved by HOD & Dean & must be mentioned in deployment):

- Open Book Test- Once in a semester
- Quiz - Once in a semester
- Special Lectures (SPL)- Minimum 10% of total no. of lectures including following
  - i. Smart Class by the faculty, who is teaching the subject
  - ii. SPL by expert faculty
  - iii. SPL by expert from industry/academia (other institution)
- Revision classes (Solving Important Question Bank):- 1 class before Mid Term and 2 classes before End Term Exam

c). Lecture schedule per week

i). University scheme (L+T+P) = ...+....+.....

Sr. No.	Name of Unit	No. of lectures	Broad Area	Degree of difficulty (High/Medium/Low)	Text/ Reference books
1.					
2.					
3.					
4.					
5.					

d). Introduction & Conclusion: Each subject, unit and topic shall start with introduction & close with conclusion. In case of the subject, it is Zero lecture.

e). Time Distribution in lecture class: - Time allotted: 60 min.

i. First 5 min. should be utilized for paying attention towards students who were absent for last lecture or continuously absent for many days + taking attendance by calling the names of the students and also sharing any new/relevant information.

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ii. Actual lecture delivery should be of 50 min.
iii. Last 5 min. should be utilized by recapping/ conclusion of the topic. Providing brief introduction of the coming up lecture and suggesting portion to read.
iv. After completion of any Unit/Chapter a short quiz should be organized.
v. During lecture student should be encouraged to ask questions.

Note: Pl. ensure that each student is having Lecture Note Book. Also, write on the black board day and date, name of the teacher, name of subject with code, unit and lecture no. and topics to be covered at the beginning of each lecture and ensure that students write in lecture note book. Ask students to leave 4/5 pages blank for copying the note from fellow students in case of their absenteeism.

9). Tutorial: - An essential component of Teaching- Learning process in Professional Education.

Objective: - To enhance the recall mechanism.
To promote logical reasoning and thinking of the students.
To interact personally to the students for improve numerical solving ability.

a). *Tutorial processing:* - Tutorial sheet shall be provided to each students

Ist Phase: - It is consisting of questions to be solved in the class assignment session in test mode on perforated sheet given in tutorial notebook and to be collected & kept by respective faculty for review & analysis (20 minutes).

IInd Phase: - Indicating/Initializing the weak issues/ drawback and Evaluating and providing the grade. Making a group with good student for assisting the weak students to explain/solve questions by every student on plain papers given in tutorial note book (20 minutes).

IIIrd Phase: - Solving/ explaining difficulties of lecture class and providing the new home assignment (20 minutes). To be done in tutorial note book.

b). *Home assignment shall comprise of two parts:*

Part (i) Minimum essential questions, which are to be solved and submitted by all with in specified due date.

Part (ii) Other important questions, which may also be solved and submitted for examining and guidance by teacher.

10). Examination Systems:

A. FOR ALL THEORY COURSES:-

a. Continuous Internal Evaluation (CIE)	**20%**
-Assignment / Project / Papers / Essays / Class Participation	10%
-Quiz / Class Test (Announced / Unannounced)	5%
- Attendance and Discipline	5%
b. Mid Semester Exams (MSE) – Two	**20%**
c. End Semester Exam (ESE) - One	**60%**
TOTAL	**100 %**

B. FOR ALL PRACTICAL (LABORATORY) COURSES:-

a. Continuous Internal Evaluation (CIE)	**40%**
-Performance (Lab Record, Viva,)	30%
-Attendance and Participation in laboratory work	10%
b. Mid Semester Exam (MSE)– Two	**20 %**
c. End Semester Exam (ESE) - One	**40%**
TOTAL	**100 %**

11). Any other important point:

Place & Date:

Name of Faculty with Designation

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14.7 Lecture Note Front page Format

POORNIMA
COLLEGE OF ENGINEERING

LECTURE NOTES

Campus: …….…. **Course:** ……..……... **Class/Section:** …….…… **Date:** …….…….

Name of Faculty: …….…….. **Name of Subject:** …….…… **Code:** ……..

Date (Prep.): ……..……. **Date (Del.):** ……..……**Unit No.:**……..…….**Lect. No:** ……..…….

OBJECTIVE: To be written before taking the lecture (Pl. write in bullet points the main topics/concepts etc., which will be taught in this lecture)

IMPORTANT & RELEVANT QUESTIONS:

FEED BACK QUESTIONS (AFTER 20 MINUTES):

OUTCOME OF THE DELIVERED LECTURE: To be written after taking the lecture (Pl. write in bullet points about students' feedback on this lecture, level of understanding of this lecture by students etc.)

REFERENCES: Text/Ref. Book with Page No. and relevant Internet Websites:

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14.7.1 Detailed Lecture Note Format-1

POORNIMA
COLLEGE OF ENGINEERING

DETAILED LECTURE NOTES

Campus: ……	**Course: ……**	**Class/Section: ……**	**Date: ……**
Name of Faculty: ……		**Name of Subject: ……**	**Code: ……**

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14.7.2 Detailed Lecture Note Format-2

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DETAILED LECTURE NOTES

PAGE NO. .....

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14.8 Assignment Format

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Assignment Sheet-1

Campus: PCE **Course:** B.Tech. **Class/Section:** III **Date:** .....

Name of Faculty: SKT **Name of Subject:** Design Machine of Machine Element-II **Code:** 6ME4-04

Date of Preparation: ..... **Scheduled Date of Submission:** .....

Q. No.	Questions	COs	POs	PSOs
1	Discuss influence of size, surface, reliability and modifying factor on endurance limit of material.	CO1	PO2	PSO1
2	Discuss various methods of mitigation of stress concentration.	CO1	PO2	PSO1
3	Define the following terms used in design of machine elements (i) Size Factor (ii) Notch Sensitivity (iii) Surface Finish Factor	CO1	PO2	PSO1
4	What do you mean by stress concentration? How do you take it into consideration in case of components subjected to dynamic loads?	CO1	PO2	PSO1
5	Explain difference between Soderberg, Goodman and Gerber criteria in detail.	CO1	PO2	PSO1
6	What is physical significance of notch sensitivity factor being one of zero.	CO1	PO2	PSO1
7	What is fluctuating stresses? Draw stress-time curves for different fluctuating stresses.	CO1	PO2	PSO1
8	What is endurance strength? Draw S-N diagram and list various factors affecting it.	CO1	PO2	PSO1
9	Draw and describe Goodman and Soderberg diagram.	CO1	PO2	PSO1
10	Explain modified Goodman diagram for bending stresses.	CO1	PO2	PSO1

SAMPLE

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14.9 Tutorial Format

POORNIMA
COLLEGE OF ENGINEERING

TUTORIAL SHEET

TUTORIAL SHEET SHEET No.....

Campus: ..... Course: ..... Class/Section: ..... Date: .....

Name of Faculty: ..... Name of Subject: ..... Code: .....

Date of Tut. Sheet Preparation:..... Scheduled Date of Tut.:.....Actual Date of Tut. :.....

Name of Student:.....Scheduled & Actual Date of H.A. Submission:.....&.....

	Questions	CO	PO
FIRST 20 MT. CLASS QUESTIONS			
2 HRS. SOLVABLE HOME ASSIGNMENT (H.A.) QUESTIONS			
OTHER IMPORTANT QUESTIONS			

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14.10 Mid Term/ End Term Practical Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- A**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- B**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

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14.11 Mid Term Theory Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

II B.TECH. (III Sem.) **Roll No. _____**

SECOND MID TERM EXAMINATION 2021-22

Code: 3CE2-01 Category: PCC Subject Name–ADVANCE ENGINEERING MATHEMATICS -I

(BRANCH – CIVIL ENGINEERING)

Course Credit: ___

Max. Time: 2 hrs. **Max. Marks: 60**

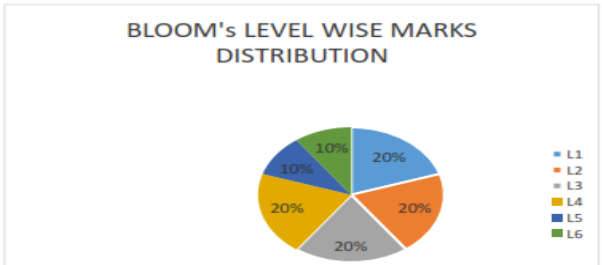
NOTE:- Read the guidelines given with each part carefully.

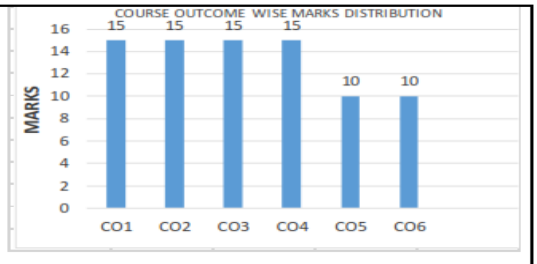
Course Outcomes (CO):

At the end of the course the student should be able to:

CO1:
CO2:
CO3:
CO4:
CO5:
CO6:

	PART - A: (All questions are compulsory) Max. Marks (10)				
		Marks	**CO**	**BL**	**PO**
Q.1		**2**			
Q.2		**2**			
Q.3		**2**			
Q.4		**2**			
Q.5		**2**			
	PART - B: (Attempt 4 questions out of 6) Max. Marks (20)				
Q.6		**5**			
Q.7		**5**			
Q.8		**5**			
Q.9		**5**			
Q.10		**5**			
Q.11		**5**			
	PART - C: (Attempt 3 questions out of 4) Max. Marks (30)				
Q.12		**10**			
Q.13		**10**			
Q.14		**10**			
Q. 15		**10**			





BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analyzing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes; PO – Program Outcomes

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13. List of Important Links

List of Important Links		
Sr. No.	**Link**	**Particulars**
1	https://www.rtu.ac.in/index/	Rajasthan Technical University
2	http://www.pce.poornima.org	Institute Website
3	http://www.pce.poornima.org/Downloads.html	Format of Students & Employees
4	https://www.turnitin.com/login_page.asp?lang=en_us	Plagiarism Checker
5	http://pcelibrary.poornima.org/	PCE Digital Library
6	https://ndl.iitkgp.ac.in/	National Digital Library of India (NDLI)
7	https://swayam.gov.in/	SWAYAM MOOCs platform
8	https://www.vlab.co.in/	Virtual Labs
9	https://spoken-tutorial.org/	Spoken Tutorial
10	https://fossee.in/	FOSSEE (Free/Libre and Open Source Software for Education)
11	https://www.sih.gov.in/	Smart India Hackathon
12	https://www.swayamprabha.gov.in/	32 high quality educational channels through DTH on 24X7 basis.
13	https://ieeexplore.ieee.org/Xplore/home.jsp.You	IEEE All Society Periodicals Package
14	https://booksc.org/	Link for Free for book and articles
15	https://jgateplus.com/home/	J-gate Plus (JOURNALS -GATE) subscriptions
16	http://www.delnet.nic.in/	Developing Library Network
17	https://dst.rajasthan.gov.in/content/dst-gov/en/home.html	Department of Science & Technology, Government of Rajasthan
18	https://ipindia.gov.in/index.htm	Official website of Intellectual Property India
19	http://pce.poornima.org/Downloads.html	Academic Formats Word File
Note:- Required Credentials can be taken from Respective Department Heads		

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POORNIMA
COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

CURRICULUM DELIVERY PLAN

OUTLINE-EVEN SEM-2021-22

ISI-6, RIICO Institutional Area, Sitapura, Jaipur-302022 (Rajasthan)

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1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of Continuous Internal Assessment (CIA)

PCE is affiliated to RTU, Kota and follows the planned and prescribed curriculum of University. The Internal Quality Assurance Cell (IQAC) of PCE takes the responsibility of monitoring the effective delivery of the curriculum through a well-planned and documented process. To ensure effective curriculum delivery, a Curriculum Delivery Plan (CDP) is prepared by all PAC's of the respective departments. A CDP includes detailed planning for preparation, verification, execution and adherence to all documents related to academic delivery of all courses. As per the directions received from IQAC, the Examination cell plans for the Continuous Internal Assessment. Examination cell then circulate CIA planning to the PAC. Examination cell sends all the CIE Data to Director's Office for the final approval before its submission to RTU. Detail outlines are as follows.

1. Director Office, PCE receives the curriculum from RTU, Kota through university website.
2. IQAC prepares institute academic calendar aligned with RTU academic calendar considering input received in last GC meeting and other stakeholders. IQAC forwards the Institute Academic Calendar to PAC (Program Assessment Committee) for identifying curriculum gaps and examination cell for CIE. PACs then prepares CDPs after consolidating the course specific planning received from the respective faculty members.
3. A CDP includes activities for gap abridgement which are proposed to be carried out by the faculty members.
4. IQAC also instructs PACs to prepare the department activity calendar. PACs receives approval of department activity calendars and CDPs from DABs before its final approval from IQAC.
5. IQAC also reviews the CDPs approved by DABs and gives suggestions/ approvals periodically. All the activities (SPL, Industrial visit, workshop etc.) planned are taken into consideration for the Department activity calendar after the approval from DABs.
6. Subject wise Course files are prepared by respective faculty, comprising of Syllabus, ABC analysis, Blown-Up, Deployment, Lecture notes, Zero Lecture, Tutorial and Assignment sheets, COs Statements, and Mapping with POs and PSOs.
7. Faculty frequently use ICT tools for more effective content delivery using PPTs, video lectures etc.
8. Student attendance is monitored by tutors and chief proctor office with help of SHARP ERP software. Attendance defaulters are regularly counseled through their tutors for improving their attendance.
9. Institute also conducts Annual Internal Academic Audit for the effectiveness of teaching-learning methodologies and the necessary actions are taken as suggested by the audit team.
10. Conferences, seminars, webinars, workshops, expert lectures, STTPs, and FDPs are organized throughout the year on the recent advances in the field of engineering.
11. Continuous Internal Assessment process includes Midterm exam, Tutorials, Assignments, Quizzes, presentation, Class Test, viva-voce etc.
12. As per the RTU examination scheme, mid semester examinations are conducted centrally by examination cell as per the planning & academic calendar and other assessments are conducted at departmental level.
13. All the evaluations are carried out by the faculty members which include COs-POs attainment, Gap identification & action taken for the fulfillment of gap.
14. Student feedback and attainment of COs-POs are reviewed by the PAC for any revision in planning & Delivery.
15. End term semester examinations are conducted by the RTU, Kota.

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2 Vision & Mission Statements

2.1 Vision & Mission Statements of the Institute

Vision of Institution

To create knowledge-based society with scientific temper, team spirit and dignity of labor to face the global competitive challenges

Mission of Institution

To evolve and develop skill-based systems for effective delivery of knowledge so as to equip young professionals with dedication & commitment to excellence in all spheres of life

2.2 Vision & Mission Statements of the Program B. Tech. (Mechanical Engineering)

Vision and mission are the essential part of the growth of an institute, the vision and mission are as follows

2.2.1 Vision of Department

To be recognized for quality education in the field of Mechanical Engineering and identified for its innovation & excellence

2.2.2 Mission of Department

- To provide education that transforms students through rigorous teaching and thought process to fulfill the needs of the society and industry
- To collaborate with leading industry partners and other academic & research institutes around the world to strengthen the education and research ecosystem.
- To prepare students with life-long learning for their career by fostering in them the ethical & technical capabilities pertinent to mechanical & allied engineering.

2.2.3 PEO of the Department

Program Educational Objectives (PEOs)

1. **PEO 1**: Graduate will have Fundamental & multidisciplinary knowledge with an ability to analyze, design, innovates and handles the realistic problems.
2. **PEO 2**: Graduate will possess ethical conduct, sense of responsibility to serve society and protect the environment.
3. **PEO 3**: Graduate will have strong foundation in academics, leadership qualities and lifelong learning for a prosperous professional career.

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2.2.4 Program Specific Outcome (PSOs)

PSO1. Design, analyze and innovate solutions to technical issues in Thermal, Production and Design Engineering.

PSO2. Exhibit the knowledge and skills in the field of Mechanical & Allied engineering concepts.

PSO3. Apply the knowledge of skills in HVAC&R and Automobile engineering.

2.3 Program Outcomes (PO)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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Sitapura, JAIPUR

3 Department Academic & Administrative Bodies - Structure & Functions

3.1 Department Advisory Board (DAB)

3.1.1 Primary Objective

Department Advisory Board (DAB) of Department of Mechanical Engineering, PCE, Jaipur is formed to provide necessary suggestions for developing a structured approach for continuous improvement in curriculum delivery, planning and incorporation of Curricular, Extra and Co-Curricular activities needed to abridge the pre-identified curriculum gaps.

3.1.2 Roles & Responsibilities

1. Suggest improvement in academic plans and recommend standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.
2. Provide guidelines for industry-institute interactions to bridge up curriculum/industry gap and suggest quality improvement initiatives to enhance employability.
3. Develop a structured Curriculum Delivery Plan, Department Academic Calendar and seek approval for them from Internal Quality Assurance Cell.
4. Incorporate suggestions received from Program Assessment Committee (PAC) by including proposed activities for bridging curricular gaps identified.
5. To identify and suggest thrust areas to conduct various activities (final year projects, training courses and additional experiments to meet PEOs, and propose necessary action plan for skill development of students, required for entrepreneurship development and quality improvement.

3.1.3 Department-Wise Composition

S. No.	Category	Nominated by	Name of Members	Address
1	Chairman, DAB-ME	Chairman, IQAC	Dr. Mahesh M. Bundele (Principal & Director, PCE)	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
2	Member Secretary	Chairman, DAB-ME	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
3	Faculty representative-1	Chairman, DAB-ME	Dr. Mohhamad Israr	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
4	Faculty	Chairman, DAB-	Dr. Rajkumar	Poornima College of Engineering, ISI-6, RIICO Inst.

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	representative-2	ME	Satankar	Area, Sitapura, Jaipur
5	Faculty representative-3	Chairman, DAB-ME	Dr. Surendra Kumara Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
6	Faculty representative-4	Chairman, DAB-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
7	Faculty representative-5	Chairman, DAB-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
8	Special Invitee	Chairman, DAB-ME	Dr. Raikha Nair	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
9	Alumni Representative-1	Chairman, DAB-ME	Kartik Sharma, Jaipur, Pinnacle Infotech Solution	Pinnacle Infotech Solution
10	Alumni Representative-2	Chairman, DAB-ME	Ayush Arora	NBC, Jaipur
11	Student Representative	Chairman, DAB-ME	Mr. Aashish Sonwal	ME, PCE, Final Year Student
12	Industry Representative	Chairman, DAB-ME	Mr. Ashok Joshi,	HR, Pinnacle Infotech Solution
13	Parents Representative-1	Chairman, DAB-ME	Mr. Mahipal Singh Yadav	Businessman Kalwad, Jaipur
14	Parents Representative-2	Chairman, DAB-ME	Praveen Mittal	Toyota , Jaipur

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3.1.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	DAB-1	July First Week	● Consideration of gaps and proposed activities by PAC last meeting to be implemented in DAC and CDP. ● Prepares final draft of CDP and DAC to be proposed in upcoming IQAC meeting
2.	DAB-2	September Second Week	● Approval / Suggestions of proposals from last PAC Meeting. ● Revision of DAB Drafts for being proposed in upcoming GC
3	DAB-3	December First Week	● Draft preparation for DAC and CDP for upcoming semester after considering inputs from PAC. ● Review Semester closure draft from PAC.
4.	DAB-4	April Last Week / May First Week	● Draft of PCE Academic Calendar and CDP proposed ● Previous session closure with gaps and feedback. ● Completion of ATR-2 for current semester based on last GC sessions and compiling it with ATR-1

3.2 Program Assessment Committee

3.2.1 Primary Objective

The primary objective of Program Assessment Committee (PAC) is to identify, bridge and assess the gaps in Program's Curriculum received from university through attainment calculation.

3.2.2 Roles & Responsibilities

1. Identify gaps in curriculum laid down by university and propose activities for bridging identified gaps.

2. Implement academic plans and standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.

3. Regular Monitoring of curriculum gap abridgement and course deployment practices through pre-defined methods.

4. Execute Industry-Institute Interactions to enhance the employability thereby meeting the industry standards and requirements.

5. Implement Curriculum Delivery Plan & Department Academic Calendar.

3.2.3 Department-Wise Composition

Category	Nominated by	Name of Members	Address
Chairman, PAC	Chairman, IQAC /	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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	Head of Institution		
Member Secretary	Chairman, PAC-ME	Dr. Mohhamad Israr	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-1	Chairman, PAC-ME	Dr. Rajkumar Satankar	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-2	Chairman, PAC-ME	Dr. Surendra Kumara Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-3	Chairman, PAC-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-4	Chairman, PAC-ME	Dr. Akshay Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-6	Chairman, PAC-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
Faculty representative-7	Chairman, PAC-ME	Mr. Kalpit Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

3.2.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	PAC-1	July Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
2.	PAC-2	August Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
3	PAC-3	September Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of academics gaps as previous attainment ● Assessment of activities required for being proposed in upcoming GC ● Submit report to Governing Council about previous semester & planning of next semester.
4.	PAC-4	October Last Week	● Inclusion of suggestions for revising gaps ● Execution of Academic, Extra and Co-Curricular activities according to suggestions in GC ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments

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			● Revision of academics gaps as previous attainment
5.	PAC-5	November Third Week	● Revision of academics gaps as previous attainment ● Regular assessment of Academic, Extra and Co-Curricular activities ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester. ● Semester closure report draft to be prepared ● Elective proposals/CBCS
6.	PAC-6	December Third Week	● Incorporation of suggestions from IQAC and DAB meetings in execution of Semester activities ● Execution and assessment of Academic, Extra and Co-Curricular activities ● Revision of academics gaps as previous attainment ● Calculation of attainments
7.	PAC-7	January Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
8.	PAC-8	February Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
9.	PAC-9	March Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Draft preparation of Semester closure
10.	PAC-10	April Second Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
11.	PAC-11	May Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Report submission of Semester closure ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester.
12.	PAC-12	June Last Week	● Feedback of last IQAC and suggestions for new semester to be implemented in CDP and DAC ● Elective proposals/CBCS

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4 List of Faculty Members & Technical Staff

Sr. No.	Faculty Name	Emp.ID	Designation	Email ID	Mobile No.
1.	Mr. MANOJ SHARMA	1261	9887901464	ASST PROFESSOR	9887901464
2.	Mr. NAVAL KISHORE JAIN	1263	9314535003	ASST PROFESSOR	9314535003
3.	MR. VAIBHAV SHARMA	1282	9529737979	ASST PROFESSOR	9529737979
4.	MR. RAHUL SHARMA	1351	9799695773	ASST PROFESSOR	9799695773
5.	MR. SHAILENDRA KASERA	2972	9983144773	ASST PROFESSOR	9983144773
6.	MR. KALPIT JAIN	3156	9571255627	ASST PROFESSOR	9571255627
7.	MR. DHANANJAY KUMAR	3222	8824599822	ASST PROFESSOR	8824599822
8.	Dr. RAHUL SEN	3430	9782153262	PROFESSOR	9782153262
9.	MR. SANJAY CHHOTURAM KUMAWAT	3554	9784384269	ASST PROFESSOR	9784384269
10.	MR. ASHWANI KAPOOR	3768	9413102801	ASST PROFESSOR	9413102801
11.	DR. AMIT KUMAR MANDAL	3939	9829708558	ASSOCIATE PROFESSOR	9829708558
12.	MR. RATNESH KUMAR SHARMA	4532	9887371157	ASST PROFESSOR	9887371157
13.	MS. ASHABAI SANJAY KUMAWAT	5001	9509069579	ASST PROFESSOR	9509069579
14.	Dr. PEEYUSH VATS	5292	9887082157	ASSOCIATE PROFESSOR	9887082157
15.	Dr. RAJ KUMAR SATANKAR	6144	8561995290	PROFESSOR	8561995290
16.	Dr. AKSHAY JAIN	6371	9685223729	ASST PROFESSOR	9685223729
17.	Dr. SURENDRA KUMAR SAINI	6375	7408719492	PROFESSOR	7408719492
18.	DR. NARAYAN LAL JAIN	6528	9414728922	PROFESSOR	9414728922
19.	DR. MOHAMMAD ISRAR	6601	9724200119	PROFESSOR	9724200119
20.	Mr. PRASHANT MISHRA	4801	9829280933	ASST PROFESSOR	9829280933
21.	Mr. RAVINDRA MAHAWAR	5309	9887882318	ASST PROFESSOR	9887882318
22.	Mr. BHAVESH DEVRA	5362	9584011177	ASST PROFESSOR	9584011177

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23.	Mr. MANISH PRAKASH	5909	9829989306	ASST PROFESSOR	9829989306
24.	DR. YASHPAL	5965	9466748006	PROFESSOR	9466748006
25.	Mr. SAURABH MATHUR	1225	8233034335	ASST PROFESSOR	8233034335
26.	Mr. VINAY BHATT	4596	9752996236	ASST PROFESSOR	9752996236
27.	Mr. MAHESH CHAND SAINI	4940	8058297176	ASST PROFESSOR	8058297176
28.	Mr. BUDDHI PANWAR	3412	9351768001	ASST PROFESSOR	9351768001
29.	Dr. DEVESH KUMAR	6379	9950549899	ASSOCIATE PROFESSOR	9950549899
30.	Mr. RAMANAND SHARMA	3701	9887994018	ASST PROFESSOR	9887994018
31.	Mr. PRATISH RAWAT	4457	9826054814	ASST PROFESSOR	9826054814
32.	Mr. ANKIT TYAGI	7316	8595960341	ASST PROFESSOR	8595960341

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5 Institute Academic Calendar

JANUARY 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

FEBRUARY 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

MARCH 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

APRIL 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MAY 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

JULY 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

POORNIMA
COLLEGE OF ENGINEERING

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NBA

ACADEMIC CALENDAR 2021-22*#

EVEN SEMESTER

January 2022

Saturday, 08	Annual Alumni Meet [VIRTUAL MODE]
Thursday, 20	First Day, B. Tech. VI and VIII Sem.
Thursday, 27	First Day, B. Tech. IV Sem.
Wednesday, 26	Republic Day Celebration

February 2022

Wednesday, 23 to Saturday, 26	Aarohan-2022

March 2022

Friday, 11 to Saturday, 12	Wise Activity
Friday, 25 to Sunday, 27	Hostel Fest (AAYAM, TATVA TORQUE, PARAM, AADHYAY)

April 2022

Friday, 01	First Day, B. Tech. II Sem.
Monday, 04 to Saturday, 09	First Mid Term Examination for B. Tech VI & VIII Sem
Monday, 25 to Saturday, 30	First Mid Term Examination for B. Tech IV Sem

May 2022

Friday, 06 to Sunday, 08	Mentorship Summit / Students' Council Meet
Saturday, 14	Last Teaching Day for B.Tech VI & VIII Sem
Monday, 16 to Saturday, 21	Second Mid-Term Examination for B. Tech VI & VIII Sem
Monday, 23 to Saturday, 28	First Mid Term Examination for B. Tech II Sem
Monday, 23 to Wednesday, 25	End-Term Practical Exams for B.Tech VI & VIII Sem

June 2022

Monday, 06 to Saturday, 11	Second Mid-Term Examination for B. Tech IV Sem
Monday, 13 to Wednesday, 15	End-Term Practical Examination for B.Tech IV Sem

July 2022

Monday, 04 to Saturday, 09	Second Mid-Term Examination for B. Tech II Sem
Monday, 11 to Wednesday, 13	End-Term Practical Examination for B.Tech II Sem

HOLIDAYS IN EVEN SEMESTER 2021-22

1	Winter Break	As per RTU Examination Schedule
2	Makar Sankranti	Friday, January 14 to Saturday, January 15, 2022
3	Celebration of Republic Day	Wednesday, January 26, 2022
4	Holi	Friday, March 18 to Saturday, March 19, 2022
5	Ramzan Id/Eid-ul-Fitar	Tuesday, May 03, 2022
6	Summer Break	As per RTU Examination Schedule

*Subject to revision as per RTU notifications

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6 Department Activity Calendar

Poornima College of Engineering, Jaipur

Calendar for Mechanical Engineering : EVEN Semester - Session 2021-22

S. No.	Activity/ Process	B.Tech. II Sem.	B.Tech. IV Sem.	B.Tech. VI Sem.	B.Tech. VIII Sem.
	(A) Academic Processes				
1	Date of Registration & start of regular classes for students	Friday,01, April 2022	Thursday, 27, January 2022	Thursday, 20, January 2022	Thursday, 20, January 2022
2	Orientation programme	Friday, 01 to Thursday, 07, April 2022	Thursday, 27 January to 04 February, 2022	Thursday, 27 January to 04 February, 2022	Thursday, 27 January to 04 February, 2022
3	Date of submission of question papers by faculty members to secrecy for 1st Mid-term	Monday 9, May 2022	Monday 11, April 2022	Monday 11, April 2022	Monday 11, April 2022
4	I Mid Term Theory & Practical Exam	Monday, 23 to Saturday, 28, May 2022	Monday, 25 to Saturday, 30, April 2022	Monday, 04 to Saturday, 09, April 2022	Monday, 04 to Saturday, 09, April 2022
5	Showing evaluated answer books of 1st Mid-term exam to students in respective classes	Monday, 06/06/2022	Saturday, 07/05/2022	Saturday, 16-04-2022	Saturday, 16-04-2022
6	Last date of submission of Evaluated Answer Books and Mark of First Mid-term Theory & Practical exam to Exam and Secrecy Cell respectively	Saturday, 4 June 2022	Thursady, 5 May 2022	Saturday, 16 April 2022	Saturday, 16 April 2022
7	Date of submission of question papers by faculty members to secrecy for 2nd Mid-term	Monday, 27 June 2022	Monday, 30 May 2022	Monday, 2 May 2022	Monday, 2 May 2022
8	Revision classes				
9	Last Teaching Day*	Thursday, 30 June 2022	Friday 3 June 2022	Saturday, 14, May 2022	Saturday, 14, May 2022
10	2nd Mid-term theory & Practical Exams*	Monday, 04 to Saturday, 09, July 2022	Monday, 06 to Saturday, 11, June 2022	Monday, 16 to Saturday, 21, May 2022	Monday, 16 to Saturday, 21, May 2022
11	End-Term Practical Exams	Monday, 11 to Wednesday, 13, July 2022	Monday, 13 to Wednesday, 15, June 2022	Monday, 23 to Wednesday, 25, May 2022	Monday, 23 to Wednesday, 25, May 2022
	(B) Events and Activities				
12	Industrial Visit at Bhamashah technohub, Jaipur	Tuesday, February 8, 2022			
	Innovative Research proposal: Grant to Technology	Thursday, February 10, 2022			
13	Career in Aviation-The World of Flying Machines	Friday, February 11, 2022			
14	Design Tools for Value Added Engineering	Monday, February 14, 2022			
15	Industrial Visit at Jaipur Foot, Jaipur	Sunday, February 20, 2022			
16	Workshop on Enterpreneurship and Startup	Monday, March 28, 2022	Under MoU with Zumoson soft Invention Pvt. Ltd		
17	Entrepreneurship Awareness Camp-1 On "Introduction of Entrepreneurship in Development of Society"	04-06, April, 2022	DST Sponsored NIMAT Project		
20	Second International Conference on Sustainable Energy, Environment and Green Technologies (ICSEEGT 2022)	24-25 June 2022	IOP Science		
21					
22					
23					
24					
	(C) Holidays				
27	Makar Sankranti	Friday, January 14 to Saturday, January 15, 2022			
28	Celebration of Republic Day	Wednesday, January 26, 2022			
29	Holi	Friday, March 18 to Saturday, March 19, 2022			
30	Ramzan Id/Eid-ul-Fitar	Tuesday, May 03, 2022			
31					
32					
33					

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7 Teaching Scheme

7.1 RTU Teaching Scheme

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme

B.Tech. : Mechanical Engineering
2nd Year - III Semester

SN	Category	Course Code	Course Title	Contact hrs/week L	T	P	Marks Exm Hrs	IA	ETE	Total	Cr
THEORY											
1	BSC	3ME2-01	Advance Engineering Mathematics-I	3	0	0	3	30	70	**100**	**3**
2	HSMC	3ME1-02/ 3ME1-03	Technical Communication/ Managerial Economics and Financial Accounting	2	0	0	2	30	70	**100**	**2**
3	ESC	3ME3-04	Engineering Mechanics	2	0	0	2	30	70	**100**	**2**
4	PCC	3ME4-05	Engineering Thermodynamics	3	0	0	3	30	70	**100**	**3**
5		3ME4-06	Materials Science and Engineering	3	0	0	3	30	70	**100**	**3**
6		3ME4-07	Mechanics of Solids	3	1	0	3	30	70	**100**	**4**
			Sub Total	16	1	0					**17**
PRACTICAL & SESSIONAL											
7	PCC	3ME4-21	Machine drawing practice	0	0	3		60	40	**100**	**1.5**
8		3ME4-22	Materials Testing Lab	0	0	3		60	40	**100**	**1.5**
9		3ME4-23	Basic Mechanical Engineering Lab	0	0	3		60	40	**100**	**1.5**
10		3ME4-24	Programming using MATLAB	0	0	3		60	40	**100**	**1.5**
11	PSIT	3ME7-30	Industrial Training	0	0	1		60	40	**100**	**1**
12	SODECA	3ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0				**100**	**0.5**
			Sub- Total	0	0	13					**7.5**
			TOTAL OF III SEMESTER	16	1	13					**24.5**

L: *Lecture,* ***T:*** *Tutorial,* ***P:*** *Practical,* ***Cr:*** *Credits*

ETE: *End Term Exam,* ***IA:*** *Internal Assessment*

Office of Dean Academic Affairs
Rajasthan Technical University, Kota

Scheme of 2nd Year B. Tech. (ME) for students admitted in Session 2021-22 onwards. Page 2

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme
B.Tech. : Mechanical Engineering
3rd Year –V Semester

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	ESC	5ME3-01	Mechatronic Systems	2	0	0	2	20	80	**100**	**2**
2	PCC/ PEC	5ME4-02	Heat Transfer	3	0	0	3	30	120	**150**	**3**
3		5ME4-03	Manufacturing Technology	3	0	0	3	30	120	**150**	**3**
4		5ME4-04	Design of Machine Elements I	3	0	0	3	30	120	**150**	**3**
5		5ME4-05	Principles of Management	2	0	0	2	20	80	**100**	**2**
6		Professional	Elective I (any one)	3	0	0	3	30	120	**150**	**3**
		5ME5-11	Steam Engineering								
		5ME5-12	Automobile Engineering								
		5ME5-13	Non Destructive Evaluation & Testing								
			Sub Total	**16**	**0**	**0**		**160**	**640**	**800**	**16**
PRACTICAL & SESSIONAL											
7	ESC	5ME3-21	Mechatronic Lab	0	0	2	2	30	20	**50**	**1**
8	PCC	5ME4-22	Heat Transfer lab	0	0	2	2	30	20	**50**	**1**
9		5ME4-23	Production Engineering Lab	0	0	2	2	30	20	**50**	**1**
10		5ME4-24	Machine Design Practice I	0	0	2	2	30	20	**50**	**1**
11	PSIT	5ME7-30	Industrial Training	0	0	1	1	75	50	**125**	**2.5**
12	SODECA	5ME8-00	Social Outreach, Discipline & Extra Curricular Activities						25	**25**	**0.5**
			Sub- Total	**0**	**0**	**9**		**195**	**155**	**350**	**7**
			TOTAL OF V SEMESTER	**16**	**0**	**9**		**355**	**795**	**1150**	**23**

***L**: Lecture, **T**: Tutorial, **P**: Practical, **Cr**: Credits*
***ETE**: End Term Exam, **IA**: Internal Assessment*

Office of Dean Academic Affairs
Rajasthan Technical University, Kota

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Scheme & Syllabus

IV Year- VII & VIII Semester: B. Tech. (Mechanical Engineering)

Teaching & Examination Scheme
B.Tech.: Mechanical Engineering
4th Year – VII Semester

SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
THEORY											
1	PEC	7ME5-11	I. C. Engines	3	0	0	3	30	120	**150**	**3**
2		7ME5-12	Operations Research								
3		7ME5-13	Turbomachines								
4	OE		Open Elective-I	3	0	0	3	30	120	**150**	**3**
			Sub Total	**6**	**0**	**0**		**60**	**240**	**300**	**6**
PRACTICAL & SESSIONAL											
5	PCC	7ME4-21	FEA Lab	0	0	3	3	45	30	**75**	**1.5**
6		7ME4-22	Thermal Engineering Lab II	0	0	3	3	45	30	**75**	**1.5**
7		7ME4-23	Quality Control Lab	0	0	2	2	30	20	**50**	**1**
8	PSIT	7ME7-30	Industrial Training *	1	0	0	1	75	50	**125**	**2.5**
9		7ME7-40	Seminar *	2	0	0	2	60	40	**100**	**2**
10	SODECA	7ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0		0	25	**25**	**0.5**
			Sub- Total	**3**	**0**	**8**		**255**	**195**	**450**	**9**
			TOTAL OF VII SEMEESTER	**9**	**0**	**8**		**315**	**435**	**750**	**15**

*for the purpose of counting teaching load

L: *Lecture,* ***T:*** *Tutorial,* ***P:*** *Practical,* ***Cr:*** *Credits*

ETE: *End Term Exam,* ***IA:*** *Internal Assessment*

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8 PCE Teaching Scheme

Working Group	Year	Sem	Students	Deptt.	Teaching Scheme				Course Name	Subject Code	No. of Sec	No. of Batches	Batch Size (T/H/F)	Total Load (L)	Total Load (T)	Total Load (P)	Total Load (L+T+P)	Teaching Dept.	Cat.
					L	T	P	Credit											
ME/Civil	2	4	62	ME	3	0	0	2	Data analytics	4ME-2-01	1	1	F	3	0	0	3	ME	BSC
ME/Civil	2	4	62	ME	3	0	0	2	Managerial Economics and Financial Accounting	4ME1-03	1	1	F	3	0	0	3	ME	HSMC
ME/Civil	2	4	62	ME	3	0	0	2	Digital Electronics	4ME3-04	1	1	F	3	0	0	3	ECE	ESC
ME/Civil	2	4	62	ME	3	0	0	4	Fluid Mechanics and Fluid Machines	4ME4-05	1	1	F	3	0	0	3	ME	PCC
ME/Civil	2	4	62	ME	0	1	0	NA	Fluid Mechanics and Fluid Machines	4ME4-05	1	3	T	0	3	0	3	ME	PCC
ME/Civil	2	4	62	ME	3	0	0	3	Manufacturing Processes	4ME4-06	1	1	F	3	0	0	3	ME	PCC
ME/Civil	2	4	62	ME	3	0	0	4	Theory of Machines	4ME4-07	1	1	F	3	0	0	3	ME	NA
ME/Civil	2	4	62	ME	0	1	0	NA	Theory of Machines	4ME4-07	1	3	T	0	3	0	3	ME	NA
ME/Civil	2	4	62	ME	0	0	2	1.5	Digital Electronics lab	4ME3-21	1	3	T	0	0	6	6	ECE	PCC
ME/Civil	2	4	62	ME	0	0	2	1.5	Fluid Mechanics lab	4ME4-22	1	3	T	0	0	6	6	ME	PCC
ME/Civil	2	4	62	ME	0	0	2	1.5	Production Practice lab	4ME4-23	1	3	T	0	0	6	6	ME	PCC
ME/Civil	2	4	62	ME	0	0	2	1.5	Theory of machines Lab	4ME4-24	1	3	T	0	0	6	6	ME	PCC
ME/Civil	2	4	62	ME	0	0	2	NA	Non Syllabus CAD Lab	4ME4CAD	1	3	T	0	0	6	6	ME	NA
ME/Civil	2	4	62	ME	0	0	1	NA	Project-NSP	4MENSP	1	3	T	0	0	3	3	ME	NA
ME/Civil	3	6	80	ME	3	0	0	2	Measurement and Metrology	6ME3-01	2	1	F	6	0	0	6	ME	ESC
ME/Civil	3	6	80	ME	3	0	0	3	CIMS	6ME4-02	2	1	F	6	0	0	6	ME	PCC/PEC
ME/Civil	3	6	80	ME	3	0	0	3	Mechanical Vibrations	6ME4-03	2	1	F	6	0	0	6	ME	PCC/PEC
ME/Civil	3	6	80	ME	0	1	0	3	Mechanical Vibrations	6ME4-03	2	4	F	0	4	0	4	ME	PCC/PEC
ME/Civil	3	6	80	ME	3	0	0	3	Design of Machine Elements II	6ME4-04	2	1	F	6	0	0	6	ME	PCC/PEC
ME/Civil	3	6	80	ME	3	0	0	3	Quality Management	6ME4-05	2	1	F	6	0	0	6	ME	PCC/PEC
ME/Civil	3	6	80	ME	3	0	0	3	Refrigeration and Air Conditioning / NON Conventional Machining Methods / MEMS and Microsystems	6ME5-11 / 6ME5-12 / 6ME5-13	2	1	F	6	0	0	6	ME	PCC/PEC
ME/Civil	3	6	80	ME	0	0	2	1.5	CIMS Lab	6ME4-21	2	4	T	0	0	8	8	ME	PCC
ME/Civil	3	6	80	ME	0	0	2	1.5	Vibration Lab	6ME4-22	2	4	T	0	0	8	8	ME	PCC
ME/Civil	3	6	80	ME	0	0	2	1.5	Machine Design Practice II	6ME4-23	2	4	T	0	0	8	8	ME	PCC
ME/Civil	3	6	80	ME	0	0	3	1.5	Thermal Engineering Lab I	6ME4-24	2	4	T	0	0	12	12	ME	PCC
ME/Civil	3	6	80	ME	0	0	2	NA	Non Syllabus CAD Lab	6MECAD	2	4	T	0	0	8	8	ME	PCC
ME/Civil	2	6	80	ME	0	0	1	NA	Project-NSP	6MENSP	2	4	T	0	0	4	4	ME	NA
ME/Civil	4	8	137	ME	4	0	0	3	Hybrid and Electric Vehicles Supply and Operations Management Additive Manufacturing	8ME5-11 8ME5-12 8ME5-13	3	1	F	12	0	0	12	ME	NA
ME/Civil	4	8	137	ME	3	0	0	3	Open Elective	OE	2	1	F	6	0	0	6	OTHER	NA
ME/Civil	4	8	137	ME	0	0	2	1	Industrial Engineering Lab	8ME4-21	2	6	T	0	0	12	12	ME	NA
ME/Civil	4	8	137	ME	0	0	2	1	Metrology Lab	8ME4-22	2	6	T	0	0	12	12	ME	NA
ME/Civil	4	8	137	ME	0	0	5	7	Project	8ME7-50	2	6	F	0	0	30	30	ME	NA
ME/Civil	4	8	137	ME	0	0	2	NA	Non Syllabus CAD Lab	8MECAD	2	6	T	0	0	12	12	ME	NA

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8.1 Marking Scheme

MARKING SCHEME FOR PRACTICAL EXAM, EVEN SEM., 2020-21,		EXAM & SECRECY CELL, PCE									
		I+II Mid Term Exam			Atten & Performance.			End Term Exam			Max.
Code	SUBJECT	Exp.	Viva	Total	Attn.	Perf.	Total	Exp.	Viva	Total	Marks
2FY2-21	Engineering Chemistry Lab	22	8	30	8	22	30	52	18	70	100
2FY2-20	Engineering Physics Lab	22	8	30	8	22	30	52	18	70	100
2FY1-23	Human Values Activities and Sports	22	8	30	8	22	30	52	18	70	100
2FY1-22	Language Lab	22	8	30	8	22	30	52	18	70	100
2FY3-25	Manufacturing Practices Workshop	22	8	30	8	22	30	52	18	70	100
2FY3-24	Computer Programming Lab	22	8	30	8	22	30	52	18	70	100
2FY3-27	Basic Civil Engineering Lab	22	8	30	8	22	30	52	18	70	100
2FY3-26	Basic Electrical Engineering Lab	22	8	30	8	22	30	52	18	70	100
2FY3-29	Computer Aided Machine Drawing	22	8	30	8	22	30	52	18	70	100
2FY3-28	Computer Aided Engineering Graphics	22	8	30	8	22	30	52	18	70	100
4CE4-21	Material Testing Lab	15	5	20	5	15	20	15	5	20	50
4CE4-22	Hydraulics Engineering Lab	15	5	20	5	15	20	15	5	20	50
4CE4-23	Building Drawing	22	8	30	8	22	30	22	8	30	75
4CE4-24	Advanced Surveying Lab	15	5	20	5	15	20	15	5	20	50
4CE4-25	Concrete Lab	22	8	30	8	22	30	22	8	30	75
4CS4-21	Microprocessor & Interfaces Lab	15	5	20	5	15	20	15	5	20	50
4CS4-22	Database Management System Lab	22	8	30	8	22	30	22	8	30	75
4CS4-23	Network Programming Lab	22	8	30	8	22	30	22	8	30	75
4CS4-24	Linux Shell Programming Lab	15	5	20	5	15	20	15	5	20	50
4CS4-25	Java Lab	15	5	20	5	15	20	15	5	20	50
4EC4-21	Analog and Digital Communication Lab	22	8	30	8	22	30	22	8	30	75
4EC4-22	Analog Circuits Lab	22	8	30	8	22	30	22	8	30	75
4EC4-23	Microcontrollers Lab	22	8	30	8	22	30	22	8	30	75
4EC4-24	Electronics Measurement & Instrumentation Lab	22	8	30	8	22	30	22	8	30	75
4EE4-21	Electrical Machine - II Lab	30	10	40	10	30	40	30	10	40	100
4EE4-22	Power Electronics Lab	30	10	40	10	30	40	30	10	40	100
4EE4-23	Digital Electronics Lab	15	5	20	5	15	20	15	5	20	50
4EE3-24	Measurement Lab	15	5	20	5	15	20	15	5	20	50
4IT4-21	Linux Shell Programming Lab	15	5	20	5	15	20	15	5	20	50
4IT4-22	Database Management System Lab	22	8	30	8	22	30	22	8	30	75
4IT4-23	Network Programming Lab	22	8	30	8	22	30	22	8	30	75
4IT4-24	Java Lab	15	5	20	5	15	20	15	5	20	50
4IT4-25	Web Technology Lab	15	5	20	5	15	20	15	5	20	50
4ME3-21	Digital Electronics lab	22	8	30	8	22	30	22	8	30	75
4ME4-22	Fluid Mechanics lab	22	8	30	8	22	30	22	8	30	75
4ME4-23	Production practice lab	22	8	30	8	22	30	22	8	30	75
4ME4-24	Theory of machines Lab	22	8	30	8	22	30	22	8	30	75
6CE4-21	Environmental Engineering Design and Lab	22	8	30	8	22	30	22	8	30	75
6CE4-22	Steel Structure Design	22	8	30	8	22	30	22	8	30	75
6CE4-23	Quantity Surveying and Valuation	15	5	20	5	15	20	15	5	20	50
6CE4-24	Water and Earth Retaining Structures Design	15	5	20	5	15	20	15	5	20	50
6CE4-25	Foundation Design	15	5	20	5	15	20	15	5	20	50
6CS4-21	Digital Image Processing Lab	22	8	30	8	22	30	22	8	30	75
6CS4-22	Machine Learning Lab	22	8	30	8	22	30	22	8	30	75
6CS4-23	Python Lab	22	8	30	8	22	30	22	8	30	75
6CS4-24	Mobile Application Development Lab	22	8	30	8	22	30	22	8	30	75
6EC 4-21	Computer Network Lab	30	10	40	10	30	40	30	10	40	100
6EC 4-22	Antenna and wave propagation Lab	15	5	20	5	15	20	15	5	20	50
6EC 4-23	Electronics Design Lab	30	10	40	10	30	40	30	10	40	100
6EC 4-24	Power Electronics Lab	15	5	20	5	15	20	15	5	20	50
6EE4-21	Power System - II Lab	30	10	40	10	30	40	30	10	40	100
6EE4-22	Electric Drives Lab	30	10	40	10	30	40	30	10	40	100
6EE4-23	Power System Protection Lab	15	5	20	5	15	20	15	5	20	50
6EE4-24	Modelling and simulation lab	15	5	20	5	15	20	15	5	20	50
6IT4-21	Digital Image Processing Lab	22	8	30	8	22	30	22	8	30	75
6IT4-22	Machine Learning Lab	22	8	30	8	22	30	22	8	30	75
6IT4-23	Python Lab	22	8	30	8	22	30	22	8	30	75
6IT4-24	Mobile Application Development Lab	22	8	30	8	22	30	22	8	30	75
6ME4-21	CIMS Lab	22	8	30	8	22	30	22	8	30	75
6ME4-22	Vibration Lab	22	8	30	8	22	30	22	8	30	75
6ME4-23	Machine Design Practice II	22	8	30	8	22	30	22	8	30	75
6ME4-24	Thermal Engineering Lab I	22	8	30	8	22	30	22	8	30	75
8CE4-21	Project Planning & Construction Management	15	5	20	5	15	20	15	5	20	50
8CE4-22	Pavement Design	15	5	20	5	15	20	15	5	20	50
8CE7-50	Project	104	36	140	36	104	140	104	36	140	350
8CS4-21	Big Data Analytics Lab	15	5	20	5	15	20	15	5	20	50
8CS4-22	Software Testing and Validation Lab	15	5	20	5	15	20	15	5	20	50
8CS7-0	Project	133	47	180	47	133	180	133	47	180	450
8EC4-21	Internet of Things (IOT) Lab	15	5	20	5	15	20	15	5	20	50
8EC4-22	Skill Development Lab	15	5	20	5	15	20	15	5	20	50
8EC7-50	Project	104	36	140	36	104	140	104	36	140	350
8EE4-21	Energy Systems Lab	30	10	40	10	30	40	30	10	40	100
8EE7-50	Project	104	36	140	36	104	140	104	36	140	350
8IT4-21	Internet of Things Lab	15	5	20	5	15	20	15	5	20	50
8IT4-22	Software Testing and Validation Lab	15	5	20	5	15	20	15	5	20	50
8IT7-50	Project	104	36	140	36	104	140	104	36	140	350
8ME4-21	Industrial Engineering Lab	15	5	20	5	15	20	15	5	20	50
8ME4-22	Metrology Lab	15	5	20	5	15	20	15	5	20	50
8ME7-50	Project	104	36	140	36	104	140	104	36	140	350

NOTE: - (1) In Attendance & Performance marks should be given on the basis of student overall performance in semester i. e. continuous evaluation.
(2) In Common Pool marks should be given by HOD on the basis of student Assignment,Non Syllabus Activity,Online Exam Exam,Application/Survey / Case Study based Learning, Pre-Placement Activity, Department Level Career Oriented Activities through out the semester.

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9 Department Load Allocation

POORNIMA COLLEGE OF ENGINEERING, JAIPUR								
DEPARTMENT OF MECHANICAL ENGINEERING								
Class Wise Load Allotment Session 2021-22 (EVEN)								
Section	Subject Code	Subject Name	L	T	P	Batch Size	Total Load	Faculty Name
NA	4ME2-01	Data Analytics	3	0	0	1	3	Mr. Naval Kishore Jain
NA	6ME5-12	NON Conventional Machining Methods				1	2	Dr. Akshay Jain
NA	4ME4-24	Theory of Machines Lab	0	0	2	1		
NA	4ME4-05	Fluid Mechanics & Fluid Machines	3	0	0	1	7	Dr. Amit Mandal
NA	4ME4-05	Fluid Mechanics- Tutorial	0	1	0	1		
NA	4ME4-22	Fluid Mechanics lab	0	0	2	1		
NA	6ME4NSP	CAD NSP LAB (Beyond Syllabus)	0	0	2	3	2	Dr. Devesh Kumar
A	8ME7-50	Project	0	0	6	1	12	Dr. Narayan Lal Jain
NA	6ME5-11	Refrigeration and Air Conditioning	3	0	0	1		
NA	6ME4-24	Thermal Engineering Lab I	0	0	2	3		
NA	6MENSP	Project-NSP	0	0	1	1		
NA	4MENSP	NSP Project	0	0	1	1		
NA	4MENSP	NSP Project	0	0	1	1	1	Dr. Rahul Sen
B	8ME7-50	Project	0	0	6	1	12	Dr. Raj Kumar Satankar
NA	4ME4-07	Theory of Machines	3	0	0	1		
NA	4ME4-07	Theory of Machines- Tutorial	0	1	0	1		
NA	4ME4-24	Theory of Machines Lab	0	0	2	1		
NA	6ME4-05	Quality Management	3	0	0	1		
NA	4ME4-06	Manufacturing Process	3	0	0	1	14	Dr. Surendra Kumar Saini
NA	6ME4-02	CIMS	3	0	0	1		
NA	6ME4-21	CIMS Lab	0	0	2	3		
A	8ME7-50	Project	0	0	6	1		
NA	4MEi-3	i-3 Activity	6	0	0	1	0	i-3 Activity
NA	6MEi-3	i-3 Activity	6	0	0	NA	0	
A+B	8ME5-11	Hybrid and Electric Vehicle	3	0	0	1	5	Kalpit Jain
B	8ME4-21	Industrial Engineering Lab	0	0	2	2		
B	8ME4-22	Metrology Lab	0	0	2	2	4	Mr. Ankit Tyagi
NA	6ME4-03	Mechanical Vibrations	4	0	0	1	8	Mr. Ashwani Kapoor
NA	6ME4-22	Vibration Lab	0	0	2	3		
NA	4ME4-23	Production Practice lab	0	0	2	1		
B	8MENSP	CAD NSP LAB (Beyond Syllabus)	0	0	2	2	6	Mr. Bhavesh Devra
NA	6ME4-22	Vibration Lab	0	0	2	3		
B	8ME4-21	Industrial Engineering Lab	0	0	2	2		

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B	8MENSP	CAD NSP LAB (Beyond Syllabus)	0	0	2	2	6	Mr. Bhavesh Devra
NA	6ME4-22	Vibration Lab	0	0	2	3		
B	8ME4-21	Industrial Engineering Lab	0	0	2	2		
A	8MENSP	CAD NSP LAB (Beyond Syllabus)	0	0	2	2	6	Mr. Buddhi Panwar
B	8ME4-22	Metrology Lab	0	0	2	2		
A	8ME4-22	Metrology Lab	0	0	2	2		
NA	4ME4-23	Production Practice lab	0	0	2	1	13	Mr. Kalpit Jain
NA	6ME3-01	Measurement and Metrology	3	0	0	1		
A	8ME4-22	Metrology Lab	0	0	2	2		
B	8ME7-50	Project	0	0	6	1		
A	8ME4-21	Industrial Engineering Lab	0	0	2	2	9	Mr. Mahesh Chand Saini
NA	4ME3-04	Digital Electronics	3	0	0	1		
NA	4ME3-21	Digital Electronics lab	0	0	2	1		
A+B	8ME5-13	Additive Manufacturing	3	0	0	1	5	Mr. Prashant Mishra
NA	6ME4-21	CIMS Lab	0	0	2	3		
OE	8ME6-60.2	Simulation Modeling and Analysis	3	0	0	1	5	Mr. Pratish Rawat
NA	6ME4NSP	CAD NSP LAB (Beyond Syllabus)	0	0	2	3		
A	8ME4-21	Industrial Engineering Lab	0	0	2	2	4	Mr. Rahul Sharma
NA	6ME4-04	Design of Machine Elements II	3	0	0	1	7	Mr. Sanjay Kumawat
NA	6ME4-23	Machine Design Practice II	0	0	2	3		
NA	6ME4-24	Thermal Engineering Lab I	0	0	2	3		
NA	4ME4-22	Fluid Mechanics lab	0	0	2	1	2	Mr. Vaibhav Sharma
NA	4ME01-3	Managerial Economics & Financial Accounting	3	0	0	1	3	Mrs. Kalpana Sharma
NA	4ME4NSP	CAD NSP LAB (Beyond Syllabus)	0	0	1	1	1	Ms. Ashabai Sanjay Kumawat
NA	4ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0	1	0	NA
NA	6ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0	NA	0	
OE	8ME6-60.1	Operations Research	3	0	0	1	3	Rahul Sharma

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10 Time Table

10.1 Orientation Time Table

Poornima College of Engineering

Department of Mechanical Engineering

Orientation Time Table - Even Sem-2020-21 7th to

Date	Year	1 09:30 AM-10:30 AM	2 10:30 AM-11:30 AM	3 11:30 AM-12:30 PM	4 12:30 PM-01:30 PM
07-01-2021 Thursday	III (A+B)	Tutor Interaction (Mr. Buddhi Prakash & Dr. Surendra Saini)	Elective Subject Preference Guidance RAC /NCMM	Enterprenaurship & PIIC (Mr. Ashwani Kapoor)	Microsoft Team Online Platform Session (Sanjay Kumawat)
	IV (A+B)	Tutor Interaction (Mr. Bhavesh Devra & Dr. Sagar Kumar)	Elective Subject Preference Guidance 1. Hybrid and Electric Vehicles 2. Supply and Operations Management 3. Additive Manufacturing		
08-01-2021 Friday	III (A+B)	6ME3-01- Measurement and Metrology (Zero Lecture) Mr. Kalpit Jain (A) + Dr. Rahul Sen (B)	6ME4-02- CIMS (Zero Lecture) Mr. Ashwani Kapoor (A) + Mr. Buddhi Prakash (B)	6ME4-03- Mechanical Vibrations (Zero Lecture) Dr. Sagar Kumar (A) + Mr. Amit Mandal (B)	6ME4-04- Design of Machine Elements II (Zero Lecture) Mr. Sanjay Kumawat (A) + Dr. Raj Kumar Satankar (B)
	IV (A+B)	8ME4-21-Industrial Engineering Lab (Zero Lecture) Mr. Dhananjay Kumar (A) + Dr. Rahul Sen (B)	Research & Publication (Dr. Mohammad Israr)	8MECAD- CAD LAB (Zero Lecture) Mr. Bhavesh Devra (A) + Mr. Rahul Sharma (B)	8ME4-22- Metrology Lab (Zero Lecture) Mr Buddhi Prakash (A) + Mr. Kalpit Jain (B)
09-01-2021 Saturday	III (A+B)	6ME4-05- Quality Management (Zero Lecture) Dr. Akshay Jain (A) + Mr. Kalpit Jain (B)	Session Planning HOD/ Dy. Head Interaction	Research & Publication (Dr. Mohammad Israr)	Alumni Session by Kushagra Jain (Kalpit Jain)
	IV (A+B)	Session Planning HOD/ Dy. Head Interaction	8ME7-50- Project Rubrics Dr. Rahul Sen	Placement (Mr. Bhavesh Devra & Dr. Sagar Kumar)	

Note:- All session will be taken on Microsoft Team- User ID And Password will be sent to you on your mail by 6th Jan 2021

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Sitapura, JAIPUR

Orientation Time Table Even SEM
Poornima College of Engineering, Jaipur

Calendar for Mechanical Engineering : EVEN Semester - Session 2021-22

(A) Academic Processes					
S. No.	Activity/ Process	B.Tech. II Sem.	B.Tech. IV Sem.	B.Tech. VI Sem.	B.Tech. VIII Sem.
1	Date of Registration & start of regular classes for students	Friday,01, April 2022	Thursday, 27, January 2022	Thursday, 20, January 2022	Thursday, 20, January 2022
2	Orientation programme	Friday, 01 to Thursday, 07, April 2022	Thursday, 27 January to 04 February, 2022	Thursday, 27 January to 04 February, 2022	Thursday, 27 January to 04 February, 2022
3	Date of submission of question papers by faculty members to secrecy for 1st Mid-term	Monday 9, May 2022	Monday 11, April 2022	Monday 11, April 2022	Monday 11, April 2022
4	I Mid Term Theory & Practical Exam	Monday, 23 to Saturday, 28, May 2022	Monday, 25 to Saturday, 30, April 2022	Monday, 04 to Saturday, 09, April 2022	Monday, 04 to Saturday, 09, April 2022
5	Showing evaluated answer books of 1st Mid-term exam to students in respective classes	Monday, 06/06/2022	Saturday, 07/05/2022	Saturday, 16-04-2022	Saturday, 16-04-2022
6	Last date of submission of Evaluated Answer Books and Mark of First Mid-term Theory & Practical exam to Exam and Secrecy Cell respectively	Saturday, 4 June 2022	Thursady, 5 May 2022	Saturday, 16 April 2022	Saturday, 16 April 2022
7	Date of submission of question papers by faculty members to secrecy for 2nd Mid-term	Monday, 27 June 2022	Monday, 30 May 2022	Monday, 2 May 2022	Monday, 2 May 2022
8	Revision classes				
9	Last Teaching Day*	Thursday, 30 June 2022	Friday 3 June 2022	Saturday, 14, May 2022	Saturday, 14, May 2022
10	2nd Mid-term theory & Practical Exams*	Monday, 04 to Saturday, 09, July 2022	Monday, 06 to Saturday, 11, June 2022	Monday, 16 to Saturday, 21, May 2022	Monday, 16 to Saturday, 21, May 2022
11	End-Term Practical Exams	Monday, 11 to Wednesday, 13, July 2022	Monday, 13 to Wednesday, 15, June 2022	Monday, 23 to Wednesday, 25, May 2022	Monday, 23 to Wednesday, 25, May 2022
(B) Events and Activities					
12	Industrial Visit at Bhamashah technohub, Jaipur	Tuesday, February 8, 2022			
	Innovative Research proposal: Grant to Technology	Thursday, February 10, 2022			
13	Career in Aviation-The World of Flying Machines	Friday, February 11, 2022			
14	Design Tools for Value Added Engineering	Monday, February 14, 2022			
15	Industrial Visit at Jaipur Foot, Jaipur	Sunday, February 20, 2022			
16	Workshop on Enterpreneurship and Startup	Monday, March 28, 2022	Under MoU with Zumoson soft Invention Pvt. Ltd		
17	Entrepreneurship Awareness Camp-1 On "Introduction of Entrepreneurship in Development of Society"	04-06, April, 2022	DST Sponsored NIMAT Project		
20	Second International Conference on Sustainable Energy, Environment and Green Technologies (ICSEEGT 2022)	24-25 June 2022	IOP Science		
21					
22					
23					
24					
(C) Holidays					
27	Makar Sankranti	Friday, January 14 to Saturday, January 15, 2022			
28	Celebration of Republic Day	Wednesday, January 26, 2022			
29	Holi	Friday, March 18 to Saturday, March 19, 2022			
30	Ramzan Id/Eid-ul-Fitar	Tuesday, May 03, 2022			
31					
32					
33					
"स्वच्छ भारत.. सम्पन्न भारत.."					

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10.2 Academic Time Table II Year

	1 08:30 - 09:30AM	2 09:30 - 10:30AM	3 10:30 11:30AM	LUNCH 11:30AM - 12:10PM	4 12:10 - 01:10PM	5 01:10 - 02:10PM	6 02:10 - 03:10PM	7 03:10 - 04:00PM
Mo	4ME3-04 DIGITAL ELECTRONICS Mr. Mukesh Chand AB - 04	4ME4-07 THEORY OF MACHINES DR. RAJ KUMAR SATANKAR AB - 04	4ME4-05 FLUID MECHANICS DR. AMIT KUMAR MANDAL AB - 04	LUNCH BREAK	4ME2-01 DATA ANLYTICS MR. RAHUL SHARMA AB - 04	4MENSP CAD LAB DR. RAJ KUMAR SATANKAR AB -14 LAB	4ME01-3 MANAGERIAL ECONOMICS & FINANCIAL ACCOUNTING MS. KALPANA SHARMA AB - 04	CAD-NSP Lab Dr NLJ Dr. RS
Tu	4ME4-05 FM- TUTORIAL DR. AMIT KUMAR MANDAL AB - 01 LAB -A	4ME4-06 MANUFACTURING PROCESS DR. SURENDRA SAINI AB - 04	4ME3-04 DIGITAL ELECTRONICS MR. MUKESH CHAND AB - 04		4ME4-05 FLUID MECHANICS DR. AMIT KUMAR MANDAL AB - 04	4ME01-3 MANAGERIAL ECONOMICS & FINANCIAL ACCOUNTING MS. KALPANA SHARMA AB - 04	4ME2-01 DATA ANLYTICS MR. RAHUL SHARMA AB - 04	CAD-NSP Lab Dr NLJ Dr. RS
We	4ME3-04 DIGITAL ELECTRONICS MR. MUKESH CHAND AB - 04	4ME4-24 THEORY OF MACHINE LAB AB - 01 LAB -A DR. RKS+AJ			4ME4-22 FLUID MECHANICS LAB AB -10 FM LAB AM+VS		4ME01-3 MANAGERIAL ECONOMICS & FINANCIAL ACCOUNTING MS. KALPANA SHARMA AB - 04	ACTIVITY
Th	4ME4-06 MANUFACTURING PROCESS DR. SURENDRA SAINI AB - 04	4ME3-21 DIGITAL ELECTRONICS LAB AS-07 EC DE LAB MC			4ME4-07 THEORY OF MACHINES DR. RAJ KUMAR SATANKAR AB - 04	4ME4-05 FLUID MECHANICS DR. AMIT KUMAR MANDAL AB - 04	4ME4-07 TOM- TUTORIAL DR. RAJ KUMAR SATANKAR AB - 01 LAB -A	ACTIVITY
Fr	4ME4-06 MANUFACTURING PROCESS DR. SURENDRA SAINI AB - 04	4ME4-07 THEORY OF MACHINES DR. RAJ KUMAR SATANKAR AB - 04	4ME2-01 DATA ANLYTICS MR. RAHUL SHARMA AB - 04		4MENSP PROJECT DR. AMIT KUMAR MANDAL AB - 09 LAB	4ME4-23 PRODUCTION PRACTICE LAB AB - 09 LAB KJ+AK		ACTIVITY
Sa	i-3 ACTIVITY 2nd Yr i-3 2nd year				i-3 ACTIVITY 2nd Yr i-3 2nd year			---
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (VICE-PRINCIPAL & HOD-ME-PCE)			DR. MAHESH BUNDELE (DIRECTOR-PCE)	

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Academic Time Table III Year

	1 08:30 - 09:30AM	2 09:30 - 10:30AM	3 10:30 - 11:30AM	LUNCH 11:30AM - 12:10PM	4 12:10 - 01:10PM	5 01:10 - 02:10PM	6 02:10 - 03:10PM	7 03:10 - 04:00PM
Mo	6ME4-27 CIMS LAB 3RD A-1 AB - 02 MK,PM 3RD A-2 6ME4-22 VE LAB CB -28 VIB LAB AK 3RD A-3 6ME4-24 THERMAL LAB AB -11 LAB DR.NLJ		6ME4-02 CIMS DR. SURENDRA SAINI AB- 05	BREAK	6ME4-03 MECHANICAL VIBRATION DR. AMIT KUMAR MANDAL AB- 05	6ME5-11 RAC/ 6ME5-12 NCMM DR.NLJ / DR.SS AB- 05,AB - 04	6ME4-05 QUALITY MANAGEMENT DR. RAJ KUMAR SATANKAR AB- 05	ACTIVITY
Tu	6ME3-01 MEASUREMENT & METROLOGY MR. KALPIT JAIN AB- 05	6ME4-03 MECHANICAL VIBRATION MR. ASHWANI KAPOOR AB- 05	6ME4-02 CIMS DR. SURENDRA SAINI AB- 05		6ME-04 DESIGN OF MACHINE ELEMENT-II. MR. SANJAY KUMAWAT AB- 05	6MENSP PROJECT-NSP MR. KALPIT JAIN AB - 09 LAB	6ME4-05 QUALITY MANAGEMENT DR. RAJ KUMAR SATANKAR AB- 05	Project NSP Dr. NLJ
We	3RD A-1 6ME4-22 VE LAB CB -28 VIB LAB AM 3RD A-2 6ME4-24 THERMAL LAB AB -11 LAB DR.NLJ / NSS 3RD A-3 6ME4-27 CIMS LAB AB - 02 DR.SS	6ME-04 DESIGN OF MACHINE ELEMENT-II. MR. SANJAY KUMAWAT AB- 05			6ME4-02 CIMS DR. SURENDRA SAINI AB- 05	6ME5-11 RAC/ 6ME5-12 NCMM DR.NLJ / DR.SS AB- 05,AB - 04	6ME4-03 MECHANICAL VIBRATION MR. ASHWANI KAPOOR AB- 05	ACTIVITY
Th	6ME3-01 MEASUREMENT & METROLOGY MR. KALPIT JAIN AB- 05	6ME4-03 MECHANICAL VIBRATION MR. ASHWANI KAPOOR AB- 05	6ME4-05 QUALITY MANAGEMENT DR. RAJ KUMAR SATANKAR AB- 05	LUNCH	6ME-04 DESIGN OF MACHINE ELEMENT-II. MR. SANJAY KUMAWAT AB- 05	3RD A-1 6ME4-24 THERMAL LAB AB -11 LAB Mr. SM 3RD A-2 6ME4-23 MD-II LAB AB- 05 SKT 3RD A-3 6ME4NSP CAD LAB AB - 02 RS		ACTIVITY
Fr	3RD A-1 6ME4-23 MD-II LAB AB- 05 SKT 3RD A-2 6ME4NSP CAD LAB AB - 02 PR 3RD A-3 6ME4-22 VE LAB CB -28 VIB LAB		6ME3-01 MEASUREMENT & METROLOGY MR. KALPIT JAIN AB- 05		3RD A-1 6ME4NSP CAD LAB AB - 02 DK 3RD A-2 6ME4-27 CIMS LAB AB -14 LAB DR.SS 3RD A-3 6ME4-23 MD-II LAB AB- 05 SKT	6ME5-11 RAC/ 6ME5-12 NCMM Dr. AJ AB- 05,AB - 04		ACTIVITY
Sa	i-3 ACTIVITY 3rd Yr i-3 3rd year-A				i-3 ACTIVITY 3rd Yr i-3 3rd year-A			----
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)		DR. NARAYAN LAL JAIN (VICE-PRINCIPAL & HOD-ME-PCE)				DR. MAHESH BUNDELE (DIRECTOR-PCE)	

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Academic calendar IV Year section A

	1 08:30 - 09:30AM	2 09:30 - 10:30AM	3 10:30 - 11:30AM	LUNCH 11:30AM - 12:10PM	4 12:10 - 01:10PM	5 01:10 02:10PM	6 02:10 - 03:10PM	7 03:10 - 04:00PM
Mo	8ME5-13 Mr. Prashant Mishra 4TH-A+B	8ME5-11/13/HEV/ AM- DEPT. ELECTIVE KJ CB - 04,CB - 05	4TH A-1 AB -11 LAB 8ME4-22 METROLOGY LAB MR. BUDDHI PANWAR 4TH A-2 AB - 02 8MENSP CAD LAB MR. SANJAY KUMAWAT	LUNCH BREAK	4TH A-1 AB -11 LAB 8ME4-22 METROLOGY LAB MR. BUDDHI PANWAR 4TH A-2 AB - 02 8MENSP CAD LAB MR. SANJAY KUMAWAT	8ME7-50 PROJECT DR. N.L.JAIN AB - 09 LAB	8ME7-50 PROJECT DR. SURENDRA SAINI AB - 08 DIGI LAB	ACTIVITY
Tu	8ME5-13 Mr. Prashant Mishra 4TH-A+B	4TH A-1 8ME4-21 IE LAB AB - 09 LAB MR. MAHESH CHAND 4TH A-2 8ME4-22 METROLOGY LAB AB -11 LAB MR. KALPIT JAIN			8ME7-50 PROJECT DR. SURENDRA SAINI AB - 09 LAB	8ME7-50 PROJECT DR. N.L.JAIN AB - 01 LAB -A	8ME7-50 PROJECT DR. SURENDRA SAINI AB - 01 LAB -A	ACTIVITY
We	8ME5-13 Mr. Prashant Mishra 4TH A+B	8ME5-11/13/HEV/ AM- DEPT. ELECTIVE KJ CB - 04,CB - 05	8ME7-50 PROJECT DR. N.L JAIN AB - 09 LAB		8ME5-11/13/ HEV/ AM- DEPT. ELECTIVE KJ CB - 04,CB - 05	4TH A-1 8MENSP CAD LAB AB - 02 MR. BUDDHI PANWAR 4TH A-2 8ME4-21 IE LAB AB - 08 DIGI LAB MR. RHUL SHARMA		ACTIVITY
Th	----	----	----		----	----	----	----
Fr	----	----	----		----	----	----	----
Sa	----	----	----		----	----	----	----
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)		DR. NARAYAN LAL JAIN (VICE-PRINCIPAL & HOD-ME-PCE)				DR. MAHESH BUNDELE (DIRECTOR-PCE)	

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Academic calendar IV Year section B

	1 08:30 - 09:30AM	2 09:30 - 10:30AM	3 10:30 - 11:30AM	LUNCH 11:30AM - 12:10PM	4 12:10 - 01:10PM	5 01:10 - 02:10PM	6 02:10 - 03:10PM	7 03:10 - 04:00PM
Mo	8ME6-60.2 MR. PRATISH RAWAT 4TH-A+B 8ME6-60.1 RAHUL SHRAMA	8ME5-11/13/HEV/ AM- DEPT. ELECTIVE KJ CB - 04,CB - 05	8ME7-50 PROJECT DR. RAJ KUMAR SATANKAR AB - 09 LAB	LUNCH BREAK	8ME7-50 PROJECT DR. RAJ KUMAR SATANKAR AB - 09 LAB	4TH B-1 8ME4-21 IE LAB AB -11 LAB — MR. BHAVESH DEVRA 4TH B-2 8MENSP CAD LAB AB - 02 — MR. BHAVESH DEVRA		ACTIVITY
Tu	8ME6-60.2 MR. PRATISH RAWAT 4TH-A+B 8ME6-60.1 RAHUL SHRAMA	4TH B-1 8MENSP CAD LAB AB - 02 — MR. BHAVESH DEVRA 4TH B-2 8ME4-22 METROLOGY LAB AB - 08 DIGI LAB — MR. BUDDHI PANWAR			8ME7-50 PROJECT DR. RAJ KUMAR SATANKAR AB - 01 LAB -A	8ME7-50 PROJECT DR. RAJ KUMAR SATANKAR AB - 08 DIGI LAB	8ME7-50 PROJECT MR. KALPIT JAIN AB - 09 LAB	ACTIVITY
We	8ME6-60.2 MR. PRATISH RAWAT 4TH-A+B 8ME6-60.1 RAHUL SHRAMA	8ME5-11/13/ HEV/ AM- DEPT ELECTIVE KJ CB - 04,CB - 05	8ME7-50 PROJECT MR. KALPIT JAIN AB - 08 DIGI LAB		8ME5-11/13/ HEV/ AM- DEPT ELECTIVE KJ CB - 04,CB - 05	4TH B-1 8ME4-22 METROLOGY LAB AB -11 LAB — DR. ANKIT TYAGI 4TH B-2 8ME4-21 IE LAB AB - 09 LAB — MR. KALPIT JAIN		ACTIVITY
Th	----	----	----		----	----	----	----
Fr	----	----	----		----	----	----	----
Sa	----	----	----		----	----	----	----
	MR. SANJAY KUMAWAT (TIME TABLE COORDINATOR)			DR. NARAYAN LAL JAIN (VICE-PRINCIPAL & HOD-ME-PCE)			DR. MAHESH BUNDELE (DIRECTOR-PCE)	

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11 Course Outcome Attainment Process:

11.1 Course Outcome Attainment Process

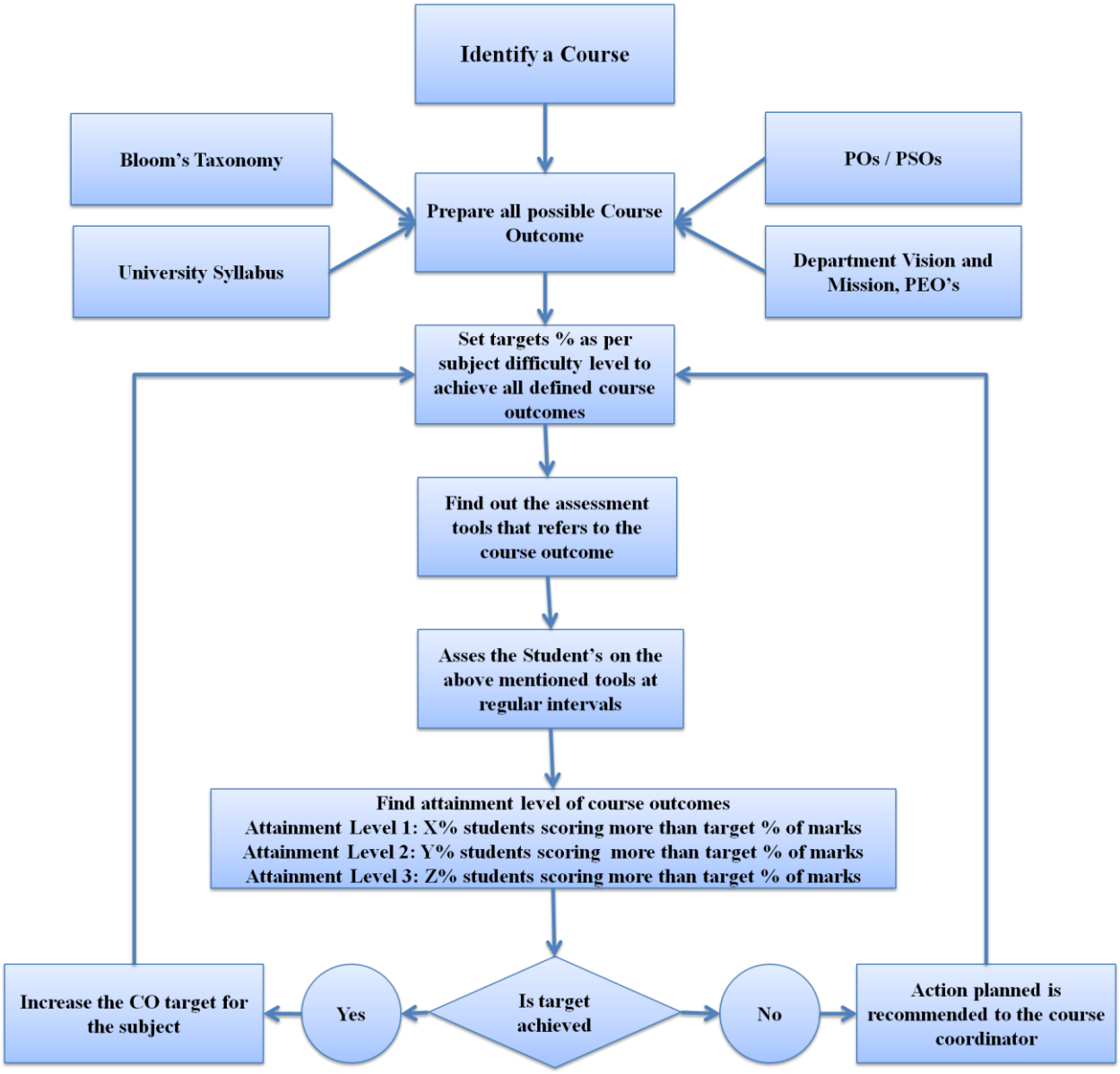

Figure. Course Outcome Attainment Process

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11.2 List of CO & CO mapping with PO

S. No.	Course Code	Course Name	CO No.	Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	1FY2-01	Engineering Mathematics-I	CO1	Define the sequence, series and multivariable calculus.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the certain method for the test of series and solution of Fourier series.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Apply the principles of integral to solve a variety of practical problems in sciences and engineering.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyze concepts of functions with several variables, its derivatives in partial forms with other important related concepts, their applications in maxima - minima problems.	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
2	1FY2-02	Engineering Physics	CO1	Describe the concepts of Wave and Quantum mechanics, Laser and Fiber optics, electromagnetic theory and material science	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the different applications of Laser and optical fibers in communication, engineering, medicine and Science.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Find energy states in 1-D and 3-D box with the application of quantum mechanics.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyze the crystal structure through X-ray Diffraction & wavelength of light through Newton's ring experiment and Michelson- interferometer	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
3	1FY1-	Human Valu	CO1	Relate sustained happiness through identifying the essentials of human values and skills	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-

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	05	**es**	CO2	Find the happiness and human values in terms of personal and social life to create harmony in them	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO3	Use and understand practically the importance of trust, mutually satisfaction and human relationship	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
			CO4	Identify the orders of nature for the holistic perception of harmony for human existence	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO5	Implement professional ethics and natural acceptance of human values in his/her life	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.33**	**-**	**-**	**-**	**2.00**	**-**	**-**	**-**
4	**1FY3-07**	**Basic Mechanical Engineering**	CO1	Describe concepts of thermal, functional design of machine elements, materials and primary manufacturing process.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Classify different types of turbines and power plants, pumps and IC engines, refrigeration system, transmission of power, engineering materials and primary manufacturing processes	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Apply the fundamental knowledge of thermal engineering, in addition to understanding of materials and primary manufacturing process to solve the industrial and societal issues.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO4	Examine about the turbine & pumps, IC engines, refrigeration system, modes of transmission of power, materials and primary manufacturing process	-	1	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO5	Evaluate problems related to refrigeration, turbine, pump, power transmission and primary manufacturing process.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	1
					2.00	**1.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.67**	**2.00**	**1.00**
5	**1FY3-09**	**Basic Civil Engineering**	CO1	Describe basics of surveying, types of building, mode of transportation and different causes of air and noise pollution	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
			CO2	Explain solid waste management, building by law, chemical cycle, biodiversity, causes of road accident, sanitary landfill and on-site sanitation	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Illustrate method of levelling, road safety measures, building component, hydrological cycle and environ different types of foundation, treatment and disposal of waste water, chemical cycle, traffic sign and symbol and rain water harvesting mental act	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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			CO4	Compute bearings and elevations of respective points on the ground, various road traffic sign, food chain and contour maps.	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**
6	**1FY2-20**	**Engineering Physics Lab**	CO1	Find out the characteristics of optical fiber and laser	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Determine wavelength of different spectral lines and height of an object by sextant	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analyze the band gap of semiconductor and type of semiconductor through hall effect	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-	-
					1.50	**1.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**
7	**1FY1-23**	**Human Values Activities and Sports**	CO1	Recall the natural and social issues and their remedies.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
			CO2	Describe the nature of human values and the impact of external factors over it.	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO3	Validate through actions the significance of trust, respect and harmony with self and surroundings.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO4	Outline the relation of human with nature and other factors in terms of human existence	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
			CO5	Associate the knowledge of self and society with clear understanding of social issues and the human beings.	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**1.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
8	**1FY3-**	**Manufacturi**	CO1	Describe the working of Lathe machine.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-

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	25	**ng Practices Workshop**	CO2	Apply the basic concepts of Foundry Shop	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Develop various carpentry joints, welding joints and sheet metal objects.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					1.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**-**	**-**	**-**	**1.00**	**-**	**-**
9	**1FY3-27**	**Basic Civil Engineering Lab**	CO1	Describe various sanitary fittings and water supply fittings	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Examine pH, Turbidity, Hardness and Total solids of given water sample	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Use of EDM and Total Station in the field	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Investigate the linear and angular measurements of the points on the ground and levelling	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-
					2.00	**1.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**
10	**1FY3-28**	**Computer Aided Engineering Graphics**	CO1	Describe engineering drawing terminology, concept of scales and conic sections.	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Draw Projection of Points, lines, planes, solids and section of solids	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Draft 2D engineering problems on CAD software.	-	-	-	-	3	-	-	-	-	-	-	-	-	1	1
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					1	**1**	**-**	**-**	**3**	**-**	**-**	**2**	**3**	**-**	**-**	**-**	**1**	**1**	**1**

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11	**2FY2-01**	**Engineering Mathematics-II**	CO1	Define the characteristics of matrices, ordinary and partial differential equation of first and higher order	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain the certain type of method for solution of linear system of equation, ordinary and partial differential equation of first and higher order	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Apply the method of separation of variables to solve the higher order partial differential equation including two dimensional Laplace, one dimensional Heat and one dimensional Wave equations.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Enhance and develop the ability of using the language of mathematics in analyzing the real world problems of sciences and engineering	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
12	**2FY2-03**	**Engineering Chemistry**	CO1	Describe characteristics of water, fuel and Engineering materials	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Determine of hardness of water and calorific value of fuels for Industrial as well as domestic purposes	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Compare different techniques of water treatment, fuel analysis, Manufacturing of engineering materials and corrosion protection methods	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Prepare the generic drugs or medicines by understanding the applications of organic reaction mechanism and manufacturing of engineering materials	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
13	**2FY1-04**	**Communication Skills**	CO1	Describe the process of communication, basics of Grammar and Writing and Literary Aspects	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
			CO2	Explain the types of communication, barriers and channels of communication and the concept of Literature through Short Stories and poetry	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
			CO3	Write and prepare professional reports, paragraph and business letters with the correct use of grammar	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-

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			CO4	Discuss and illustrate the impact of social and moral values by implying the basics of English Writing Skills through literary aspects	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
			CO5	Restate and outline the basic areas of English Language Skills with the applications of literature	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.00**	**-**	**2.00**	**-**	**-**	**-**
14	**2FY3-06**	**Programming for Problem Solving**	CO1	Describe an algorithm using flowchart/pseudo code for a given problem and fundamental of computer system	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Write a c program to compare various Conditional, Iterative statements using arrays, string, pointers, file structure and classify different Representation of numbers	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Examine the concept of Operators, Pointer, Array, String, structure, union using modularization to solve complex problems using C Programming	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Assess the User Defined functions, Memory management and File concepts to solve real time problems using C Programming	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
15	**2FY3-08**	**Basic Electrical Engineering**	CO1	Define various ac and dc circuit related problems	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain electromechanical energy conversion process	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Classify characteristics of various power electronic devices.	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Identify knowledge of protective devices and energy consumption calculations.	-	2	-	-	-	-	-	-	-	-	-	-	2	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.50**	**-**	**-**
16	**2FY2-**	**Engineering**	CO1	Determine the strength of unknown solution by volumetric analysis.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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	21	**Chemistry Lab**	CO2	Examine the characteristics of lubricating oil in groups	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
			CO3	Analyze different characteristics of water and fuel to solve societal and enviornmental problems	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					1.00	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**
17	**2FY1-22**	**Language Lab**	CO1	Use and pronounce the words correctly.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
			CO2	Acquire knowledge of the correct expressions,vocabulary etc. in personal and professional lives.	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
			CO3	Plan successfully for leadership and teamwork,crack GD's, interviews and other professional activities.	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
			CO4	Synthesize the process of communication using LSRW.	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**
18	**2FY3-24**	**Computer Programming Lab**	CO1	Relate the fundamental of C Programming as variable, operators and taxonomy to write a basic C Program	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Write programs that perform operations using condition control statements and loop control statements, single and multi-dimensional arrays along with specific program of matrix multiplication.(Examine)	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Use C programs to implement operations related to Array, Macros and inline functions, Dynamic memory allocations, concept of Structure, Unions and Pointers	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Students will show an ability to communicate effectively and work ethically	-	-	-	-	-	-	-	2	-	2	-	-	-	-	-
					2	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**2**	**-**	**-**	-	-	-
19	**2FY3-**	**Basic Elec**	CO1	Discuss measurement of electrical quantities	1	-	-	-	-	-	-	-	-	-	-	-	1	2	-

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	26	**trical Engineering Lab**	CO2	Compare different connections of transformer	2	-	-	-	-	-	-	-	-	-	-	-	1	2	-
			CO3	Demonstrate constructional features of electrical machines and converters	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	3	2	-	-	-	-	-
					2	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**3**	**2**	**-**	**-**	**1.33**	**2**	**-**
20	**2FY3-29**	**Computer Aided Machine Drawing**	CO1	Describe orthographic projections and basic Geometrical Concept	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Analyze Sectional Views of different mechanical Components and assembly drawing	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Draft a engineering product using CAD software	-	-	-	-	2	-	-	-	-	-	-	-	2	-	1
			CO4	Students will show an ability to work as a team member ethically	-	-	-	-	-	-	-	2	3	-	-	-	-	-	-
					2	**1**	**-**	**-**	**2**	**-**	**-**	**2**	**3**	**-**	**-**	**-**	**1.67**	**-**	**1**
21	**3ME1-02**	**Technical Communications**	CO1	Describe the process of technical communication in terms of LSRW	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO2	Comprehend the professional documents like resume, coverletter, reports	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO3	Write the technical documents like project proposals, articles	-	-	-	-	-	-	-	-	-	2	-	-	-	1	-
			CO4	Prepare report and present individually or in a team	-	-	-	-	-	-	-	2	2	3	-	-	-	-	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**	**-**	**-**	**-**	**1**	**-**

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22	**3ME2-01**	**Advanced Engineering Mathematics**	CO1	Define the concept of numerical Analysis, Laplace transforms, Fourier transforms and Z-transform.	1	-	-	-	-	-	-	-	-	-	-	-	2	-	2
			CO2	Apply Numerical methods, numerical differentiation and integration of interpolation to construct new data points for polynomial and transcendental equations whenever and wherever routine methods are not applicable.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	1
			CO3	Analyze the Fundamentals of the Fourier, Laplace, and Z-Transforms. These systems can be carried out in terms of either a time domain or a transform domain formulation.	2	-	-	-	-	-	-	-	-	-	-	-	2	-	1
			CO4	Evaluate Laplace transform and Fourier transform techniques to solve differential equations involved in Vibration theory, Heat transfer and related engineering applications and Z-transform in the characterization of Linear Time-Invariant system (LTI), in development of scientific simulation algorithms	-	3	-	-	-	-	-	-	-	-	-	-	2	-	2
					1.67	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**1.50**
21	**3ME3-04**	**Engineering Mechanics**	CO1	Describe Statics and Dynamic forces acting in Simple mechanisms and motions	1	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Explain the motion characteristics of a body subjected to a given force system	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Illustrate numerous concepts for designing mechanics of various machine/automobile components	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Solve the engineering problems of statics and dynamics for mechanical systems	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
22	**3ME4-05**	**Engineering Thermodynamics**	CO1	Describe the basic concept of thermodynamics	1	-	-	-	-	-	-	-	-	-	-	-	2	2	1
			CO2	Explain the heat & work, Pure substance and laws of thermodynamics	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Illustrate the thermodynamic power cycles like Carnot, Otto, Diesel, Brayton, Ericsson and Rankine	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO4	Solve the thermodynamic problems using the concepts of Entropy, Availability and thermodynamics relationship	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3

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					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**2.25**
23	**3ME4-06**	**Material Science And Engineering**	CO1	Describe the various mechanical properties and the testing methods for engineering materials.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Classify general crystal structures and engineering materials on the basis of their properties and applications	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the iron carbon equilibrium diagram and the phase transformation which take place during solidification of metals and alloys.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Justify the isothermal transformation diagrams and heat treatment processes for metallic material to obtain the desired properties in it.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.25**	**2.00**	**2.00**
24	**3ME4-07**	**Mechanics of Solids**	CO1	Explain basic concepts of stress, strain, torsion deflection, bending and strain Energy.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply the concept of stresses and strain, theories of failure, bending & torsion on different types of loading conditions and sections.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the stresses in shafts, cylindrical and sperical thin wall pressure vessels, long and short columns for different end conditions.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the deflection of beams and stresses in principal plane by analytical & graphical method.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**2.00**
28	**3ME4-21**	**Machine Drawing Practice**	CO1	Draw simple mechanical parts using concept of Engineering Graphics	2	-	-	-	-	-	-	_	_	-	-	-	3	2	-
			CO2	Analyse dimensioning, sectioning and development of views of complex feature components	3	-	-	-	-	-	_	-	-	-	-	-	3	2	-
			CO3	Compare 2D and 3D drafting of component using CAD software	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-

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			CO4	Construct assemblies from the concepts learnt using drafting softwares	-	3	-	-	-	-	_	-	_	-	-	-	3	2	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
26	**3ME4-22**	**Material Testing Lab-I**	CO1	Identify the engineering material on the basic of its physical appearence and mechanical testings	**3**	-	-	-	-	-	-	-	-	-	-	-	**2**	**2**	**-**
			CO2	Compare and contrast the micro-structures of metallic materials and predict the the heat treatment operation done on it.	-	**2**	-	-	-	-	-	-	-	-	-	-	**2**	**2**	-
			CO3	Prepare the metallic sample and select the suitable heat treatment process to obtain the desired properties in it.	-	**3**	-	-	-	-	-	-	-	-	-	-	**2**	**2**	**2**
			CO4	Make use of different mechanical testing machines to identify and compare various mechanical properties like hardness, toughness, tensile, compression, bending, torsional strength of engineering materials.	-	-	**2**	-	-	-	-	-	-	-	-	-	**3**	**2**	-
			CO5	Students will able to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	**2**	**2**	**2**	-	-	-	-	-
					3.00	**2.50**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.25**	**2.00**	**2.00**
27	**3ME4-23**	**Basic Mechanical Engineering Lab**	CO1	Apply the knowledge of assemble and disassemble of the machines like Bicycle, Pump, sewing Machine, etc and submit the written report indicating the learning achieved .	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze observational study of complex systems via cut sections of AC, refrigerator and I.C engine models for understanding basic Mechanical Engineering concepts	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO3	Conclude the knowledge of basic mechanical engineering	-	-	-	-	-	-	-	-	2	2	-	2	3	2	2
			CO4	Students will able to present the report on study of mechanical systems in individually or in team	-	-	-	-	-	-	-	2	2	2	-	2	3	2	2
					-	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**2.00**	**3.00**	**2.33**	**2.00**
25	**3ME4**	**Programmi**	CO1	Apply Basic commands, built-in functions, applications of MATLAB to solve Array, Graphic functions, Matrix , Loops and numerical problems.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-

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	-24	**ng Using MATLAB**	CO2	Develop code for problems involving different types of mathematical models, plot functions and equations (ODE, PDE, Linear and nonlinear equations).	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Illustrate the graphic features of MATLAB effectively in the various applications	-	-	-	3	-	-	-	-	-	-	-	-	3	2	-
			CO4	Solve mathematical problems encountered in Mechanical Engineering using SimScape and Simulink tool	-	-	-	2	-	-	-	-	-	-	-	-	3	2	-
			CO5	Execute the coding for evaluation and simulation of problems in teamwork ethically	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-
					-	**3.00**	**3.00**	**2.50**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
29	**3ME7-30**	**Industrial Training**	CO1	Relating the real time applications to the mechanical engineering concepts.	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO2	Develop the problem solving approach by developing projects in industry	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO4	Create a well organized report employing elements of technical writing and critical thinking.	-	-	-	-	-	-	-	2	-	3	-	3	-	2	1
					-	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**2.00**	**2.50**	**3.00**	**2.00**	**2.33**	**2.00**	**2.50**	**1.50**
31	**4ME1-03**	**Managerial Economics and Financial Accounting**	CO1	Discuss the concepts of economics like demand, supply, market structure and financial management like balance sheet.	-	-	-	-	-	1	-	-	-	3	3	2	-	-	-
			CO2	Apply the economic functions and theories like: demand & supply functions, production & cost functions & pricing theories.	-	-	-	2	-	1	-	-	2	-	3	2	-	-	-
			CO3	Analyze the relationship between economic variables using the concept of elasticity, cash flow analysis, fund flow analysis and ratio analysis	-	3	2	3	-	-	-	-	-	-	3	2	-	3	2
			CO4	Evaluate the real-life problems of business organizations using capital budgeting techniques.	-	3	-	3	-	3	2	-	2	-	3	2	-	3	-

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					-	**3.00**	**2.00**	**2.67**	**-**	**1.67**	**2.00**	**-**	**2.00**	**3.00**	**3.00**	**2.00**	**-**	**3.00**	**2.00**
32	**4ME2-01**	**Data Analytics**	CO1	Apply statistical tools for different types of problems in Data Analytics.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Analyze sample data and interpret the same for given problem.	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Formulate data analysis problems by selecting appropriate analysis model.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Evaluate complex engineering problems Using PCA, Logistic regression and multiple regression	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
33	**4ME3-04**	**Digital Electronics**	CO1	Discuss the concepts of electronics compenent like Diode,BJT, Op-Amp and Digital Electronics componants.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Apply the basic concept of elctonics compenents in Robotics,IoT etc.	2	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	classify between different Amplifiers and evaluate their efficiency.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO4	Design bias circuitry of BJT and flip-flop etc.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
					2.33	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.25**	**-**	**-**
34	**4ME4-05**	**Fluid Mechanics and Fluid Mac**	CO1	Explain the basic principles of fluid mechanics and its application	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Apply the concept of pressure, Flow characteristics and theory of rota-dynamic machine	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Analyse basic equation of fluid statics and fluid dynamics	3	2	-	-	-	-	-	-	-	-	-	-	3	2	-

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		hines	CO4	Calculate the work done and efficiencies of pump and turbines	3	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.75	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
35	**4ME4-06**	**Manufacturing Processes**	CO1	Describe the principle and applications of forging, casting, forming,welding and powder metallurgy processes.	1	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Explain the terminologies and concepts associated with manufacturing processes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Identify the possible defects in manufacturing processes and their remedies.	-	1	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Justify the appropriate manufacturing process to manufacture any component.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
					1.67	**1.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
36	**4ME4-07**	**Theory of Machines**	CO1	Explain the basic principles of machines, mechanisms & its inversions and working of various mechanical elements.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Solve the basic problems on various fundamental machine mechanisms by graphical and analytical method.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	1
			CO3	Evaluate the various mechanisms and motion of various mechanical components like Power screw, Clutches, Gears, Gear Trains, Cam & Follower, Gyroscope etc.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO4	Analyse the terms, laws and concepts related with machines, machine parts and mechanisms to solve the problems related with practical applications.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	3
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.25**
36	**4ME3-21**	**Digital Electronics Lab**	CO1	Apply logic formulation and optimization of combinational and Sequential ckts using digital Ics	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Design Arithmatic and Decisions making circuits using digital Ics	-	2	-	-	-	-	-	-	-	-	-	-	2	-	2

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			CO3	Analysis of combinational and sequential circuits using digital Ics	-	-	2	-	-	-	-	-	-	-	-	-	2	-	2
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.33**	**2.00**	**2.08**
37	**4ME4-22**	**Fluid Mechanics Lab**	CO1	Determine the meta centric height of object, flow rate and flow coefficients for venturimeter, orificemeter and notches	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Verify the Bernoullis theorem and calculate the losses in pipes	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Conducting experiments and drawing the characteristic curves of Pelton wheel, Francis and Kaplan turbine	-	-	2	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					3.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**3.00**	**2.00**	**-**
38	**4ME4-23**	**Production Practise Lab**	CO1	Explain the working principle of general machine tools such as Lathe, Milling, Shaper, Grinder machines.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the knowledge of the machining to perform operations like turning, knurling, chamfering and boring on lathe machine.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Analyse the moulding sand properties like moisture content, permeability and strenght.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Appraise the learning and skills of production engineering to make industry need project in a team.	-	-	-	-	-	-	-	2	2	2	-	2	2	3	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**2.00**	**2.25**	**-**
39	**4ME4**	**Theory of**	CO1	Understand the fundamentals of theory of machines	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3

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	-24	**Machines Lab**	CO2	Study inversion of various types of mechanism	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Evaluate the various mechanisms and motion of various mechanical components	-	-	2	-	-	-	-	-	-	-	-	-	2	2	3
			CO4	Apply the knowledge and skills to develop working models in team and Examine the real time applications of theory of machines	-	-	-	-	-	-	-	2	2	2	-	-	3	2	2
					3.00	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.50**	**2.00**	**2.50**
4 2	**5ME3-01**	**Mechatronic Systems**	CO1	Explain the basic fundamentals and applications of Mechatronic systems with various electrical parameters.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the concept of sensors, actuators, pneumatic systems and microcontrollers in Automobile Engg.	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze the role of controls and modeling in mechatronics.	-	1	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO4	Design Instrumentation and Data Acquisition system for robotics.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	1
					2.50	**1.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**1.50**
4 3	**5ME4-02**	**Heat Transfer**	CO1	Describe the process of heat transfer and relevant applications	1	-	-	-	-	-	-	-	-	-	-	-	2	2	1
			CO2	Explain the concept of heat transfer and its different modes conduction, convection and radiation	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Solve the problems of conduction, convection and radiation	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Design the Heat exchangers and calculate the heat transfer coefficient and effectiveness.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**1.75**

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44	**5ME4-03**	**Manufacturing Technology**	CO1	To list out the different types of machining and finishing processes for manufacturing of desired mechanical component.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Outline the understanding of different types of machining process in assessing the machining time required for a particular machining process.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Apply the learning of various machining process in calculation of the forces acting during metal removal processes	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Examine the theoretical knowledge of machining processes in respect to the industry in accordance to innovation of mechanical component through conventional machining processes.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.33	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
45	**5ME4-04**	**Design of Machine Elements I**	CO1	Explain fundamentals of mechanical components design subjected to static loading based on material & manufacturing consideration	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Apply the basic design concept to design various Mechanical components, such as joints, beam, lever, spring, Keys, shaft, couplings & threaded fasteners.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze and solve the problems of various machine members which are subjected to different loading conditions.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the design stresses & parameters of mechanical components like beam, shaft, joints, Keys, couplings, & threaded fasteners.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
46	**5ME4-05**	**Principles of Management**	CO1	Describe the different concepts of management.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Recognize the functions of management and the nature of organizing	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
			CO3	Relate theory of leadership to prepare profiles of business leaders and controlling the system.	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-
			CO4	Plan the course of action using case studies to solve behavioral problems in organization.	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
					2	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**3**	**-**	**-**	**-**	**-**

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					.00							**.00**			**.00**		**.00**		
47	**5ME5-12**	**Automobile Engineering**	CO1	List out the different parts of the automobile.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO2	Discuss the working of various parts like engine, transmission, clutch, brakes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO3	Categorize how the steering and the suspension systems operate.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	3
			CO4	Design a strong base of automobile vehicle for understanding the future developments in automobile industry.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	3
					2.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**3.00**
48	**5ME5-11**	**NDET**	CO1	Describe NDT methods used for evaluation of materials	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Explain various inspection in accordance with the established procedure for in service damage in the components	2	-	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO3	Analyze various defect occurs in materials and select the appropriate NDT method for evaluation	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO4	Evaluate effect of Regenerative Feed Heating and Reheating cycle on efficiency of Steam power plant	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.25**	**2.50**	**-**
49	**5ME3-21**	**Mechatronics Lab**	CO1	Explain the fundamental knowledge of Transducers, mobile robot, PLC and MATLAB programming	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the knowledge of programming for mobile robots as an industrial solution.	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Execution of PLC programming.	-	2	-	-	-	-	-	-	-	-	-	-		2	-

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			CO4	Application of the fundamental knowledge of MATLAB Simulink.	-	3	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO5	Students will be able to communicate effectively and work as a team member professionally in a ethical manner.	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**-**	**2.00**	**2.00**
50	**5ME4-22**	**Heat Transfer Lab**	CO1	Apply the concepts of conduction, convection and radiation heat transfer.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO2	Compare the Effectiveness in Parallel and Counter Flow Heat Exchangers	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO3	Evaluate the importance and validity of engineering assumptions through the lumped heat capacity method	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Investigate the rates of heat transfer for different materials and geometries	-	-	3	-	-	-	-	-	-	-	-	-	3	2	2
			CO5	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
					3.00	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**3.00**	**2.00**	**2.50**
51	**5ME4-23**	**Production Engineering Lab**	CO1	Apply the principle of metrology for measuring various parameters like length, height, threads,angle, displacement, flatness, roughness, etc., by using different measuring instruments.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Investigate the force generated on the workpiece during various machining operaations.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Appraise the learning and skills of measurement and metrology to make project in a team.	-	-	-	-	-	-	-	2	2	2	-	2	2	2	-
			CO4	Create mini project using various machine tools and prepare report of the lab	-	-	3	-	3	-	-	2	2	2	2	2	2	-	-
					2.50	**2.25**	**3.00**	**-**	**3.00**	**-**	**-**	**2.00**	**2.00**	**2**	**2.00**	**2.20**	**2.00**	**2.00**	**2.50**

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5 2	**5 ME4 - 24**	**Machine Design Practice - I**	CO 1	Explain the material properties, manufacturing considerations. ISO standards for selection of materials, selection of fits for various applications.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 2	Apply the design procedure and acquire skill of finding resisting areas against failure of designing under static load to various machine elements like shaft, coupling, joints, levers, beams, brackets etc.	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 3	Evaluate the efficient design criteria related with manufacturing, production, strength and stiffness, limits, fits and assigning tolerances for a member as per standard.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	-
			CO 4	Synthesize of simple mechanical elements using modern tools and compile the results with help of mini project in team.	-	-	-	-	2	2	-	-	2	-	-	2	3	2	-
					2.00	**3.00**	**2.00**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**
5 3	**5 ME7 - 30**	**Industrial Training**	CO 1	Relating the real time applications to the mechanical engineering concepts.	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO 2	Develop the problem solving approach by developing projects in industry	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO 3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO 4	Create a well organized report employing elements of technical writing and critical thinking.	-	-	-	-	-	-	-	2	-	3	-	3	-	2	-
					-	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**2.00**	**2.50**	**3.00**	**2.00**	**2.33**	**2.00**	**2.50**	**1.67**
5 5	**6 ME3 - 01**	**Measurement and Metrology**	CO 1	Describe the measuring concept and working principle of metrological instruments used in them.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 2	Identify the appropriate measuring device and method as per their application.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 3	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO 4	To Evaluate eorros, surface finish of the compoents	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					3	**2**	**-**	**-**	**-**	**-**	**-**						**3**	**2**	**-**

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					3.00	**2.00**												**2.75**	**2.00**	
56	**6ME4-02**	**CIMS**	CO1	Describe the importance and scope CIM in fabrication/ manufacturing industry.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Explain and compare the different components of CIM.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Applying modern technics use in industry i.e. Computer Aided Process Planning, Group Technology, Computer Aided Production Management Systems, manufacturing resource planning (MRPII), ERP, Computer Aided Quality Control, Computer Aided Material Handling, flexible manufacturing systems (FMS).	-	-	-	-	3	-	-	-	-	-	-	-	3	3	-
			CO4	Create program for varies parts made by CNC machine.	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
					3.00	**-**	**3.00**	**-**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.25**	**-**
57	**6ME4-03**	**Mechanical Vibrations**	CO1	Understand the fundamentals of mechanical vibrations, sound and noise	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Apply different methods to formulate the equation of motion for free undamped, damped and force vibation of single degree of freedom system and their solution cases.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse and compute the natural frequencies and mode shapes of 2 degree and multiple degree of freedom system and calculate the critical speed of shaft	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the natural frequency of vibrations of continous system.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
58	**6ME4-04**	**Design of Machine Elements II**	CO1	Explain the fundamentals on designing of machine elements subjected to variable load.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Apply the basic design concept to design Shaft, IC Engine components, bolts, springs, rope and belt drives and other components based on their applications in industries or on field.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse and solve the problems of components when designed for variable stresses, considering stress concentration, fatigue and combined loading.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-

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			CO4	Evaluate the design, stresses & parameters of mechanical components like beam, shaft, bolts, bearings, IC Engine Components, Belt, Rope & Pulley Drive. Etc.	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
59	**6ME4-05**	**Quality Management**	CO1	Describe the basic concept of Quality Management.	1	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Explain a system, component, and process to meet desired needs within limits using modeling process quality and learn the concept of control charts.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Illustrate the concept of Quality Assurance, Acceptance sampling and study quality systems like ISO9000, ISO 14000 and Six Sigma.	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Identify engineering problems, concept of reliability and Taguchi Method of Design of experiments.	-	2	-	-	-	-	-	-	-	-	-	-	2	3	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.25**	**-**
60	**6ME4-21**	**CIMS Lab**	CO1	To Apply the techniques of CNC programming and cutting tool path generation by using G-Codes and M-codes.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Examine Tool Path for different Machining operations of small components using CNC simulator software for CNC Lathe & CNC Milling Machine.	-	2	-	-	3	-	-	-	-	-	-	-	3	3	-
			CO3	Appraise the CNC codes and simulation software to prepare the part of model in the form of project in the team.	-	-	-	-	-	-	-	2	2	-	-	2	2	3	-
			CO4	Create program for varies parts made by CNC machine.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**-**	**-**	**3.00**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**2.25**	**2.50**	**-**
61	**6ME4-22**	**Vibration Lab**	CO1	Understanding various aspects of mechanical vibrations and their control	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Investigate oscillations of different systems like simple and compound pendulum, damped and un-damped system frequencies of experimental data by computing derived quantities from the measured values	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-

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			CO3	Construct mathematical models of different vibrating systems	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Measure different mechanical properties like moment of inertia, radius of gyration, natural frequencies of different systems etc.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO5	Examine the real time applications of mechanical vibration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
6 2	**6 ME4 - 23**	**Machine Design Practice - II**	CO1	Apply the knowledge of machine design principles to solve various problems related to fatigue Loading.	-	2	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Evaluate & Compare mechanical components (Bolts, Shaft, Bearings, IC Engine Components, Gears etc.) under variable stresses.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze Fatigue life cycle & failure criteria of IC engine and other mechanical components	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Synthesize mechanical components (Shaft, IC Engine components, springs, rope and belt drives, Gear etc.) using data book and document the results by team	-	-	2	-	-	-	-	2	2	2	-	2	3	2	2
					-	**2.33**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**3.00**	**2.00**	**2.00**
6 3	**6 ME4 - 24**	**Thermal Engineering Lab I**	CO1	Describe the working of Petrol and Diesel Engine, Boilers and automobile operations	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Categorize all types of accessories of IC Engines, Boiler and Transmission system as per their importance	-	-	3	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Students will show an ability to communicate effectively and work as a team member ethically	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
			CO4	Students will be able to review literature survey, write the term paper independently and present the PPT in a group	-	-	-	-	-	-	-	2	2	2	-	3	-	-	-
					2.00	**-**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2**	**-**	**3.00**	**3.00**	**2.00**	**2.00**

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64	**6ME5-11**	**Refrigeration and Air Conditioning (Elective-1)**	CO1	Explain the fundamentals of refrigeration and air-conditioning systems	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO2	Determine the performance parameters of refrigeration and air-conditioning system	-	2	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO3	Identify the suitable refrigeration and air conditioning systems as per the applications	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Evaluate parameters to design the refrigeration and air-conditioning system for various applications	-	-	3	-	-	-	-	-	-	-	-	-	3	2	3
					2.00	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**2.75**
65	**6ME5-12**	**Non Conventional Machining Methods (Elective-2)**	CO1	Categorize various non-conventional machining methods.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Illustrate the principle and mechanics of metal removal for non-conventional machining methods.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Describe the process parameters of non-conventional machining methods.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Examine the real time applications of non-conventional machining methods.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	1
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**1.00**
68	**7ME5-11**	**I. C. Engines**	CO1	Explain the fundamental concepts and working of I C engine systems and its Components	3	-	-	-	-	-	-	-	-	-	-	-	-	2	1
			CO2	Identify fuel metering, fuel supply, lubricating and Ignition systems for I C engines.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the performance, emission and combustion characteristics of I C engines	-	3	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO	Evaluate the fuel mixture ratio for different operating conditions	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2

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			4																	
					3.00	**2.33**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.25**	**1.67**
69	**7ME5-13**	**Turbo Machine**	CO1	Describe the fundamentals of turbomachines	1	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze the basic principles of axial and radial turbomachines, and ways to analyze and understand the flow within them.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Compare and contrast various turbomachines and their analysis on the basis of given specification/requirements through their velocity triangles.	3	-	-	-	-	-	-	-	-	-	-	-	2	3	-
			CO4	Comparison and analysis of gas turbine cycles through velocity triangles.	2	-	2	-	-	-	-	-	-	-	-	-	2	1	-
					2.33	**2.75**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**-**	**-**	**2.00**	**-**	**3.00**	**-**	**1.00**	**1.00**
	7EE6-60.1	**Electrical Machines and Drives**	CO1	Understand the constructional details and principle of operation of rotating electrical machines	3	-	-	3	3	-	-	-	-	-	3	-	-	-	-
			CO2	Acquire knowledge about the working principle and various aspects of electric drives.	3	-	-	2	3	-	-	-	-	-	2	-	-	-	-
			CO3	To study and analyze the various control techniques for speed control on various electric drives.	2	-	-	3	3	-	-	-	-	-	3	-	-	-	-
			CO4	Develop design knowledge on how to design the speed control and current control loops of an electric drive	3	-	-	3	2	-	-	-	-	-	3	-	-	-	-
					1.50	**1.75**	**1.00**	**-**	**1.00**	**1.00**	**1.50**	**-**	**-**	**-**	**-**	**1.50**	**-**	**1.00**	**-**
	7EE6-60.2	**Power Generation Sou**	CO1	Classify and describe various renewable energy sources.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Predict possible renewable energy sources.	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-

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		rces	CO3	Illustrate the renewable energy sources.	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	re-organize energy sources	3	3	2	1	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Prioritize all other renewable energy sources as needed by societal application.	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
					1.50	**1.75**	**1.33**	**1.00**	**1.50**	**1.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**	**-**
	7CE6-60.1	**Environemental Impact Analysis (EIA)**	CO1	Define terms used in Environmental impact assessment, quality standards for environmental Components	2	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
			CO2	Understand the concepts about EIA i.e; ecological imbalance, effects of pollution, importance of stakeholders in the EIA process	2	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
			CO3	Organize an environmental impact assessment for a proposed project/activity	1	2	1	-	1	1	2	-	-	-	-	2	-	1	-	-
			CO4	Analyze different methodologies and impacts related to EIA	1	3	1	-	1	1	2	-	-	-	-	2	-	1	-	-
					-	**3.00**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**1.00**	**-**	**-**
	7CE6-60.2	**Disaster Management (DM)**	CO1	Understand concept of disasters, risks, hazards, capacity building, coping with disaster and disaster management act and policy in India	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain concept of disasters, risks, hazards, capacity building, coping with disaster and disaster management act and policy in India	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Classify disasters, risks, hazards, management techniques	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Apply the concept of capacity building, coping with disaster and disaster management act and policy in India	1	2	1	-	1	1	-	-	-	-	-	-	-	1	-	-
			CO5	Investigate natural and manmade disasters	-	2	2	1	2	1	-	-	-	-	-	-	-	1	-	-
					-	**2**	**-**	**-**	**3**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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	7CS6-60.1	**Quality Management / ISO 9000 (Open Elective-1)**	CO1	Understand the importance of quality management and the ways individuals can affect quality.	-	3	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	Analyze the components of a quality management system and the role of the quality management system.	-	-	3	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Apply quality management to improve computer based systems.	-	-	-	3	-	-	-	-	-	-	-	-	-	1	-
			CO4	Design Various components of quality system to avoid failures and rectification.	-	-	3	-	-	-	-	-	-	-	-	-	2	-	-
					2.33	**2.75**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**-**	**-**	**2.00**	**-**	**3.00**	**-**	**1.00**	**1.00**
	7CS6-60.2	**Cyber Security (Open Elective-1)**	CO1	Develop The Understanding Of Cybercrime and legal Perspectives of Security Implications for Organizations in respect to the Mobile and Wireless Devices.	-	-	-	-	-	2	-	-	-	-	-	-	1	-	-
			CO2	Analyze different cyber offences & attacks and Determine How a Criminals plan the cyber Attacks.	-	2	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO3	Understanding the cyber security solutions and use of cyber security Tools in Cybercrime.	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
			CO4	Evaluate and communicate the Management Perspective human role in security systems with an Organizational, emphasis on ethics, social engineering vulnerabilities and training.	-	-	-	-	-	-	-	2	-	-	-	-	1	-	-
					3.00	**3.00**	**2.50**	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
	7EC6-60.1	**Principle of Electronic com**	CO1	Describe the principles of various digital modulation systems and their properties, including bandwidth, channel capacity, transmission over band limited channels, inter-symbol interference (ISI), demodulation methods, and error performance in the presence of noise.	3	2	-	2	-	-	-	-	-	-	-	3	-	-	1
			CO2	Apply the concepts to practical applications in telecommunication	2	3	-	2	-	-	-	-	-	2	-	3	-	-	1

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		munication	CO3	Analyze communication systems in both the time and frequency domains.	2	3	2	-	2	-	2	-	-	-	-	3	-	1	-
			CO4	Design a communication system comprised of both analog and digital modulation techniques.	-	3	2	-	-	-	-	-	-	2	-	3	-	1	-
					-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	7EC6.60.2	**Micro System Smart Technology**	CO1	Explain the smart grids components and architecture	3	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply different measuring methods and sensors used in smart grid	3	3	2	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze various renewable energy technologies	3	3	-	2	-	-	-	-	-	-	-	-	2	2	2
			CO4	Designing of various smart grid technology based devices.	-	-	3	3	3	-	-	-	-	-	-	-	-	2	2
					-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
73	**7ME4-21**	**FEA Lab**	CO1	Understanding the basic features of an analysis software's	3	-	-	-	-	-	-	-	-	-	-	2	-	3	2
			CO2	Demonstrate the structural analysis of beams subjected to point, uniformly distributed and varying loads	-	3	-	-	-	-	-	-	-	-	-	2	-	3	2
			CO3	Apply modern tools to formulate and solve problems of bars, truss, beams, and plate to find stress with different loading conditions.	-	-	-	-	3	-	-	-	-	-	-	2	-	3	2
			CO4	Examine the real time applications of Finite element method for developing a mini project	-	-	-	3	-	-	-	-	-	-	-	2	-	3	2
					3.00	**3.00**	**-**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**3.00**	**2.00**
74	**7ME4-22**	**Thermal Engineering Lab-**	CO1	Explain the various control of refrigeration and air-conditioning and working of simple steam turbine	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Perform constant speed load test on a single cylinder diesel engine and exhaust gas analysis, with safety precautions	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-

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		II	CO3	Determine the COP of refrigeration system and Mechanical heat pump, and discuss in a group those factors which effect the COP.	-	2	-	-	-	-	-	2	-	2	-	-	3	2	-
			CO4	Plot Performance characteristics of Pelton wheel, Francis Turbine, Kaplan Turbine and Centrifugal pump	-	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**-**	**2.00**	**-**	**-**	**2.75**	**2.00**	**-**
75	**7ME4-23**	**Quality Control Lab**	CO1	To prepare X, and R control charts for variable from standards.	-	-	3	-	-	-	-	-	2	-	-	-	2	2	-
			CO2	To prepare p, c, and u control charts for attributes from raw data.	-	-	3	-	-	-	-	-	2	-	-	-	2	2	-
			CO3	Demonstrate how to use the corresponding OC curves.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	To understand the generation of random numbers for system simulation	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					3.00	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
76	**7ME7-30**	**Industrial Training**	CO1	Understand, learn and practice new technology/tools in mechanical engineering	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Understand industry and society specific applications	-	-	-	-	-	2	-	-	-	-	-	-	3	2	-
			CO3	Understand professional ethics	-	-	-	-	-	-	-	3	-	-	-	-	3	2	-
			CO4	Understand how to work in team, coordinate and lead	-	-	-	-	-	-	-	-	3	-	-	-	-	2	-
			CO5	Understand how to communicate with colleagues & professionals & Understand Technical Report writing, presentation and delivery	-	-	-	-	-	-	-	-	-	3	-	-	-	2	-
			CO6	Understand and learn how to study, utilize and keep updated in the field of mechanical engineering and allied areas.	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
					-	**3**	**-**	**-**	**-**	**2**	**-**	**3**	**-**	**-**	**-**	**3**	**3**	**2**	**-**

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77	**7ME7-40**	**Seminar**	CO1	Gather, study and understand advancements in Mechanical Engineering	2	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	Analyse literature & Understand Challenges and opportunities and identify problems in certain area of Mechanical Engineering	-	3	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO3	Understand use of modern tools and techniques	-	-	-	-	2	-	-	-	-	-	-	-	-	3	-
			CO4	Understand Technical Report writing, presentation and delivery	-	-	-	-	-	-	-	-	-	3	-	-	-	2	-
					2.00	**3.00**	**-**	**-**	**2.00**	**-**	**-**	**-**	**-**	**3.00**	**-**	**-**	**2.00**	**2.50**	**-**
79	**8ME5-11**	**Hybrid and Electric Vehicles**	CO1	Understand the basics of electric and hybrid electric vehicles, their architecture, technologies and fundamentals.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Analyze the design, component sizing and the power electronics devices used in hybrid electric vehicles.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Construct the hybrid vehicle configuration and performance analysis.	-	2	-	-	-	-	-	-	-	-	-	-	3	3	-
			CO4	Discuss different energy storage technologies used for hybrid electric vehicles and their control.	-	2	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.25**	**-**
80	**8ME5-12**	**Supply and Operations Management**	CO1	Describe the concept of operations management and productivity along with the use of MRP, JIT & its objectives and SCM.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Identify the elements of operations management and various transformation processes to enhance productivity and competitiveness	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Evaluate and rank the capacity locations, plant location and schedule of production.	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-

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		t	CO4	Construct the various facility alternatives and their capacity decisions; develop a balanced line of production & sequencing techniques in operation environments	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.20**	**2.05**	**-**
81	**8ME5-13**	**Additive Manufacturing**	CO1	Able to define the various process used in Additive Manufacturing	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
			CO2	Able to analyze and select suitable process and materials used in Additive Manufacturing	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO3	Able to Design, analyze and solve problems related to Additive Manufacturing	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO4	Able to apply knowledge of additive manufacturing for various real-life applications	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	**-**
			CO5	Able to apply technique of CAD and reverse engineering for geometry transformation in Additive Manufacturing.	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**
					3.00	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.75**	**2.00**	**-**
	8EE6-60.1	**Energy Audit and Demand side Management**	CO1	Understand the current Energy Scenarios in India.	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
			CO2	Understand the energy auditing of motors, lighting system and building, by appropriate analysis methods through survey instrumentations.	3	3	-	-	-	-	-	-	-	-	-	-	2	3	3
			CO3	Understand the Electrical-Load Management and Demand side Management.	3	2	2	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Apply the Energy Conservation in transport, agriculture, household and commercial sectors.	3	2	2	1	-	-	-	-	-	-	-	-	1	1	1
		Soft Compu			**3.0**	**2.3**	**2.0**	**1.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.6**	**2.0**	**2.0**

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		ting			**0**	**3**	**0**	**0**									**7**	**0**	**0**
	8EE6-60.2		CO1	Learn about soft computing techniques and their applications.	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Analyze various neural network architectures.	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Define the fuzzy systems	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Understand the genetic algorithm concepts and their applications	3	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Identify and select a suitable Soft Computing technology to solve the problem.	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
					2.50	**2.25**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	8CE6-60.1	**Composite Materials (CM)**	CO1	Explain the basics of composites, its structure and its properties	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
			CO2	Compute the physic-mechanical properties of composites from tests	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
			CO3	Assessment of engineering properties of composite materials	1	2	1	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Analyze the failure and maintenance of composite materials	1	-	1	1	1	-	-	-	-	-	-	-	1	1		-
					1.50	**1.50**	**1.00**	**1.00**	**1.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.00**	**1.25**		**-**
	8CE6-60.2	**Fire and Safety Engineering (F&SE)**	CO1	Explain the fundamentals of Fire Engineering	2	-	-	-	-	1	-	-	-	-	-	-	-		-	-
			CO2	Apply the learned principles in planning, designing and management of fire safe buildings	2	1	1	-	1	1	-	-	-	-	1	-	1		1	-
			CO3	Assess firefighting installations, control technologies and hazardous materials	1	2	1	-	1	1	-	-	-	-	-	-	1		1	-

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			CO4	Design of fire safety building for fire resitant construction by following safety legislation	1	-	1	1	1	1	-	1	-	-	-	-	-	1	-
					1.500	**1.500**	**1.000**	**1.000**	**1.000**	**1.000**	**-**	**1.000**	**-**	**-**	**1.000**	**-**	**1.000**	**1.000**	**-**
	8CS6-60.1	**Big Data Analytics (Open Elective-II)**	CO1	Understanding of Big Data and their needs in Industry	3	-	-	-	-	-	-	-	-	-	-	-	1	-	-
			CO2	Designing of Hadoop and Google File System	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analysis of Map Reduce and their basic programs map reduce.	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Design a Hive Data system.	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-
					3.000	**3.000**	**3.000**	**3.000**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.000**	**-**	**-**
	8CS6-60.2	**IPR, Copyright and Cyber Law of India (Open Elective-II)**	CO1	To Determine and analyses the domain name system (DNS) in internet and various cybercrime offence in cyber space.	3	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-	-
			CO2	To understand the concept of Intellectual Property and Intellectual Property Rights with special reference to India and abroad.	**-**	**-**	**-**	**-**	**-**	**-**	**-**	3	**-**	**-**	**-**	**-**	-	1	-
			CO3	To Apply intellectual property law principles including the copyright law, patents law, designs and trademarks, to real problems and analyses the social impact of intellectual property law and policy.	**-**	**-**	**-**	**-**	**-**	3	**-**	**-**	**-**	**-**	**-**	**-**	-	1	-
			CO4	To Study the Jurisdiction Issues in Cyber Space and Competition Law in India	**-**	2	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-	-
					3.000	**2.000**	**-**	**-**	**-**	**3.000**	**-**	**3.000**	**-**	**-**	**-**	**-**	**-**	**1.000**	**-**

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	8EC6.60.1	**Industrial and Medical applications of RF Energy**	CO1	Understanding of basic concepts and Principles of EM wave, propagation reflection and transmission. [Understanding]	3	2	-	-	-	-	-	-	3	-	-	-	-	-	-
			CO2	Apply the knowledge for interest in complex dielectric constant, dipolar loss mechanism and design mechanism to understand the effect of rate rise of temperature.. [Applying & Understanding]	3	2	-	-	-	-	-	-	3	-	-	-	2	2	2
			CO3	Analyze the structure of RF heating in industrial application. [Analyzing]	3	2	3	-	-	-	-	-	3	-	-	-	-	2	-
			CO4	Design of Hazards and safety standards in various engineering problem. [Create & Design].	3	3	3	3	-	-	-	-	3	-	-	-	2	2	2
					3.00	**2.25**	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**3.00**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
	8EC6-60.2	**Robotics and Control**	CO1	Understand the fundamentals of robotics and its components, methods of linear motion into rotary motion and vice-verse. [Understanding]	3	3	2	2	2	3	3	3	2	-	3	3	2	2	-
			CO2	Apply the appropriate techniques for movement of robotic joints with computers/microcontrollers. [Applying & Understanding]	3	2	2	2	-	3	2	-	3	2	3	3	-	2	2
			CO3	Analyze parameters required to be controlled in a Robot for specific application. [Analyzing]	3	2	3	3	3	3	-	-	2	2	2	3	2	2	2
			CO4	Design and Develop small automatic / autotronics applications with the help of Robotics for solving the real life problems [Create & Design].	2	2	3	2	2	2	2	3	3	2	2	3	2	2	2
					2.75	**2.25**	**2.50**	**2.25**	**2.33**	**2.75**	**2.33**	**3.00**	**2.50**	**2.00**	**2.50**	**3.00**	**2.00**	**2.00**	**2.00**
8 4	**8ME4-21**	**Industrial Engineering Lab**	CO1	Student will demonstrate Commitment to quality, timeliness, and continuous improvement in production rate in manufacturing sector	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Students also show the ability to formulate, conduct, analyze and interpret experiments and apply experimental results to improve processes in industry	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Students will able implement the concepts they learned, during Industrial In-Plant Training	-	-	-	-	-	-	-	2	2	2	-	-	2	3	-
			CO4	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

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					2.00	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**-**	**2.00**	**2.25**	**-**
85	**8ME4-22**	**Metrology Lab**	CO1	Apply the principle of metrology for measuring various parameters like length, height, threads, angle, displacement, flatness, roughness, etc., by using different measuring instruments.	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**
			CO2	Investigate the surface generated on the work piece during various machining operations.	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**-**
			CO3	Demonstrate the necessary skills to collect data, perform analysis and interpret results to draw valid conclusions through standard test procedures using various metrology instruments.	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**	**2**	**-**	**2**	**2**	**2**	**-**
			CO4	Determine the appropriate parameters associated in the selection of metrological concepts and instruments.	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**
					2.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**2.00**	**2.00**	**-**
87	**8ME7-50**	**Final Project**	CO1	Apply the knowledge of engineering and sciences to finalize the project topic	3	-	-	-	-	2	2	-	-	-	-	-	2	2	2
			CO2	Analyze the existing research in the field of selected projected	-	3	-	-	-	-	-	-	-	-	-	-	3	3	2
			CO3	Formulate and propose a plan for creating a solution for the research plan identified.	-	-	3	3	2	2	-	-	2	-	-	2	3	3	2
			CO4	Demonstrate an ability to work in teams and manage the conduct of the research study	-	-	-	-	-	-	-	-	3	-	2	3	2	3	2
			CO5	To report and present the findings of the study conducted in the preferred focus area.	-	-	-	-	-	-	-	2	3	3	3	3	3	2	2
					3.00	**3.00**	**3.00**	**3.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.67**	**3.00**	**2.50**	**2.67**	**2.60**	**2.60**	**2.00**

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12 Course File Sample

Outcome Based Process Implementation Guidelines for Faculty

12.1 Labelling your course file

- **Name of Faculty:**
- **Class- SEM:**
- **Branch:**
- **Course Code:**
- **Course Name:**
- **Session:**

12.2 List of Documents:

1. **Vision & Mission Statements of the Institute**
2. **Vision & Mission Statements of the Department**
3. **List of PEO, PSO and PO of department**
4. **Personal Time Table**
5. **RTU Syllabus**
6. **Document as per point no. 1-4 in guidelines**
7. **Course Plan**
8. **Document as per point no 6-12 in guidelines**
9. **Document for CO Assessment Stage 1: As per point no 13, up to 13.2.5**
10. **Document for CO Assessment Stage 2: As per point no 13, up to 13.2.5, with comparison to previous**
11. **Document for CO Assessment Stage 3: As per point no 13, up to 13.2.5, with comparison to previous**
12. **Document for CO Attainment through RTU Component: Previous RTU Result: point no. 13.3 up to 13.3.2**
13. **Document for PO attainment through RTU Component: Previous RTU Result: point no. 13.4 up to 13.4.2**
14. **Document for Overall Attainment of PO through CO: As per point no 13.5**
15. **Document for last three years (Repeat process from 6-14 above): Comparative data should be included in course file**
16. **Lecture Notes**
17. **Copy of Assignments questions given from time to time**
18. **Copy of Tutorial Sheets given (if applicable)**
19. **RTU Question Papers with answer**
20. **Internal Assessment Question Papers with answer from time to time**
21. **Topics covered beyond syllabus- References**
22. **Details of any other activity and its assessment through rubric be included**
23. **Mapping department level/ focus activities with your COs**

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13 Outcome Based Process Implementation Guidelines for Faculty

Course CO-PO, Preparation, Assessment Formats

Academic Session: 2021-2022 **Class:** **Semester:**

Name of the Faculty:

Subject: **Subject Code:**

This document is meant as guidelines for implementing Outcome based education system as a part of NBA process.

1. **Vision & Mission of Department: Statement and Mapping with Institute Mission** **Here you have to include department mission & vision statements and show mapping of keywords with institute mission.**
2. **Program Educational Objectives (PEOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PEO statements and show mapping of keywords with department vision & mission.
3. **Program Specific Outcome (PSOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PSO statements and show mapping of keywords with department vision & mission.
4. **Program Outcome (POs): Statement and Mapping with PEO and PSO**
   Here you have to include PO statements and show mapping of keywords with department PEOs & PSOs.
5. **Course Plan (Deployment):**

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.), **for example**

- **coverage of Units by lectures**
- **design exercises**
- **demonstration of models**
- **by assignments**

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Lecture No.	Lect. No.	Topics, Problems, Applications	CO/LO	Target Date of Coverage	Actual Date of Coverage	Ref. Book/Journal with Page No.
1.	1	Introduction of QM	CO1	12/01/2022	12/01/2022	T1 Page 121 - 126
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

Example T1: Principles of OS, By Ramesh Soni, Tata MGHill, Edition 2019

6. **Course Outcomes:** Look for strong mapping of course with specific PO (2-3). Define Generic Course Outcomes (max 4 to 6) using Blooms Taxonomy. (In case of Lab Course define generic Lab Outcomes LO and refer CO as LO in this document).

i. **6ME4-05.1(CO1)-**
ii. **6ME4-05.2(CO2)-**
iii. **6ME4-05.3(CO3)-**
iv. **6ME4-05.4(CO4)-**
v. **6ME4-05.5(CO5)-**

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7. CO-PO-PSO Mapping: Mapping Levels: 1- Low, 2- Moderate, 3-Strong

First try to find out 2-3 PO those are strongly related to your subject contents. Go through the contents and try to formulate 4-5 Course Outcome as per bloom taxonomy. Map each CO with PO and PSO as above. While mapping please rethink if you map any PO with 3, it means you are planning to deliver the contents of that level and you will also examine the students at that level.

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

7.1 PO Strongly Mapped: (Example):

O PO2: Write full statement with keywords highlighted o PO3: Write full statement with keywords highlighted o PO4: Write full statement with keywords highlighted

7.2 PO Moderately Mapped: (Example)

O PO1: Write full statement with keywords highlighted

O PO11: Write full statement with keywords highlighted

7.3 PO Low Mapped: (Example)

O PO12: Write full statement with keywords highlighted

7.4 PSO Strongly Mapped: (Example)

O PSO 1: Write full statement with keywords highlighted

7.5 P S O Moderately Mapped: (Example)

O PSO 2: Write full statement with keywords highlighted

6.6 PSO Low Mapped: (Example)

O PSO 3: Write full statement with keywords highlighted

8. Rules for CO/LO Attainment Levels: (Targets)

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty- (Easy)
According to difficulty level, you can decide specific range for CO attainment targets for Continuous assessment from the following table.
Remember that targets for internal assessment should be higher.

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Course Category	Level 3	Level 2	Level 1
A	**60 % of students getting > 60% marks**	**50-60 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**
B	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**
C	**90 % of students getting > 60% marks**	**70-90 % of students getting > 60% marks**	**40-70 % of students getting > 60% marks**

9. End Term RTU Component: CO Attainment Levels

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty –(Easy)
According to difficulty level and the results of past 3-5 years, you can decide specific range for CO attainment targets for RTU component from the following table.

Course Category	Level 3	Level 2	Level 1
A	**50 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
B	**60 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
C	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**

For the specific CO/LO attainment levels of your respective course please use the above tables as reference according your subject difficulty level and prepare following table.

S. No.	Course Type	Attainment Level=1	Attainment Level=2	Attainment Level=3
1	**Theory Courses** Mid Semester Exams			
2	**Theory Courses** University Exam			
4	**Practical Courses** – Internal Exams			
5	**Practical Courses** - University Exam			
6	**Assignments/Unit Test**			
7.	**Any other**			

10. CO wise Assessment Activities (as Mentioned in Session Plan):
You can plan for each CO, activities/ assessment tools to be conducted/ used for its achievement.
Use X to those you select for specific CO. Remove all unused columns.

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	Activities															
CO	**Pre Mid I Test**	**Post Mid I Test**	**Quiz 1**	**Quiz 2**	**Pre Mid II Test**	**Post Mid II Test**	**Assignment 1**	**Assignment 2**	**Workshop**	**Seminar**	**Project**	**Training**	**Discussion**	**Mid 1**	**Mid 2**	**Ind. visit**
CO1																
CO2																
CO3																
CO4																
CO5																
CO6																

In case of Lab course some activities are as follows:

LO	Internal Practical exams	Laboratory Tests	Viva	Records	Project Presentation	Project Evaluation	External practical exams
LO1							
LO2							
LO3							
LO4							

11. CO wise Assessment Activities:

Based on CO-PO mapping, determine targets for each CO as average of targets of all relevant POs.

CO	PO												Avg.	PSO		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**CO Targets**	**PSO1**	**PSO2**	**PSO3**
CO1																
CO2																
CO3																
CO4																
CO5																

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12. Activity wise Assessment Tools:

This gives you generalized view of different direct and indirect tools those can be used for assessment / achievement of CO/PO. (Decide which tools are required for assessing a particular CO/LO and in reference to Course A, B, C difficulty level).

Sr. No.	Activity	Assessment Method	Tools	Weightage Marks	Recommendation
1.	Pre-Mid Term 1	Direct	Marks	10	For CO
2.	Post-Mid Term 1	Direct	Marks	10	For CO
3.	Quiz 1	Direct	Marks	10	For CO
4.	Quiz 2	Direct	Marks	10	For CO
5.	Pre Mid Term 2	Direct	Marks	10	For CO
6.	Post Mid Term 2	Direct	Marks	10	For CO
7.	Mid Term 1	Direct	Marks	20	For CO
8.	Mid Term 2	Direct	Marks	20	For CO
9.	Assignment 1	Direct	Marks	10	For CO
10.	Assignment 2	Direct	Marks	10	For CO
11.	Workshop	Indirect	Rubrics	5	For LO
12.	Seminar/ SPL	Indirect	Rubrics	5	For CO/LO
13.	Project (Mini or NSP)	Indirect	Rubrics	20	For LO
14.	Discussion	Indirect	Rubrics	5	For LO
15.	Training	Indirect	Rubrics	20	For LO
16.	Industrial Visit	Indirect	Rubrics	20	For LO
17.	Or any other activity	Direct/ Indirect	Marks/ Rubrics	any	For LO
18.					
Note that for every rubrics you need to decide assessment criteria, range of marks or weightage – above values are indicative					

13. CO Assessment Process:

After every activity (Ideally as per above table): (Frequency of Assessment- Can be taken as monthly). So the assessment can be for all activities held during the month. Do the following.

13.1 Attainment of COs

13.1.1 Attainment Table for CO1: 6ME4-05.1

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CO1: 6ME4-05.1: Attainment Table (Columns) As Applicable CO wise-Monthly									
Student	**Pre Mid I Test 10**	**Quiz 1 10**	**Assignment 10**	**Quiz 1 10**	**WS 10**	**Training 10**	**Total (60)**	**% 0f Marks**	**Level of Attainment**
Name1									**3**
Name2									**2**
Name 3									**1**
Name 4									**2**
Name 5									**1**
Name 6									**2**
----									**--**
------									**--**
	No. of Students attained level 3=					**% of Students Attained Level 3=**			
	No. of Students attained level 2=					**% of Students Attained Level 2=**			
	No. of Students attained level 1=					**% of Students Attained Level 1=**			
	Target Achieved= ? (Check Level 3 % attainment -If No Find Gap)								
	Mark X for absent- Take avg. of all present								

(Repeat it for all other COs, (CO2 – CO5))

13.1.2 CO-Gap Identifications

COs	CO 1	CO 2	CO 3	CO4	CO5
Target					
Achieved					
Gap					

13.1.3 Gaps Identified:

Describe what the reasons for gaps are

i.

ii.

Overall CO Attainment Table: Example

COs	CO 1	CO 2	CO 3	CO4	CO5	Co6
Attainment level as per rules set	3	1	3	3	3	3
Average CO attainment through internal assessment	**2.67**					

13.1.4: Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

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13.2 Attainment of POs & PSO:

13.2.1 Target-Expected Attainment of PO by attainment of CO- Put all mappings of 3, 2 and 1. Based on CO-PO mapping, determine targets for each PO as average of targets of all relevant COs.

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
6ME4-05.1															
6ME4-05.2															
6ME4-05.3															
6ME4-05.4															
6ME4-05.5															
Obtain Average-PO/PSO Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets

13.2.2 Attainment of POs & PSO through CO as Continuous Evaluation:

Put all attainment values of CO as per mappings with 3, 2, 1 as evaluated in 13.1.1 (Frequency- Monthly)

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
6ME4-05.1															
6ME4-05.2															
6ME4-05.3															
6ME4-05.4															
6ME4-05.5															
Obtain Avg. PO/PSO Attainment	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

13.2.3 PO Gap Identification:

	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Targets															
Achieved															
Gap															

13.2.4 Gaps Identified:

Describe what the reasons for gap (for PO) are.

i.

ii.

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13.2.5 Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

Repeat whole process after one month, Two months, and three months. Plot bar chart for improvement in CO, PO & PSO. (Every month)

13.3 Attainment of CO through RTU Exam:

This may be possible for previous semester results so overall attainment. If faculty is changed, data will be evaluated by concerned faculty who taught and handed over to current faculty. If faculty not available, then current faculty will do the same.

Attainment of CO: 6ME4-05: Subject:			
Student	**RTU Marks (80)**	**% 0f Marks**	**Level of Attainment**
Name1			**3**
Name2			**2**
Name 3			**1**
Name 4			**2**
Name 5			**1**
Name 6			**2**
----			**--**
------			**--**
No. of Students attained level 3=		**% of Students Attained Level 3=**	
No. of Students attained level 2=		**% of Students Attained Level 2=**	
No. of Students attained level 1=		**% of Students Attained Level 1=**	
CO Attainment = ? (Check Level 3 % attainment -If No Find Gap)			
Mark X for absent- Take avg. of all present			

13.3.1 Attainment of CO through RTU Component:

CO: Course Code: Course Name					
Target					
Achieved					
Gap					

13.3.1 Gaps for CO attainment through RTU Component:

Analyze RTU Question paper with respect to COs formulated, contents delivered and students examined, find out reasons for gaps

i.

ii.

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13.3.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.4 Attainment of PO through CO (RTU) Component

Put RTU Results as per target achieved only and mapping level, in following table

Attainment of PO through CO (RTU) Component															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
6ME4-05															

Attainment of PO through CO (RTU) Component															
6ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.4.1 Gaps in PO through CO from RTU component:

Analyze RTU Question paper with respect to COs formulated & mapped, contents delivered and students examined, find out reasons for gaps

Describe what are the reasons for gap

i.

ii.

13.4.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.5 Overall Attainment of PO & PSO: Through Continuous Assessment & RTU

While combining attainment through Continuous evaluation and RTU component, following weightage be considered.

1. **Internal Assessment – Total weightage- 40 %**
2. **RTU Component ------- Weightage – 60 %**

Put all attainments in the following table and compute.

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13.5.1: Table 1

	RTU Component			Internal Assessment				
Student	**RTU Marks (80)**	**% of Marks**	**60% Weightage X6/100 (A)**	**Overall CO (-----)**	**% of Marks**	**Weightage X4/100 (B)**	**Total (A+B)**	**Level of Attainment**
Name1								**3**
Name2								**2**
Name 3								**1**
Name 4								**2**
Name 5								**1**
Name 6								**2**
----								**--**
------								**--**
No. of Students attained level 3=					**% of Students Attained Level 3=**			
No. of Students attained level 2=					**% of Students Attained Level 2=**			
No. of Students attained level 1=					**% of Students Attained Level 1=**			
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)								
Mark X for absent- Take avg. of all present								

OR

13.5.2: Table 2

	RTU			Internal CO1/ Activity 1 (Weightage %)			Internal CO2/ Activity 2 (Weightage			Internal CO3/ Activity 3 (Weightage %)				
Student	**RTU Marks (80)**	**% 0f Marks**	**60% Weightage X-----/100 A**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 B**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 C**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 D**	**Total (A+B+C+D)**	**Level of Attainment**
Name1														**3**
Name2														**2**
Name 3														**1**
Name 4														**2**
Name 5														**1**
Name 6														**2**
----														**--**
------														**--**

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No. of Students attained level 3= Attained Level 3=	**% of Students**
No. of Students attained level 2= Attained Level 2=	**% of Students**
No. of Students attained level 1= Attained Level 1=	**% of Students**
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)	
Mark X for absent- Take avg. of all present	

13.5.3: Overall PO & PSO Attainment through Course:
Put Overall PO & PSO attainment as per mapping 3,2,1 above:

Attainment of Overall PO for Session 2018-2019															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
6ME4-05															
PO Attainment															

13.5.4: Overall Gaps for Attainment of PO and PSO from the Course
Put Overall PO & PSO targets & attainment as per mapping 3,2,1 above:

Attainment & Gap of Overall PO Session ----------															
6ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.5.5. Overall Gaps for Course taught:
Go through all gaps identified above and summarize. Describe what the reasons are.
i.
ii.

13.5.6 Action to be taken:
Prepare recommendations for improvement in planning & teaching (Internal & RTU) for gaps identified. Decide Activities to be conducted to bridge the gaps in COs.

Repeat whole process after One year before, Two year before, and three year before. Plot bar charts for Continuous improvements check in CO, PO & PSO. (Every Year).

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14 File Formats

14.1 List of File Formats

i. Front Page of Course File
ii. ABC Analysis Format
iii. Blown-up Format
iv. Deployment Format
v. Zero Lecture Format
vi. Tutorial Format
vii. Assignment Format
viii. Lecture Note Format
ix. Mid Term Question Paper Format
x. Mid Term Practical Exam Format
xi. Evaluation Sheets Format
xii. Activity Report Format

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14.2 Front Page of Course File

POORNIMA
COLLEGE OF ENGINEERING

TEACHING MANUAL

COURSE: _____

SEMESTER: _____

SUBJECT: _____

SUB. CODE: _____

CONTENT: **Syllabus, Blown-up, Deployment, Zero Lectures,**
Detailed lecture notes with cover page, Tutorial/Home-Assignment Sheets

_____

SESSION: 20___-___

NAME OF FACULTY: _____

DEPARTMENT: _____

CAMPUS: _____

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14.3 ABC Analysis Format

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COLLEGE OF ENGINEERING
Department of Mechanical Engineering
Even Semester 2021-22

ABC Analysis

Course: B. Tech. **Class/Section: 3rd Year/A** **Date: 10/01/2022**
Name of Faculty: XYZ **Name of Subject: DME-II** **Subject Code: 6ME4-04**

Sr. No.	Category A (Hard topics)	Category B (Topics with average hardness level)	Category C (Easy to understand topics)	Preparedness for "A" topics
1	Bolts subjected to variable stresses.	Goodman line, Soderberg line, Design of machine members subjected to combined, steady and alternating stresses. Design for finite life, Design of Shafts under Variable Stresses,	Variable load, loading pattern, endurance stresses, Influence of size, surface finish, notch sensitivity and stress concentration.	PPT & Notes
2	Design of IC Engine parts: Piston, Connecting rod, Crank shaft	----------	----------	PPT & Notes
3	Design of IC Engine components: Piston, Cylinder, Connecting Rod and Crank Shaft.	Design of helical compression, tension, torsional springs, springs under variable stresses.	Design of belt, rope and pulley drive system,	SPL & PPT
4	Design and force analysis of spur, helical, bevel and worm gears, Bearing reactions due to gear tooth forces.	Design of gear teeth: Lewis and Buckingham equations, wear and dynamic load considerations.		PPT
5	Design of Sliding and Journal Bearing: Methods of lubrication, hydrodynamic, hydrostatic, boundary etc. Minimum film thickness and thermal equilibrium.	Selection of anti-friction bearings for different loads and load cycles, Mounting of the bearings, Method of lubrication.		SPL & PPT

SAMPLE

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14.4 Blown-up Format

POORNIMA
COLLEGE OF ENGINEERING
BLOWN UP SYLLABUS

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date:06/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

Sr. No.	Topic as per Syllabus	BLOWN UP TOPICS (Upto 10 Times Syllabus)
1	**PART-1** **FATIGUE CONSIDERATION IN DESIGN**	
	1.1 Review of Fatigue (Loading pattern)	1.1.1 Types of load 1.1.2 What is fatigue? 1.1.3 Fatigue curve 1.1.4 Endurance limit
	1.2 Factor affecting endurance limit	1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor
	1.3 Notch sensitivity & Stress concentration	1.3.1 factor of safety 1.3.2 stress concentration 1.3.3 stress concentration curve 1.3.4 notch sensitivity 1.3.5 theoretical stress concentration factor
	DESIGN OF MACHINE MEMBER	
	1.4 Goodman, Goderberg line, Design of machine member under steady, Variable and alternating stress Design for variable stresses	1.4.1 Good men line, Soderberg line, Gerber parabola method 1.4.2 Design under axial, bending and torsional stress 1.4.3 Mean and variable stress 1.4.4 Design for combined stress 1.4.4 Numerical approach for the design of member
	1.5 Design for finite life	1.5.1 Requirement of finite life design 1.5.2 Goodman approach toward finite life 1.5.3 Numerical approach for finite life design
2	**PART-2** **DESIGN OF I.C ENGINE PARTS**	
	2.1 Design of I .C Engine Piston	2.1.1 What is Piston and its importance? 2.1.2 Different materials used for the piston. 2.1.3 Effect of materials on the Piston design 2.1.4 Calculation of various pressure and inertia forces

SAMPLE

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14.5 Deployment Format

POORNIMA COLLEGE OF ENGINEERING

SYLLABUS DEPLOYMENT

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date: 05/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

S.No.	TOPIC AS PER BLOWNUP SYLLABUS	LECT. NO.	CO/LO	Target Date of Coverage	Actual Date of Coverage	Teaching method	Ref. Book/Journal with Page No.
1	**ZERO LECTURE**	L-1	CO1	11/01/2022	11/01/2022	PPT	Machine design by V.B Bhandari & R. S Khurmi
2	***Introduction to Unit :1*** **Introduction of the lecture** 1.1.1 Types of load 1.1.2 What is fatigue 1.1.3 Fatigue curve 1.1.4 Endurance limit ***Conclusion of the lecture*** ***Brief of next lecture***	L-2	CO1	12/01/2022	12/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 34-38
3	**Introduction of the lecture** 1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-3	CO1	14/01/2022	14/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 44-52
4	**Introduction of the lecture** 1.3.1 Factor of safety 1.3.2 Stress concentration 1.3.3 Stress concentration curve ***Conclusion of the lecture*** ***Brief of next lecture***	L-4	CO1,2	16/01/2022	16/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 58-62
5	**Introduction of the lecture** 1.3.4 Notch sensitivity 1.3.5 Theoretical stress concentration factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-5	CO1	17/01/2022	17/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 73-82
6	**Introduction of the lecture** 1.4.1 Goodman line, Soderberg line, Gerber parabola method the design of member	L-6	CO1,2	18/01/2022	18/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 82-88

SAMPLE

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14.6 Zero Lecture Format

POORNIMA
COLLEGE OF ENGINEERING

ZERO LECTURE

Session: 20 - (Sem.)

Campus: …… Course: …… Class/Section: ……

Name of Faculty: ……

Zero Lecture

1). Name of Subject: …… Code: ……

2). Self-Introduction:

a). Name:
b). Qualification:
c). Designation:
d). Research Area:
e). E-mail Id: ……@poornima.org
f). Other details: Information about areas of proficiency/ expertise such as subject taught, laboratory taken, Member of Professional body, Academic Proficiency, Book Authored, Paper published in National and International Conference/Journals etc.

3). Introduction of Students:

a*). Records of students in 12th*

Sr. No.	Average result of 12th	Name of student scored highest marks	Marks 60% above (No. of students)	Marks between 40%-60% (No. of students)	English Medium Students (No.)	Hindi Medium Students (No.)	No. of Hostellers	No. of Day Scholar

b*). Name of 05 best students based on previous results: ……, ……, ……, ……, ……*

4). Instructional Language: - ……%English; ……..% Hindi (English not less than 60%)

5). Introduction to subject: - (Pl. separate out subject specific matter and general matter valid for all subjects and group/place them appropriately)

a). Relevance to Branch:
b). Relevance to Society:
c). Relevance to Self:
d). Relation with laboratory:
e). Connection with previous year and next year:

6). Syllabus

a). Unit Name:
b). ABC analysis (RGB method) of unit & topics

7). Books/ Website/Journals & Handbooks/ Association & Institution:

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a). Recommended Text & Reference Books and Websites:

S. No.	Title of Book	Authors	Publisher	Cost (Rs.)	No. of books in Library
Text Books					
T1					
T2					
T3					
Reference Books					
R1					
R2					
R3					
Websites related to subject					
1					
2					

b). Journals & Handbooks: - To give information about different Journals & Handbooks available in library related to the subject and branch.

c). Associations and Institutions: - To give information about different Associations and Institutions related to the subject and branch.

8). Syllabus Deployment: -

a). Total weeks available for academics (excluding holidays) as per Poornima Foundation calendar-

Semester	
No. of Working days available(Approx.)	
No. of Weeks (Approx.)	

- Total weeks available for special activities (as mentioned below)- 02 weeks (Approx.)

Note: Individual faculty must calculate the exact no. of lectures available according to time table etc. after consultation with HOD.

b). Special Activities (To be approved by HOD & Dean & must be mentioned in deployment):

- Open Book Test- Once in a semester
- Quiz - Once in a semester
- Special Lectures (SPL)- Minimum 10% of total no. of lectures including following
  - i. Smart Class by the faculty, who is teaching the subject
  - ii. SPL by expert faculty at PGC level
  - iii. SPL by expert from industry/academia (other institution)
- Revision classes (Solving Important Question Bank):- 1 class before Mid Term and 2 classes before End Term Exam

c). Lecture schedule per week

i). University scheme (L+T+P) = ...+....+.....

Sr. No.	Name of Unit	No. of lectures	Broad Area	Degree of difficulty (High/Medium/Low)	Text/ Reference books
1.					
2.					
3.					
4.					
5.					

d). Introduction & Conclusion: Each subject, unit and topic shall start with introduction & close with conclusion. In case of the subject, it is Zero lecture.

e). Time Distribution in lecture class: - Time allotted: 60 min.

i. First 5 min. should be utilized for paying attention towards students who were absent for last lecture or continuously absent for many days + taking attendance by calling the names of the students and also sharing any new/relevant information.

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ii. Actual lecture delivery should be of 50 min.
iii. Last 5 min. should be utilized by recapping/ conclusion of the topic. Providing brief introduction of the coming up lecture and suggesting portion to read.
iv. After completion of any Unit/Chapter a short quiz should be organized.
v. During lecture student should be encouraged to ask questions.

Note: Pl. ensure that each student is having Lecture Note Book. Also, write on the black board day and date, name of the teacher, name of subject with code, unit and lecture no. and topics to be covered at the beginning of each lecture and ensure that students write in lecture note book. Ask students to leave 4/5 pages blank for copying the note from fellow students in case of their absenteeism.

9). Tutorial: - An essential component of Teaching- Learning process in Professional Education.

Objective: - To enhance the recall mechanism.
To promote logical reasoning and thinking of the students.
To interact personally to the students for improve numerical solving ability.

a). *Tutorial processing:* - Tutorial sheet shall be provided to each students

Ist Phase: - It is consisting of questions to be solved in the class assignment session in test mode on perforated sheet given in tutorial notebook and to be collected & kept by respective faculty for review & analysis (20 minutes).

IInd Phase: - Indicating/Initializing the weak issues/ drawback and Evaluating and providing the grade. Making a group with good student for assisting the weak students to explain/solve questions by every student on plain papers given in tutorial note book (20 minutes).

IIIrd Phase: - Solving/ explaining difficulties of lecture class and providing the new home assignment (20 minutes). To be done in tutorial note book.

b). *Home assignment shall comprise of two parts:*

Part (i) Minimum essential questions, which are to be solved and submitted by all with in specified due date.

Part (ii) Other important questions, which may also be solved and submitted for examining and guidance by teacher.

10). Examination Systems:

A. FOR ALL THEORY COURSES:-

a. Continuous Internal Evaluation (CIE)	**20%**
-Assignment / Project / Papers / Essays / Class Participation	10%
-Quiz / Class Test (Announced / Unannounced)	5%
- Attendance and Discipline	5%
b. Mid Semester Exams (MSE) – Two	**20%**
c. End Semester Exam (ESE) - One	**60%**
TOTAL	**100 %**

B. FOR ALL PRACTICAL (LABORATORY) COURSES:-

a. Continuous Internal Evaluation (CIE)	**40%**
-Performance (Lab Record, Viva,)	30%
-Attendance and Participation in laboratory work	10%
b. Mid Semester Exam (MSE)– Two	**20 %**
c. End Semester Exam (ESE) - One	**40%**
TOTAL	**100 %**

11). Any other important point:

Place & Date:

Name of Faculty with Designation

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14.7 Lecture Note Front page Format

POORNIMA
COLLEGE OF ENGINEERING

LECTURE NOTES

Campus: …….…. **Course:** ……..……... **Class/Section:** …….…… **Date:** …….…….

Name of Faculty: …….…….. **Name of Subject:** …….…… **Code:** ……..

Date (Prep.): ……..……. **Date (Del.):** ……..……**Unit No.:**……..…….**Lect. No:** ……..…….

OBJECTIVE: To be written before taking the lecture (Pl. write in bullet points the main topics/concepts etc., which will be taught in this lecture)

IMPORTANT & RELEVANT QUESTIONS:

FEED BACK QUESTIONS (AFTER 20 MINUTES):

OUTCOME OF THE DELIVERED LECTURE: To be written after taking the lecture (Pl. write in bullet points about students' feedback on this lecture, level of understanding of this lecture by students etc.)

REFERENCES: Text/Ref. Book with Page No. and relevant Internet Websites:

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14.7.1 Detailed Lecture Note Format-1

POORNIMA
COLLEGE OF ENGINEERING

DETAILED LECTURE NOTES

Campus: ……	**Course: ……**	**Class/Section: ……**	**Date: ……**
Name of Faculty: ……		**Name of Subject: ……**	**Code: ……**

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14.7.2 Detailed Lecture Note Format-2

POORNIMA
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DETAILED LECTURE NOTES

PAGE NO. .....

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14.8 Assignment Format

POORNIMA
COLLEGE OF ENGINEERING

Assignment Sheet-1

Campus: PCE **Course:** B.Tech. **Class/Section:** III **Date:** .....

Name of Faculty: SKT **Name of Subject:** Design Machine of Machine Element-II **Code:** 6ME4-04

Date of Preparation: ..... **Scheduled Date of Submission:** .....

Q. No.	Questions	COs	POs	PSOs
1	Discuss influence of size, surface, reliability and modifying factor on endurance limit of material.	CO1	PO2	PSO1
2	Discuss various methods of mitigation of stress concentration.	CO1	PO2	PSO1
3	Define the following terms used in design of machine elements (i) Size Factor (ii) Notch Sensitivity (iii) Surface Finish Factor	CO1	PO2	PSO1
4	What do you mean by stress concentration? How do you take it into consideration in case of components subjected to dynamic loads?	CO1	PO2	PSO1
5	Explain difference between Soderberg, Goodman and Gerber criteria in detail.	CO1	PO2	PSO1
6	What is physical significance of notch sensitivity factor being one of zero.	CO1	PO2	PSO1
7	What is fluctuating stresses? Draw stress-time curves for different fluctuating stresses.	CO1	PO2	PSO1
8	What is endurance strength? Draw S-N diagram and list various factors affecting it.	CO1	PO2	PSO1
9	Draw and describe Goodman and Soderberg diagram.	CO1	PO2	PSO1
10	Explain modified Goodman diagram for bending stresses.	CO1	PO2	PSO1

SAMPLE

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14.9 Tutorial Format

POORNIMA
COLLEGE OF ENGINEERING

TUTORIAL SHEET

TUTORIAL SHEET SHEET No.....

Campus: ..... Course: ..... Class/Section: ..... Date: .....

Name of Faculty: ..... Name of Subject: ..... Code: .....

Date of Tut. Sheet Preparation:..... Scheduled Date of Tut.:.....Actual Date of Tut. :.....

Name of Student:.....Scheduled & Actual Date of H.A. Submission:.....&.....

	Questions	CO	PO
FIRST 20 MT. CLASS QUESTIONS			
2 HRS. SOLVABLE HOME ASSIGNMENT (H.A.) QUESTIONS			
OTHER IMPORTANT QUESTIONS			

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14.10 Mid Term/ End Term Practical Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- A**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- B**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

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14.11 Mid Term Theory Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

II B.TECH. (III Sem.) **Roll No. _____**

SECOND MID TERM EXAMINATION 2021-22

Code: 3CE2-01 Category: PCC Subject Name–ADVANCE ENGINEERING MATHEMATICS -I

(BRANCH – CIVIL ENGINEERING)

Course Credit: ___

Max. Time: 2 hrs. **Max. Marks: 60**

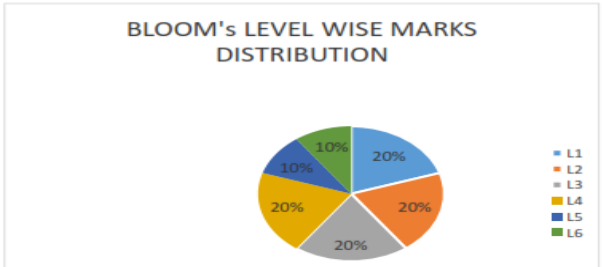
NOTE:- Read the guidelines given with each part carefully.

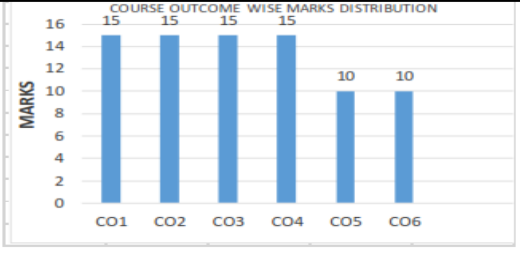
Course Outcomes (CO):

At the end of the course the student should be able to:

CO1:
CO2:
CO3:
CO4:
CO5:
CO6:

	PART - A: (All questions are compulsory) Max. Marks (10)				
		Marks	**CO**	**BL**	**PO**
Q.1		**2**			
Q.2		**2**			
Q.3		**2**			
Q.4		**2**			
Q.5		**2**			
	PART - B: (Attempt 4 questions out of 6) Max. Marks (20)				
Q.6		**5**			
Q.7		**5**			
Q.8		**5**			
Q.9		**5**			
Q.10		**5**			
Q.11		**5**			
	PART - C: (Attempt 3 questions out of 4) Max. Marks (30)				
Q.12		**10**			
Q.13		**10**			
Q.14		**10**			
Q. 15		**10**			





BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analyzing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes; PO – Program Outcomes

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13. List of Important Links

List of Important Links		
Sr. No.	**Link**	**Particulars**
1	https://www.rtu.ac.in/index/	Rajasthan Technical University
2	http://www.pce.poornima.org	Institute Website
3	http://www.pce.poornima.org/Downloads.html	Format of Students & Employees
4	https://www.turnitin.com/login_page.asp?lang=en_us	Plagiarism Checker
5	http://pcelibrary.poornima.org/	PCE Digital Library
6	https://ndl.iitkgp.ac.in/	National Digital Library of India (NDLI)
7	https://swayam.gov.in/	SWAYAM MOOCs platform
8	https://www.vlab.co.in/	Virtual Labs
9	https://spoken-tutorial.org/	Spoken Tutorial
10	https://fossee.in/	FOSSEE (Free/Libre and Open Source Software for Education)
11	https://www.sih.gov.in/	Smart India Hackathon
12	https://www.swayamprabha.gov.in/	32 high quality educational channels through DTH on 24X7 basis.
13	https://ieeexplore.ieee.org/Xplore/home.jsp.You	IEEE All Society Periodicals Package
14	https://booksc.org/	Link for Free for book and articles
15	https://jgateplus.com/home/	J-gate Plus (JOURNALS -GATE) subscriptions
16	http://www.delnet.nic.in/	Developing Library Network
17	https://dst.rajasthan.gov.in/content/dst-gov/en/home.html	Department of Science & Technology, Government of Rajasthan
18	https://ipindia.gov.in/index.htm	Official website of Intellectual Property India
19	http://pce.poornima.org/Downloads.html	Academic Formats Word File
Note:- Required Credentials can be taken from Respective Department Heads		

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POORNIMA
COLLEGE OF ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

CURRICULUM DELIVERY PLAN

OUTLINE-ODD SEM-2022-23

ISI-6, RIICO Institutional Area, Sitapura, Jaipur-302022 (Rajasthan)

• Phone: +91-141-2770790 • E-mail: info.pce@poornima.org

• Website: www.pce.poornima.org

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1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of Continuous Internal Assessment (CIA)

PCE is affiliated to RTU, Kota and follows the planned and prescribed curriculum of University. The Internal Quality Assurance Cell (IQAC) of PCE takes the responsibility of monitoring the effective delivery of the curriculum through a well-planned and documented process. To ensure effective curriculum delivery, a Curriculum Delivery Plan (CDP) is prepared by all PAC's of the respective departments. A CDP includes detailed planning for preparation, verification, execution and adherence to all documents related to academic delivery of all courses. As per the directions received from IQAC, the Examination cell plans for the Continuous Internal Assessment. Examination cell then circulate CIA planning to the PAC. Examination cell sends all the CIE Data to Director's Office for the final approval before its submission to RTU. Detail outlines are as follows.

1. Director Office, PCE receives the curriculum from RTU, Kota through university website.
2. IQAC prepares institute academic calendar aligned with RTU academic calendar considering input received in last GC meeting and other stakeholders. IQAC forwards the Institute Academic Calendar to PAC (Program Assessment Committee) for identifying curriculum gaps and examination cell for CIE. PACs then prepares CDPs after consolidating the course specific planning received from the respective faculty members.
3. A CDP includes activities for gap abridgement which are proposed to be carried out by the faculty members.
4. IQAC also instructs PACs to prepare the department activity calendar. PACs receives approval of department activity calendars and CDPs from DABs before its final approval from IQAC.
5. IQAC also reviews the CDPs approved by DABs and gives suggestions/ approvals periodically. All the activities (SPL, Industrial visit, workshop etc.) planned are taken into consideration for the Department activity calendar after the approval from DABs.
6. Subject wise Course files are prepared by respective faculty, comprising of Syllabus, ABC analysis, Blown-Up, Deployment, Lecture notes, Zero Lecture, Tutorial and Assignment sheets, COs Statements, and Mapping with POs and PSOs.
7. Faculty frequently use ICT tools for more effective content delivery using PPTs, video lectures etc.
8. Student attendance is monitored by tutors and chief proctor office with help of SHARP ERP software. Attendance defaulters are regularly counseled through their tutors for improving their attendance.
9. Institute also conducts Annual Internal Academic Audit for the effectiveness of teaching-learning methodologies and the necessary actions are taken as suggested by the audit team.
10. Conferences, seminars, webinars, workshops, expert lectures, STTPs, and FDPs are organized throughout the year on the recent advances in the field of engineering.
11. Continuous Internal Assessment process includes Midterm exam, Tutorials, Assignments, Quizzes, presentation, Class Test, viva-voce etc.
12. As per the RTU examination scheme, mid semester examinations are conducted centrally by examination cell as per the planning & academic calendar and other assessments are conducted at departmental level.
13. All the evaluations are carried out by the faculty members which include COs-POs attainment, Gap identification & action taken for the fulfillment of gap.
14. Student feedback and attainment of COs-POs are reviewed by the PAC for any revision in planning & Delivery.
15. End term semester examinations are conducted by the RTU, Kota.

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2 Vision & Mission Statements

2.1 Vision & Mission Statements of the Institute

Vision of Institution

To create knowledge-based society with scientific temper, team spirit and dignity of labor to face the global competitive challenges

Mission of Institution

To evolve and develop skill-based systems for effective delivery of knowledge so as to equip young professionals with dedication & commitment to excellence in all spheres of life

2.2 Vision & Mission Statements of the Program B. Tech. (Mechanical Engineering)

Vision and mission are the essential part of the growth of an institute, the vision and mission are as follows

2.2.1 Vision of Department

To be recognized for quality education in the field of Mechanical Engineering and identified for its innovation & excellence

2.2.2 Mission of Department

- To provide education that transforms students through rigorous teaching and thought process to fulfill the needs of the society and industry
- To collaborate with leading industry partners and other academic & research institutes around the world to strengthen the education and research ecosystem.
- To prepare students with life-long learning for their career by fostering in them the ethical & technical capabilities pertinent to mechanical & allied engineering.

2.2.3 PEO of the Department

Program Educational Objectives (PEOs

1. **PEO 1**: Graduate will have Fundamental & multidisciplinary knowledge with an ability to analyze, design, innovates and handles the realistic problems.
2. **PEO 2**: Graduate will possess ethical conduct, sense of responsibility to serve society and protect the environment.
3. **PEO 3**: Graduate will have strong foundation in academics, leadership qualities and lifelong learning for a prosperous professional career.

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2.2.4 Program Specific Outcome (PSOs)

PSO1. Design, analyze and innovate solutions to technical issues in Thermal, Production and Design Engineering.

PSO2. Exhibit the knowledge and skills in the field of Mechanical & Allied engineering concepts.

PSO3. Apply the knowledge of skills in HVAC&R and Automobile engineering.

2.3 Program Outcomes (PO)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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3 Department Academic & Administrative Bodies - Structure & Functions

3.1 Department Advisory Board (DAB)

3.1.1 Primary Objective

Department Advisory Board (DAB) of Department of Mechanical Engineering, PCE, Jaipur is formed to provide necessary suggestions for developing a structured approach for continuous improvement in curriculum delivery, planning and incorporation of Curricular, Extra and Co-Curricular activities needed to abridge the pre-identified curriculum gaps.

3.1.2 Roles & Responsibilities

1. Suggest improvement in academic plans and recommend standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.
2. Provide guidelines for industry-institute interactions to bridge up curriculum/industry gap and suggest quality improvement initiatives to enhance employability.
3. Develop a structured Curriculum Delivery Plan, Department Academic Calendar and seek approval for them from Internal Quality Assurance Cell.
4. Incorporate suggestions received from Program Assessment Committee (PAC) by including proposed activities for bridging curricular gaps identified.
5. To identify and suggest thrust areas to conduct various activities (final year projects, training courses and additional experiments to meet PEOs, and propose necessary action plan for skill development of students, required for entrepreneurship development and quality improvement.

3.1.3 Department-Wise Composition

S. No.	Category	Nominated by	Name of Members	Address
1	Chairman, DAB-ME	Chairman, IQAC	Dr. Mahesh M. Bundele (Principal & Director, PCE)	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
2	Member Secretary	Chairman, DAB-ME	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
3	Faculty representative-1	Chairman, DAB-ME	Dr. Rajkumar Satankar	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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4	Faculty representative-2	Chairman, DAB-ME	Dr. Surendra Kumar Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
5	Faculty representative-3	Chairman, DAB-ME	Dr. Mukesh Kumar Didwania	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
6	Faculty representative-4	Chairman, DAB-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
7	Faculty representative-5	Chairman, DAB-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
8	Special Invitee	Chairman, DAB-ME	Dr. Raikha Nair	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
9	Alumni Representative-1	Chairman, DAB-ME	Mr. Ashish Sonwal	Pinnacle Infotech Solution
10	Alumni Representative-2	Chairman, DAB-ME	Mr. Sudipt Sharma	Pinnacle Infotech Solution
11	Student Representative	Chairman, DAB-ME	Mr. Jatinder Kumar	ME, PCE, Final Year Student
12	Industry Representative	Chairman, DAB-ME	Mr. Ashok Joshi,	HR, Pinnacle Infotech Solution
13	Parents Representative-1	Chairman, DAB-ME	Mr. Gajendra Kumar Joshi	Panjab Keshri, Jaipur
14	Parents Representative-2	Chairman, DAB-ME	Mr. Mahipal Singh Yadav	Businessman Kalwad, Jaipur
15	Chairman, DAB-ME	Chairman, IQAC	Dr. Mahesh M. Bundele (Principal & Director, PCE)	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

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3.1.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	DAB-1	July First Week	● Consideration of gaps and proposed activities by PAC last meeting to be implemented in DAC and CDP. ● Prepares final draft of CDP and DAC to be proposed in upcoming IQAC meeting
2.	DAB-2	September Second Week	● Approval / Suggestions of proposals from last PAC Meeting. ● Revision of DAB Drafts for being proposed in upcoming GC
3	DAB-3	December First Week	● Draft preparation for DAC and CDP for upcoming semester after considering inputs from PAC. ● Review Semester closure draft from PAC.
4.	DAB-4	April Last Week / May First Week	● Draft of PCE Academic Calendar and CDP proposed ● Previous session closure with gaps and feedback. ● Completion of ATR-2 for current semester based on last GC sessions and compiling it with ATR-1

3.2 Program Assessment Committee

3.2.1 Primary Objective

The primary objective of Program Assessment Committee (PAC) is to identify, bridge and assess the gaps in Program's Curriculum received from university through attainment calculation.

3.2.2 Roles & Responsibilities

1. Identify gaps in curriculum laid down by university and propose activities for bridging identified gaps.

2. Implement academic plans and standard practices/system for attainment of Program Educational Objectives, Program Outcomes, Program Specific Outcomes and Course Outcomes.

3. Regular Monitoring of curriculum gap abridgement and course deployment practices through pre-defined methods.

4. Execute Industry-Institute Interactions to enhance the employability thereby meeting the industry standards and requirements.

5. Implement Curriculum Delivery Plan & Department Academic Calendar.

3.2.3 Department-Wise Composition

S. No.	Category	Nominated by	Name of Members	Address
1	Chairman, PAC	Chairman, IQAC /	Dr. Narayan Lal Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
2		Head of Institution		

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3	Faculty representative-1	Chairman, PAC-ME	Dr. Rajkumar Satankar	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
4	Faculty representative-2	Chairman, PAC-ME	Dr. Surendra Kumar Saini	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
5	Faculty representative-3	Chairman, PAC-ME	Dr. Amit Kumar Mandal	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
6	Faculty representative-4	Chairman, PAC-ME	Dr. Mukesh Didwania	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
7	Faculty representative-6	Chairman, PAC-ME	Mr. Sanjay Kumawat	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur
8	Faculty representative-7	Chairman, PAC-ME	Mr. Kalpit Jain	Poornima College of Engineering, ISI-6, RIICO Inst. Area, Sitapura, Jaipur

3.2.4 Meeting Frequency & Objectives

Meeting No.	Meeting Code	Meeting Month-Week	Meeting Objective
1.	PAC-1	July Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
2.	PAC-2	August Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
3	PAC-3	September Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of academics gaps as previous attainment ● Assessment of activities required for being proposed in upcoming GC ● Submit report to Governing Council about previous semester & planning of next semester.
4.	PAC-4	October Last Week	● Inclusion of suggestions for revising gaps ● Execution of Academic, Extra and Co-Curricular activities according to suggestions in GC ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of academics gaps as previous attainment
5.	PAC-5	November Third Week	● Revision of academics gaps as previous attainment ● Regular assessment of Academic, Extra and Co-Curricular activities ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester

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			● Semester closure report draft to be prepared ● Elective proposals/CBCS
6.	PAC-6	December Third Week	● Incorporation of suggestions from IQAC and DAB meetings in execution of Semester activities ● Execution and assessment of Academic, Extra and Co-Curricular activities ● Revision of academics gaps as previous attainment ● Calculation of attainments
7.	PAC-7	January Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
8.	PAC-8	February Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
9.	PAC-9	March Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Draft preparation of Semester closure
10.	PAC-10	April Second Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps
11.	PAC-11	May Last Week	● Execution of Academic, Extra and Co-Curricular activities ● Regular assessment of Academic, Extra and Co-Curricular activities ● Regular calculation of attainments ● Revision of Academics gaps ● Prepared regular report of program for all assessment, attainment & gaps ● Report submission of Semester closure ● Identification and proposal of gaps and activities to be considered by DAB to prepare Department Academic Calendar and CDP for upcoming semester.
12.	PAC-12	June Last Week	● Feedback of last IQAC and suggestions for new semester to be implemented in CDP and DAC ● Elective proposals/CBCS

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4 List of Faculty Members & Technical Staff

Sr. No.	Faculty Name	Emp.ID	Designation	Email ID	Mobile No.
1.	MR. VAIBHAV SHARMA	1282	ASST PROFESSOR	**vaibhavsharma@poornima.org**	
2.	DR. MUKESH DIDWANIA	1977	ASSOCIATE PROFESSOR	**mukesh.didwania@poornima.org**	**97174 20063**
3.	MR. SHAILENDRA KASERA	2972	ASST PROFESSOR	**Shailendra.kasera@poornima.org**	**99831 44773**
4.	MR. KALPIT JAIN	3156	ASST PROFESSOR	**kalpit.jain@poornima.org**	**95712 55627**
5.	MR. DHANANJAY KUMAR	3222	ASST PROFESSOR	**dhananjay.kumar@poornima.org**	**88245 99822**
6.	Mr. AMBER BATWARA	3510	ASST PROFESSOR	**amber.batwara@poornima.org**	
7.	MR. SANJAY CHHOTURAM KUMAWAT	3554	ASST PROFESSOR	**sanjay.kumawat@poornima.org**	**97843 84269**
8.	Mr. RAMANAND SHARMA	3701	ASST PROFESSOR	**ramanand.s@poornima.org**	**94147 45445**
9.	MR. ASHWANI KAPOOR	3768	ASST PROFESSOR	**ashwani.kapoor@poornima.org**	**94131 02801**
10.	DR. AMIT KUMAR MANDAL	3939	ASSOCIATE PROFESSOR	**amit.mandal@poornima.org**	**7014256283**
11.	MR. KAVEENDRA KUMAR	4424	ASST PROFESSOR		
12.	DR. RATNESH KUMAR SHARMA	4532	ASSOCIATE PROFESSOR	**ratnesh.sharma@poornima.org**	**98873 71157**
13.	MS. ASHABAI SANJAY KUMAWAT	5001	ASST PROFESSOR	**asha.kumawat@poornima.org**	
14.	Dr. PEEYUSH VATS	5292	PROFESSOR	**peeyush.vats@poornima.org**	**98297 45834**
15.	Dr. BHAVESH DEVRA	5362	ASSOCIATE PROFESSOR	**bhavesh.devra@poornima.org**	**95840 11177**
16.	Dr. RAJ KUMAR SATANKAR	6144	PROFESSOR	**rajkumar.satankar@poornima.org**	**85619 95290**
17.	Dr. SURENDRA KUMAR SAINI	6375	PROFESSOR	**surendra.kumar@poornima.org**	**77060 80625**
18.	DR. MOHAMMAD ISRAR	6601	PROFESSOR	**mohammad.israr@poornima.org**	**97242 00119**
19.	MR. SUMIT SHARMA	7263	ASST PROFESSOR	**sumit.sharma@poornima.org**	**96368 99367**
20.	DR. ANKIT TYAGI	7316	ASSOCIATE PROFESSOR	**ankit.tyagi@poornima.org**	

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5 Institute Academic Calendar

JULY 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

AUGUST 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

SEPTEMBER 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

NOVEMBER 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER 2022						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

POORNIMA
COLLEGE OF ENGINEERING

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NBA

ACADEMIC CALENDAR 2022-23*#

ODD SEMESTER

JULY 2022

RTU THEORY EXAMINATION OF FIRST YEAR [EVEN SEM 2021-22]
Practical Training [After II, IV, VI Sem.]

AUGUST 2022

Tuesday 16	Commencement of Classes-Odd Semesters B.Tech III Sem.
Wednesday 17	Commencement of Classes-Odd Semesters B.Tech VII Sem.
Monday 15	Celebration of Independence Day
Tuesday 16 to Thursday 18	Orientation programme-B.Tech. III Sem.
Wednesday17 to Saturday 20	Orientation programme-B.Tech. VII Sem.

SEPTEMBER 2022

RTU THEORY EXAMINATION OF SECOND YEAR [EVEN SEM 2021-22]

Monday 05	Faculty Felicitation Program, Celebration of Teachers' Day & activities under WISE
Thursday 15	Engineers' Day
Monday 19	Commencement of Classes-Odd Semesters V Sem.
Monday 19 to Wednesday 21	Orientation programme-B. Tech. V Sem.
Monday 26 to Friday 30	First Mid Term Theory & Practical Exam for B.Tech VII Sem

OCTOBER 2022

Sunday 02	Annual Day 'KALANIDHI' & Prize distribution ceremony
Thursday 06	Manthan- Inter-college Debate Competition
Monday 10 to Saturday 15	First Mid Term Theory & Practical Exam for B.Tech III Sem
Monday 10 to Saturday 29	Orientation programme-B. Tech. I Sem.
Monday 31	Commencement of Classes-Odd Semesters I Sem.

NOVEMBER 2022

Tuesday 01	Blood Donation Camp
Monday 07 to Saturday 12	First Mid Term Theory & Practical Exam for B.Tech V Sem
Monday 28	Last Teaching Day for B.Tech VII Sem
Tuesday 29 to Saturday 03	Second Mid-TermTheory & Practical Exam for B.Tech VII Sem

DECEMBER 2022

Wednesday 07	End-Term Theory Exams for B.Tech VII Sem
Monday 12	End-Term Practical Exams for B.Tech VII Sem
Monday 12 to Saturday 17	First Mid Term Theory & Practical Exam for B.Tech I Sem
Saturday 17	Last Teaching Day for B.Tech III Sem
Monday 19 to Saturday 24	Second Mid-TermTheory & Practical Exam for B.Tech III Sem
Friday 30	Last Teaching Day for B.Tech V Sem

JANUARY 2023

Monday 02 to Saturday 07	Second Mid-TermTheory & Practical Exam for B.Tech V Sem
Tuesday 03	End-Term Practical Exams for B.Tech III Sem
Monday 09	End-Term Practical Exams for B.Tech V Sem
Tuesday 17	End-Term Theory Exams for B.Tech III Sem
Wednesday 18	End-Term Theory Exams for B.Tech V Sem

FEBRUARY 2023

Thursday, 09	Last Teaching Day for B.Tech I Sem
Friday 10 to Friday 17	Second Mid Term Theory & Practical Exam for B.Tech I Sem
Monday 20	End-Term Practical Exams for B.Tech I Sem
Saturday 11 March	End-Term Theory Exams for B.Tech I Sem

HOLIDAYS IN ODD SEMESTER

Bakrid / Eid ul-Adha"	Sunday, July 10, 2022
Raksha Bandhan	Thursday, August 11, 2022
Shri Krishna Janmashtami	Friday, August 19, 2022
Vijay Dashmi	Wednesday, October 5, 2022
Diwali Break	Saturday, Oct. 22 to Wednesday, Oct. 26
Guru Nanak Jayanti	Tuesday, November 8, 2022
Christmas	Sunday, December 25, 2022
Winter Break	As per RTU Examination Schedule
New Year Day	December 31, 2022 to January 01, 2023

*Subject to revision as per RTU notifications

#For all Engineering Faculty and Students of PCE

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6 Department Activity Calendar

Poornima College of Engineering, Jaipur

Calendar for Mechanical Engineering : Odd Semester - Session 2022-23

(A) Academic Processes

S. No.	Activity/ Process	B.Tech. I Sem.	B.Tech. III Sem.	B.Tech. V Sem.	B.Tech. VII Sem.
1	Date of Registration & start of regular classes for students	Monday, October 31, 22	Tuesday, August 16, 22	Monday, September 19, 22	Wednesday, August 17, 22
2	Orientation programme	Monday, October 31, 22 to Saturday, October 29, 22	Tuesday, August 16, 22 to Thursday August18, 22	Monday, September 19, 22 to Wednesday, September 21, 22	Wednesday, August 17, 22 to Saturday, August 20, 22
3	Date of submission of question papers by faculty members to secrecy for 1st Mid-term	Tuesday, December 06, 22	Saturday, October 01, 22	Tuesday, November 01, 22	Friday, September 16, 22
4	I Mid Term Theory & Practical Exam	Monday, December 12, 22 to Saturday, December 17, 22	Monday, October 10, 22 to Saturday, October 15, 22	Monday, November 7, 22 to Saturday, November 12, 22	Monday, September 26, 22 to Friday, October 30, 22
5	Showing evaluated answer books of 1st Mid-term exam to students in respective classes	Upto Wednesday, December 21, 22	Upto Saturday, Octomber 22, 22	Upto Monday, November 21, 2022	Upto Saturday, November 5, 2022
6	Last date of submission of Evaluated Answer Books and Mark of First Mid-term Theory & Practical exam to Exam and Secrecy Cell respectively	Upto Monday, December 26, 22	Upto Saturday, November 12, 2022	Upto Saturday, November 26, 2022	Upto Monday, November 7, 2022
7	Date of submission of question papers by faculty members to secrecy for 2nd Mid-term	Friday, December 09, 22	Thursday, November 17, 2022	Wednesday, November 30, 2022	Monday, October 17, 2022
8	Revision classes	To be declared later according to RTU Exam Schedule			
9	Last Teaching Day	Monday, January 09, 2023	Saturday, December 17, 22	Friday, December 30, 2022	Monday, November 28, 2022
10	2nd Mid-term theory & Practical Exams	Friday, February 10, 2023 to Friday 17, 2023	Monday -Saturday, Decmber 19-24 , 22	Monday-Saturday, January 02- 07, 2023	Tuesday -Saturday, November 29-December 03, 2022
11	End-Term Practical Exams	Monday, February 20, 2023	Tuesday, January 03, 23	Wednesday, January 18, 2023	Monday, December 12, 2022
	(B) Events and Activities				
12	Alumni Session	Wednesday, November 23, 2022			
13	Teachers Day Celebration	Wednesday, September 28, 2022			
14	Celebration of Vishwakarma Jayanti	Wednesday, September 28, 2022			
15	Industrial Visit at Universal Autofoundry Ltd. Jaipur	Saturday, September 17, 2022			
16	Celebration of Engineers Day	Saturday, September 17, 2022			
17	Toyota Hybrid Awareness Drive	Thursday, September 15, 2022			
18	Celebration of Vishwakarma Jayanti	Monday, September 5, 2022			
19	Teachers Day Celebration	Monday, September 5, 2022			
20	Opportunities for Students and Faculties: Early Stage Entrepreneurs &	Saturday, August 20, 2022			
21	two days Boot Camp on Startup Ecosystem Digifest visit at Birla Aditi	Tuesday, August 9, 2022			
22					
23					
24					
25					
26					
27					
28					
29					
	(C) Holidays				
30	Bakrid / Eid ul-Adha"	Sunday, July 10, 2022			
31	Raksha Bandhan	Thursday, August 11, 2022			
32	Shri Krishna Janmashtami	Friday, August 19, 2022			
33	Vijay Dashmi	Wednesday, October 05, 2022			
34	Diwali Break	Saturday, October 22 -26, 2022			
35	Guru Nanak Jayanti	Tuesday, November 08, 2022			
36	Christmas	Sunday, December 25, 2022			
37	Winter Break	As per RTU examination schedule			

"स्वच्छ भारत.. सम्पन्न भारत.."

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7 Teaching Scheme

7.1 RTU Teaching Scheme

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme

B.Tech. : Mechanical Engineering
2nd Year - III Semester

SN	Category	Course Code	Course Title	Contact hrs/week L	T	P	Marks Exm Hrs	IA	ETE	Total	Cr
THEORY											
1	BSC	3ME2-01	Advance Engineering Mathematics-I	3	0	0	3	30	70	**100**	**3**
2	HSMC	3ME1-02/ 3ME1-03	Technical Communication/ Managerial Economics and Financial Accounting	2	0	0	2	30	70	**100**	**2**
3	ESC	3ME3-04	Engineering Mechanics	2	0	0	2	30	70	**100**	**2**
4	PCC	3ME4-05	Engineering Thermodynamics	3	0	0	3	30	70	**100**	**3**
5		3ME4-06	Materials Science and Engineering	3	0	0	3	30	70	**100**	**3**
6		3ME4-07	Mechanics of Solids	3	1	0	3	30	70	**100**	**4**
			Sub Total	16	1	0					**17**
PRACTICAL & SESSIONAL											
7	PCC	3ME4-21	Machine drawing practice	0	0	3		60	40	**100**	**1.5**
8		3ME4-22	Materials Testing Lab	0	0	3		60	40	**100**	**1.5**
9		3ME4-23	Basic Mechanical Engineering Lab	0	0	3		60	40	**100**	**1.5**
10		3ME4-24	Programming using MATLAB	0	0	3		60	40	**100**	**1.5**
11	PSIT	3ME7-30	Industrial Training	0	0	1		60	40	**100**	**1**
12	SODECA	3ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0				**100**	**0.5**
			Sub- Total	0	0	13					**7.5**
			TOTAL OF III SEMESTER	16	1	13					**24.5**

L: *Lecture,* ***T:*** *Tutorial,* ***P:*** *Practical,* ***Cr:*** *Credits*

ETE: *End Term Exam,* ***IA:*** *Internal Assessment*

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Teaching & Examination Scheme
B.Tech. : Mechanical Engineering
3rd Year –V Semester

THEORY											
SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
1	ESC	5ME3-01	Mechatronic Systems	2	0	0	2	20	80	**100**	**2**
2	PCC/ PEC	5ME4-02	Heat Transfer	3	0	0	3	30	120	**150**	**3**
3		5ME4-03	Manufacturing Technology	3	0	0	3	30	120	**150**	**3**
4		5ME4-04	Design of Machine Elements I	3	0	0	3	30	120	**150**	**3**
5		5ME4-05	Principles of Management	2	0	0	2	20	80	**100**	**2**
6		Professional	Elective I (any one)	3	0	0	3	30	120	**150**	**3**
		5ME5-11	Steam Engineering								
		5ME5-12	Automobile Engineering								
		5ME5-13	Non Destructive Evaluation & Testing								
			Sub Total	**16**	**0**	**0**		**160**	**640**	**800**	**16**
PRACTICAL & SESSIONAL											
7	ESC	5ME3-21	Mechatronic Lab	0	0	2	2	30	20	**50**	**1**
8	PCC	5ME4-22	Heat Transfer lab	0	0	2	2	30	20	**50**	**1**
9		5ME4-23	Production Engineering Lab	0	0	2	2	30	20	**50**	**1**
10		5ME4-24	Machine Design Practice I	0	0	2	2	30	20	**50**	**1**
11	PSIT	5ME7-30	Industrial Training	0	0	1	1	75	50	**125**	**2.5**
12	SODECA	5ME8-00	Social Outreach, Discipline & Extra Curricular Activities						25	**25**	**0.5**
			Sub- Total	**0**	**0**	**9**		**195**	**155**	**350**	**7**
			TOTAL OF V SEMESTER	**16**	**0**	**9**		**355**	**795**	**1150**	**23**

***L:** Lecture, **T:** Tutorial, **P:** Practical, **Cr:** Credits*
***ETE:** End Term Exam, **IA:** Internal Assessment*

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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Scheme & Syllabus

IV Year- VII & VIII Semester: B. Tech. (Mechanical Engineering)

Teaching & Examination Scheme
B.Tech.: Mechanical Engineering
4th Year – VII Semester

SN	Category	Course		Contact hrs/week			Marks				Cr
		Code	Title	L	T	P	Exm Hrs	IA	ETE	Total	
THEORY											
1	PEC	7ME5-11	I. C. Engines	3	0	0	3	30	120	**150**	**3**
2		7ME5-12	Operations Research								
3		7ME5-13	Turbomachines								
4	OE		Open Elective-I	3	0	0	3	30	120	**150**	**3**
			Sub Total	**6**	**0**	**0**		**60**	**240**	**300**	**6**
PRACTICAL & SESSIONAL											
5	PCC	7ME4-21	FEA Lab	0	0	3	3	45	30	**75**	**1.5**
6		7ME4-22	Thermal Engineering Lab II	0	0	3	3	45	30	**75**	**1.5**
7		7ME4-23	Quality Control Lab	0	0	2	2	30	20	**50**	**1**
8	PSIT	7ME7-30	Industrial Training *	1	0	0	1	75	50	**125**	**2.5**
9		7ME7-40	Seminar *	2	0	0	2	60	40	**100**	**2**
10	SODECA	7ME8-00	Social Outreach, Discipline & Extra Curricular Activities	0	0	0		0	25	**25**	**0.5**
			Sub- Total	**3**	**0**	**8**		**255**	**195**	**450**	**9**
			TOTAL OF VII SEMEESTER	**9**	**0**	**8**		**315**	**435**	**750**	**15**

*for the purpose of counting teaching load

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8 PCE Teaching Scheme

Working Group	Year	Sem	Students	Deptt.	Teaching Scheme				Course Name	Subject Code	No. of Sec	No. of Batc	Batch Size (T/H/F)	Total Load (L)	Total Load (T)	Total Load (P)	Total Load (L+T+P)	Teaching Dept.	Cat.
					L	T	P	Credit											
ME/Civil	2	3	24	ME	3	1	0	4	Mechanics of Solids	3ME4-07	1	1	F	3	1	0	4	ME	PCC
ME/Civil	2	3	24	ME	3	1	0	3	Advance Engineering Mathematics-I	3ME2-01	1	1	F	3	1	0	4	Maths	BSC
ME/Civil	2	3	24	ME	3	0	0	3	Materials Science and Engineering	3ME4-06	1	1	F	3	0	0	3	ME	PCC
ME/Civil	2	3	24	ME	3	1	0	3	Engineering Thermodynamics	3ME4-05	1	1	F	3	1	0	4	ME	PCC
ME/Civil	2	3	24	ME	3	0	0	2	Engineering Mechanics	3ME3-04	1	1	F	3	0	0	3	ME	ESC
ME/Civil	2	3	24	ME	2	0	0	2	Technical Communication	3ME1-02	1	1	F	2	0	0	2	English	HSMC
ME/Civil	2	3	24	ME	0	0	2	1.5	Materials Testing Lab	3ME4-22	1	1	T	0	0	2	2	ME	PCC
ME/Civil	2	3	24	ME	0	0	2	1.5	Basic Mechanical Engineering Lab	3ME4-23	1	1	T	0	0	2	2	ME	PCC
ME/Civil	2	3	24	ME	0	0	2	1.5	Machine drawing practice	3ME4-21	1	1	T	0	0	2	2	ME	PCC
ME/Civil	2	3	24	ME	0	0	2	1.5	Programming using MAT LAB	3ME4-24	1	1	T	0	0	2	2	ME	PCC
ME/Civil	2	3	24	ME	0	0	2	NA	Industrial Training/NSP Project	3ME4-30	1	1	T	0	0	2	2	ME	PCC
							30										30		
ME/Civil	3	5	22	ME	3	1	0	3	Heat Transfer	5ME4-02	1	1	F	3	1	0	4	ME	PCC
ME/Civil	3	5	22	ME	3	0	0	3	Automobile Engineering	5ME5-12	1	1	F	3	0	0	3	ME	PCC
ME/Civil	3	5	22	ME	3	0	0	2	Mechatronic Systems	5ME3-01	1	1	F	3	0	0	3	ECE	ESC
ME/Civil	3	5	22	ME	3	0	0	3	Manufacturing Technology	5ME4-03	1	1	F	3	0	0	3	ME	PCC
ME/Civil	3	5	22	ME	4	0	0	3	Design of Machine Elements I	5ME4-04	1	1	F	4	0	0	4	ME	PCC
ME/Civil	3	5	22	ME	3	0	0	2	Principles of Management	5ME4-05	1	1	F	3	0	0	3	ME	HSMC
ME/Civil	3	5	22	ME	0	0	2	1	Mechatronic Lab	5ME3-21	1	1	T	0	0	2	2	ECE	ESC
ME/Civil	3	5	22	ME	0	0	2	1	Heat Transfer lab	5ME4-22	1	1	T	0	0	2	2	ME	PCC
ME/Civil	3	5	22	ME	0	0	2	1	Production Engineering Lab	5ME4-23	1	1	T	0	0	2	2	ME	PCC
ME/Civil	3	5	22	ME	0	0	2	3	Machine Design Practice I	5ME4-24	1	1	T	0	0	2	2	ME	PCC
ME/Civil	3	5	22	ME	0	0	2	2.5	Industrial training/NSP Project	5ME7-30	1	1	T	0	0	2	2	ME	PCC
							30										30		
ME/Civil	4	7	59	ME	4	0	0	3	I. C. Engines/ Turbo Machine	7ME5-11/ 7ME5-13	1	1	T	3	0	0	4	ME	PCC/PEC
ME/Civil	4	7	59	ME	3	0	0	3	Finite Element Analysis/ Quality Management (OPEN-ELECTIVE)	7ME6-11/ 7ME6-12	1	1	T	3	0	0	3	ME	OE
ME/Civil	4	7	59	ME	0	0	2	1.5	FEA Lab	7ME4-21	1	1	T	0	0	2	2	ME	PCC
ME/Civil	4	7	59	ME	0	0	2	1.5	Thermal Engineering Lab-II	7ME4-22	1	1	T	0	0	2	2	ME	PCC
ME/Civil	4	7	59	ME	0	0	2	1	Quality Control Lab	7ME4-23	1	1	T	0	0	2	2	ME	PCC
ME/Civil	4	7	59	ME	0	0	3	2.5	Industrial Training(2) / Project-Stage-I (1)	7ME7-30/7ME7-Project	1	1	T	0	0	3	3	ME	PSIT
ME/Civil	4	7	59	ME	0		2	2	Seminar	7ME7-40	1	1	T	0	0	2	2	ME	PSIT
							18										18		
															Total Load		78		

Technical Communicatio	ENGL	2
Mechatronic Systems	ECE	3
Mechatronic Lab	ECE	2
		7
	Tota	71

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Sitapura, JAIPUR

8.1 Marking Scheme

MARKING SCHEME FOR PRACTICAL EXAM, ODD SEM., 2021-22,		EXAM & SECRECY CELL, PCE									
		I+II Mid Term Exam			Atten & Performance.			End Term Exam			Max.
Code	SUBJECT	Exp.	Viva	Total	Attn.	Perf.	Total	Exp.	Viva	Total	Marks
1FY2-20	Engineering Physics Lab	30	10	40	10	30	40	30	10	40	100
1FY2-21	Engineering Chemistry Lab	30	10	40	10	30	40	30	10	40	100
1FY1-22	Language Lab	30	10	40	10	30	40	30	10	40	100
1FY1-23	Human Values Activities & Sports	30	10	40	10	30	40	30	10	40	100
1FY3-24	Computer Programming Lab	30	10	40	10	30	40	30	10	40	100
1FY3-25	Manufacturing Practices Workshop	30	10	40	10	30	40	30	10	40	100
1FY3-26	Basic Electrical Engineering Lab	30	10	40	10	30	40	30	10	40	100
1FY3-27	Basic Civil Engineering Lab	30	10	40	10	30	40	30	10	40	100
1FY3-28	Computer Aided Engineering Graphics	30	10	40	10	30	40	30	10	40	100
1FY3-29	Computer Aided Machine Drawing	30	10	40	10	30	40	30	10	40	100
3CE4-21	Surveying Lab	30	10	40	10	30	40	30	10	40	100
3CE4-22	Fluid Mechanics Lab	30	10	40	10	30	40	30	10	40	100
3CE4-23	Computer Aided Civil Engineering Drawing	30	10	40	10	30	40	30	10	40	100
3CE4-24	Civil Engineering Maretials Lab	30	10	40	10	30	40	30	10	40	100
3CE4-25	Geology Lab	30	10	40	10	30	40	30	10	40	100
3CE7-30	Training Seminar			60					40		100
3CS4-21	Data Structures and Algorithms Lab	30	10	40	10	30	40	30	10	40	100
3CS4-22	Object Oriented Programming Lab	30	10	40	10	30	40	30	10	40	100
3CS4-23	Software Engineering Lab	30	10	40	10	30	40	30	10	40	100
3CS4-24	Digital Electronics Lab	30	10	40	10	30	40	30	10	40	100
3CS7-30	Training Seminar			60					40		100
3EC4-21	Electronics Devices Lab	30	10	40	10	30	40	30	10	40	100
3EC4-22	Digital System Design Lab	30	10	40	10	30	40	30	10	40	100
3EC4-23	Signal Processing Lab	30	10	40	10	30	40	30	10	40	100
3EC3-24	Computer Programming Lab-I	30	10	40	10	30	40	30	10	40	100
3EC7-30	Training Seminar			60					40		100
3EE4-21	Analog Electronics Lab	30	10	40	10	30	40	30	10	40	100
3EE4-22	Electrical Machine-I Lab	30	10	40	10	30	40	30	10	40	100
3EE4-23	Electrical circuit design Lab	30	10	40	10	30	40	30	10	40	100
3EE7-30	Training Seminar			30					20		100
3IT4-21	Data Structures and Algorithms Lab	30	10	40	10	30	40	30	10	40	100
3IT4-22	Object Oriented Programming Lab	30	10	40	10	30	40	30	10	40	100
3IT4-23	Software Engineering Lab	30	10	40	10	30	40	30	10	40	100
3IT4-24	Digital Electronics Lab	30	10	40	10	30	40	30	10	40	100
3IT7-30	Training Seminar			60					40		100
3ME4-21	Machine drawing practice	30	10	40	10	30	40	30	10	40	100
3ME4-22	Materials Testing Lab	30	10	40	10	30	40	30	10	40	100
3ME4-23	Basic Mechanical Engineering Lab	30	10	40	10	30	40	30	10	40	100
3ME4-24	Programming using MAT LAB	30	10	40	10	30	40	30	10	40	100
3ME7-30	Training Seminar			60					40		100
5CE4-21	Concrete Structures Design	22	8	30	8	22	30	22	8	30	75
5CE4-22	Geotechnical Engineering Lab	22	8	30	8	22	30	22	8	30	75
5CE4-23	Water Resource Engineering Design	15	5	20	5	15	20	15	5	20	50
5CE7-30	Industrial Training			75					50		125
5CS4-21	Computer Graphics & Multimedia Lab	15	5	20	5	15	20	15	5	20	50
5CS4-22	Compiler Design Lab	15	5	20	5	15	20	15	5	20	50
5CS4-23	Analysis of Algorithms Lab	15	5	20	5	15	20	15	5	20	50
5CS4-24	Advance Java Lab	15	5	20	5	15	20	15	5	20	50
5CS7-30	Industrial Training			75					50		125
5EC4-21	RF Simulation Lab	22	8	30	8	22	30	22	8	30	75
5EC4-22	Digital Signal Processing Lab	22	8	30	8	22	30	22	8	30	75
5EC4-23	Microwave Lab	15	5	20	5	15	20	15	5	20	50
5EC7-30	Industrial Training			75					50		125
5EE4-21	Power System - I Lab	15	5	20	5	15	20	15	5	20	50
5EE4-22	Control System Lab	15	5	20	5	15	20	15	5	20	50
5EE4-23	Microprocessor Lab	15	5	20	5	15	20	15	5	20	50
5EE4-24	System Programming Lab	15	5	20	5	15	20	15	5	20	50
5EE7-30	Industrial Training			75					50		125
5IT4-21	Computer Graphics & Multimedia Lab	15	5	20	5	15	20	15	5	20	50
5IT4-22	Compiler Design Lab	15	5	20	5	15	20	15	5	20	50
5IT4-23	Analysis of Algorithms Lab	15	5	20	5	15	20	15	5	20	50
5IT4-24	Advanced Java Lab	15	5	20	5	15	20	15	5	20	50
5IT7-30	Industrial Training			75					50		125
5ME3-21	Mechatronic Lab	15	5	20	5	15	20	15	5	20	50
5ME4-22	Heat Transfer lab	15	5	20	5	15	20	15	5	20	50
5ME4-23	Production Engineering Lab	15	5	20	5	15	20	15	5	20	50
5ME4-24	Machine Design Practice I	15	5	20	5	15	20	15	5	20	50
5ME7-30	Industrial Training			75					50		125
7CE4-21	Road Material Testing Lab	15	5	20	5	15	20	15	5	20	50
7CE4-22	Professional Practices & Field Engineering	15	5	20	5	15	20	15	5	20	50
7CE4-23	Soft Skills Lab	15	5	20	5	15	20	15	5	20	50
7CE4-24	Environmental Monitoring and Design Lab	15	5	20	5	15	20	15	5	20	50
7CE7-30	Practical Training			75					50		125
7CE7-40	Seminar			60					40		100
7CS4-21	Internet of Things Lab	30	10	40	10	30	40	30	10	40	100
7CS4-22	Cyber Security Lab	30	10	40	10	30	40	30	10	40	100
7CS7-30	Industrial Training			75					50		125
7CS7-40	Seminar			60					40		100
7EC4-21	VLSI Design Lab	30	10	40	10	30	40	30	10	40	100
7EC4-22	Advance communication lab (MATLAB	15	5	20	5	15	20	15	5	20	50
7EC4-23	Optical Communication Lab	15	5	20	5	15	20	15	5	20	50
7EC7-30	Industrial Training			75					50		125
7EC7-40	Seminar			60					40		100
7EE4-21	Embedded Systems Lab	30	10	40	10	30	40	30	10	40	100
7EE4-22	Advance control system lab	30	10	40	10	30	40	30	10	40	100
7EE7-30	Industrial Training			75					50		125
7EE7-40	Seminar			60					40		100
7IT4-21	Big Data Analytics Lab	30	10	40	10	30	40	30	10	40	100
7IT4-22	Cyber Security Lab	30	10	40	10	30	40	30	10	40	100
7IT7-30	Industrial Training			75					50		125
7IT7-40	Seminar			60					40		100
7ME4-21	FEA Lab	22	8	30	8	22	30	22	8	30	75
7ME4-22	Thermal Engineering Lab II	22	8	30	8	22	30	22	8	30	75
7ME4-23	Quality Control Lab	15	5	20	5	15	20	15	5	20	50
7ME7-30	Industrial Training *			75					50		125
7ME7-40	Seminar *			60					40		100

NOTE: - (1) In Attendance & Performance marks should be given on the basis of student overall performance in semester i. e. continuous evaluation.
(2) In Common Pool marks should be given by HOD on the basis of student Assignment,Non Syllabus Activity,Online Exam Exam,Application/Survey / Case Study based Learning, Pre-Placement Activity, Department Level Career Oriented Activities through out the semester.

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9 Department Load Allocation

POORNIMA COLLEGE OF ENGINEERING, JAIPUR
DEPARTMENT OF MECHANICAL ENGINEERING
Faculty Wise Load Allotment Session 2022-23 (ODD)

Section	Subject Code	Subject Name	L	T	P	Batch Size	Lecture Load	Tutorial Load	Lab Load	Total Load	Faculty Name-1	LOCATION
A	3ME4-07	Mechanics of Solids	3	1	0	1	3	1	0	6	Dr. Mukesh Didwania	AB-04
A	3ME4-21	Machine Drawing Practice	0	0	2	1	0	0	2			AB-02
A	5ME4-02	Heat Transfer	3	1	0	1	3	1	0	12	Dr. Amit Kumar Mandal	AB-05
A	5ME4-22	Heat Transfer lab	0	0	2	1	0	0	2			AB-08, HT LAB
A	7ME4-22	Thermal Engineering Lab-II	0	0	2	3	0	0	6			AB-11
A	7ME5-11	I. C. Engines	4	0	0	1	4	0	0	8	Dr. Narayan Lal Jain	AB-05
A	7ME7-40	Seminar	2	0	0	2	4	0	0			AB-05
A	5ME7-30	Industrial training/ NSP Project	0	0	2	1	0	0	2	5	Dr. Raj Kumar Satankar	AB-05
A	7ME6-60.1	Finite Element Analysis	3	0	0	1	3	0	0			AB-04
A	3ME1-02	Technical Communication	2	0	0	1	2	0	0	2	Dr. Shalini Shah	AB-04
A	3ME4-06	Materials Science and Engineering	3	0	0	1	3	0	0	8	Dr. Surendra Kumar Saini	AB-04
A	3ME4-22	Materials Testing Lab	0	0	2	1	0	0	2			AB-01,MT LAB
A	5ME4-03	Manufacturing Technology	3	0	0	1	3	0	0			AB-05
A	5ME4-05	Principles of Management	3	0	0	1	3	0	0	9	Mr. Ashwani Kapoor	AB-05
A	7ME7-30/ 7ME7-Project	Industrial Training (2Hr) / Project Stage-I (1Hr)	3	0	0	2	6	0	0			AB-09, PP LAB
A	3ME4-23	Basic Mechanical Engineering Lab	0	0	2	1	0	0	2	5	Mr. Kalpit Jain	AB-11
A	7ME6-60.2	Quality Management	3	0	0	1	3	0	0			AB-05
A	3ME4-30	Industrial training/ NSP Project or Seminar	0	0	2	1	0	0	2	10	Mr. Mahesh Chand Saini	AB - 04,AB-09, PP LAB
A	7ME7-30/ 7ME7-Project	Industrial Training (2Hr) / Project Stage-I (1Hr)	3	0	0	2	6	0	0			AB-09, PP LAB
A	5ME7-30	Industrial training/ NSP Project	0	0	2	1	0	0	2			AB-05
A	5ME3-01	Mechatronic Systems	3	0	0	1	3	0	0	5	Mr. Mukesh Chand	AB-05
A	5ME3-21	Mechatronic Lab	0	0	2	1	0	0	2			AT-16A, MECHAT LAB
A	3ME2-01	Advance Engineering Mathematics-I	3	1	0	1	3	1	0	4	Mr. Pradeep Kumar	AB-04
A	5ME4-04	Design of Machine Elements I	4	0	0	1	4	0	0	12	Mr. Sanjay Kumawat	AB-05
A	5ME4-24	Machine Design Practice I Lab	0	0	2	1	0	0	2			AB-12
A	7ME4-21	FEA Lab	0	0	2	3	0	0	6			AB-02
A	3ME4-05	Engineering Thermodynamics	3	1	0	1	3	1	0	14	Mr. Sumit Sharma	AB-04
A	7ME4-23	Quality Control Lab	0	0	2	3	0	0	6			AB-09, PP LAB
A	7ME7-40	Seminar	2	0	0	2	4	0	0			AB-05
A	3ME4-24	Programming using MAT LAB	0	0	2	1	0	0	2	11	Mr. Vinay Bhatt	AB-02
A	3ME4-30	Industrial training/ NSP Project or Seminar	0	0	2	1	0	0	2			AB - 04,AB-09, PP LAB
A	7ME5-13	Turbo Machine	4	0	0	1	4	0	0			AB-04
A	5ME5-12	Automobile Engineering	3	0	0	1	3	0	0			AB-05
A	3ME3-04	Engineering Mechanics	3	0	0	1	3	0	0	5	Mr.Ravindra Mahawar	AB-04
A	5ME4-23	Production Engineering Lab	0	0	2	1	0	0	2			AB-09, PP LAB

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10 Time Table

10.1 Orientation Time Table

Poornima College of Engineering

Department of Mechanical Engineering

Orientation Time Table - Even Sem-2022-23 -2nd Year Venue:- AB-05

Day/ Date	Time						
	1	2	3		4	5	6
	08:00 AM-09:00 AM	09:00 AM-10:00 AM	10:00 AM-11:00 PM	11:00 PM-11:50 PM	11:50 PM-12:50 PM	12:50 PM-01:50 PM	01:50 PM-02:50 PM
Tuesday, August 16, 2022	Tutor Interaction & Registration Dr. Surendra Kumar Saini	Department Visit Dr. Surendra Kumar Saini	3ME7-30 Industrial Training Dr. Raj Kumar Satankar & Dr. Surendra Kumar Saini	LUNCH	Zero Lecture 3ME4-23 Basic Mechanical Engineering Lab Mr. Kalpit Jain	Zero Lecture 3ME4-24 Programming using MAT LAB Mr. Amit Mandal	Zero Lecture 3ME1-02 Technical Communication Ms. Shalini Shah
Wednesday, August 17, 2022	Department Presentation/ HOD Interaction Dr. Narayan Lal Jain	Zero Lecture 3ME4-06- Materials Science and Engineering Dr. Surendra Kumar Saini	MOOC/ Certification Courses by Mr. Kalpit Jain	LUNCH	Zero Lecture 3ME3-04-Engineering Mechanics Dr. Raj Kumar Satankar	3ME4-21 Machine Drawing Practice Lab NF-01	Zero Lecture 3ME4-22 Materials Testing Lab Dr. Surendra Kumar Saini Zero Lecture
Thursday, August 18, 2022	Literature Survey, Review & Writing Research Paper Dr. Amit Mandal	Placement & GATE Mr. Kalpit Jain	NSP Project Dr. Raj Kumar Satankar & Dr. Surendra Kumar Saini	LUNCH	Zero Lecture 3ME4-05- Engineering Thermodynamics Dr. Narayan Lal Jain	Zero Lecture 3ME4-07- Mechanics of Solids NF-01	Zero Lecture 3ME2-01-Advance Engineering Mathematics-I NF-MATHS

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10.2 Academic Time Table II Year

POORNIMA COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
III SEM

Class Location: AB-04
WEF: 18.08.2022
Tutor Name: Dr. Surendra Kumar Saini

	1 8:00 - 9:00	2 9:00 - 10:00	3 10:00 - 11:00	LUNCH 11:00 - 11:50	4 11:50 - 12:50	5 12:50 - 13:50	6 13:50 - 14:50	7 14:50 - 15:50
Mo	3ME2-01 AEM-I AB-04 Pradeep Kumar	3ME4-06 MSE AB-04 Surendra Kumar Saini	3ME7-30 Industrial Training PP LAB Mahesh Chand Saini		3ME4-07 MOS AB-04 Mukesh Didwania	3ME4-23 BME LAB Kalpit Jain		Activity
Tu	3ME3-04 EM AB-04 Ravindra Mahawar	3ME1-02 TC AB-04 Shalini Shah	3ME2-01 AEM-I AB-04 Pradeep Kumar		3ME4-24 PUM(MATLAB) Vinay Bhatt		3ME3-05 ET AB-04 Sumit Sharma	NSP
We	3ME4-22 MT LAB Surendra Kumar Saini		3ME3-05 ET AB-04 Sumit Sharma	LUNCH	3ME4-21 MDP Mukesh Didwania		3ME4-06 MSE AB-04 Surendra Kumar Saini	Activity
Th	3ME4-07 MOS AB-04 Mukesh Didwania	3ME1-02 TC AB-04 Shalini Shah	3ME3-04 EM AB-04 Ravindra Mahawar		3ME7-30 Industrial Training Vinay Bhatt		3ME4-06 MSE AB-04 Surendra Kumar Saini	NSP
Fr	3ME7-30 Industrial Training AB-04 Mahesh Chand Saini	3ME3-04 EM AB-04 Ravindra Mahawar	3ME4-05 ET Tut. AB-04 Sumit Sharma		3ME2-01 AEM-I AB-04 Pradeep Kumar	3ME3-05 ET AB-04 Sumit Sharma	3ME4-07 MOS AB-04 Mukesh Didwania	Activity
Sa	I3 Activity AB-04 Ashwani Kapoor	I3 Activity			I3 Activity			

Time Table Coordinators , HOD, Vice Principal, Director PCE

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Academic Time Table III Year

POORNIMA COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
V SEM

Class Location: AB-05
WEF: 20.09.2022
Tutor Name: Mr. Sanjay Kumawat

	1 8:00 - 9:00	2 9:00 - 10:00	3 10:00 - 11:00	LUNCH 11:00 - 11:50	4 11:50 - 12:50	5 12:50 - 13:50	6 13:50 - 14:50	7 14:50 - 15:50
Mo	5ME4-12 AE AB-05 Vinay Bhatt	5ME7-30 Industrial Training AB-05 Mahesh Chand Saini	5ME4-04 DME-I AB-05 Sanjay Kumawat		5ME7-30 Industrial Training AB-05 Mahesh Chand Saini	5ME4-23 PE LAB Ravindra Mahawar		NSP
Tu	5ME4-12 AE AB-05 Vinay Bhatt	5ME4-22 HT LAB Amit Kumar Mandal			5ME3-01 MS AB-05 Mukesh Chand	5ME3-21 MECHATRONICS LAB Mukesh Chand		Activity
We	5ME4-12 AE AB-05 Vinay Bhatt	5ME4-05 POM AB-05 Ashwani Kapoor	5ME4-02 HT AB-05 Amit Kumar Mandal	LUNCH	5ME4-03 MT AB-05Surendra Kumar Saini	5ME3-01 MS AB-05 Mukesh Chand	5ME4-05 POM AB-05 Ashwani Kapoor	NSP
Th	5ME4-03 MT AB-05Surendra Kumar Saini	5ME4-04 DME-I AB-05 Sanjay Kumawat	5ME4-05 POM AB-05 Ashwani Kapoor		5ME7-30 Industrial Training AB-05 Raj Kumar Satankar	5ME3-01 MS AB-05 Mukesh Chand	5ME4-04 DME-I AB-05 Sanjay Kumawat	Activity
Fr	5ME4-02 HT AB-05 Amit Kumar Mandal	5ME4-03 MT AB-05Surendra Kumar Saini	5ME4-04 DME-I AB-05 Sanjay Kumawat		5ME4-02 HT AB-05 Amit Kumar Mandal	5ME4-24 MDP-I Sanjay Kumawat		NSP
Sa	I3 Activity	I3 Activity			I3 Activity			

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Academic calendar IV Year section A

POORNIMA COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
VII SEM

Class Location: AB-02
WEF: 18.08.2022
Tutor Name: Mr. Kalpit Jain

	1 8:00 - 9:00	2 9:00 - 10:00	3 10:00 - 11:00	LUNCH 11:00 - 11:50	4 11:50 - 12:50	5 12:50 - 13:50	6 13:50 - 14:50	7 14:50 - 15:50
Mo	7ME6-60.1 FEA Group 1 Raj Kumar Satankar AB-02 7ME6-60.2 QM Group 2 Kalpit Jain	7ME5-11 IC Engines Group 1 Narayan Lal Jain PP Lab 7ME5-13 Turbomachines Group 2 Vinay Bhatt	AB-08 7ME5-11 IC Engines Group 1 Narayan Lal Jain PP Lab 7ME5-13 Turbomachines Group 2 Vinay Bhatt		7ME4-23 QC LAB Batch 1 Sumit Sharma AB-11 7ME4-22 TE LAB-II Batch 2 Amit Kumar Mandal AB-02 7ME4-21 FEA Lab Batch 3 Sanjay Kumawat		AB-08 7ME7-30 Industrial Training Batch 1 Ashwani Chand Saini	Project AB-09 Ashwani Kapoor
Tu	7ME6-60.1 FEA Group 1 Raj Kumar Satankar AB-02 7ME6-60.2 QM Group 2 Kalpit Jain	7ME7-40 Seminar Batch 1 Surendra Kumar Saini PP LAB 7ME7-40 Seminar Batch 2 Kalpit Jain AB-02 7ME4-23 QC LAB Batch 3 Sumit Sharma			AB-02 7ME4-21 FEA Lab Batch 1 Sanjay Kumawat Batch 2 7ME4-23 QC LAB Sumit Sharma PP LAB 7ME4-22 TE LAB-II Batch 3 Amit Kumar Mandal		AB-08 7ME7-30 Industrial Training Batch 2 Ashwani Kapoor	Project AB-09 Mahesh Chand Saini
We	AB-02 7ME6-60.1 FEA Group 1 Raj Kumar Satankar 7ME6-60.2 QM Group 2 Kalpit Jain	7ME5-11 IC Engines Group 1 Narayan Lal Jain PP Lab 7ME5-13 Turbomachines Group 2 Vinay Bhatt	AB-08 7ME5-11 IC Engines Group 1 Narayan Lal Jain PP Lab 7ME5-13 Turbomachines Group 2 Vinay Bhatt	LUNCH	PP LAB 7ME4-22 TE LAB-II Batch 1 Amit Kumar Mandal AB-02 7ME4-21 FEA Lab Batch 2 Sanjay Kumawat 7ME7-40 Seminar Batch 3 Raj Kumar Satankar		AB-08 7ME7-30 Industrial Training Raj Kumar Satankar	Project AB-09 Mahesh Chand Saini
Th								
Fr								
Sa								

Time Table Coordinators , HOD, Vice Principal, Director PCE

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11 Course Outcome Attainment Process:

11.1 Course Outcome Attainment Process

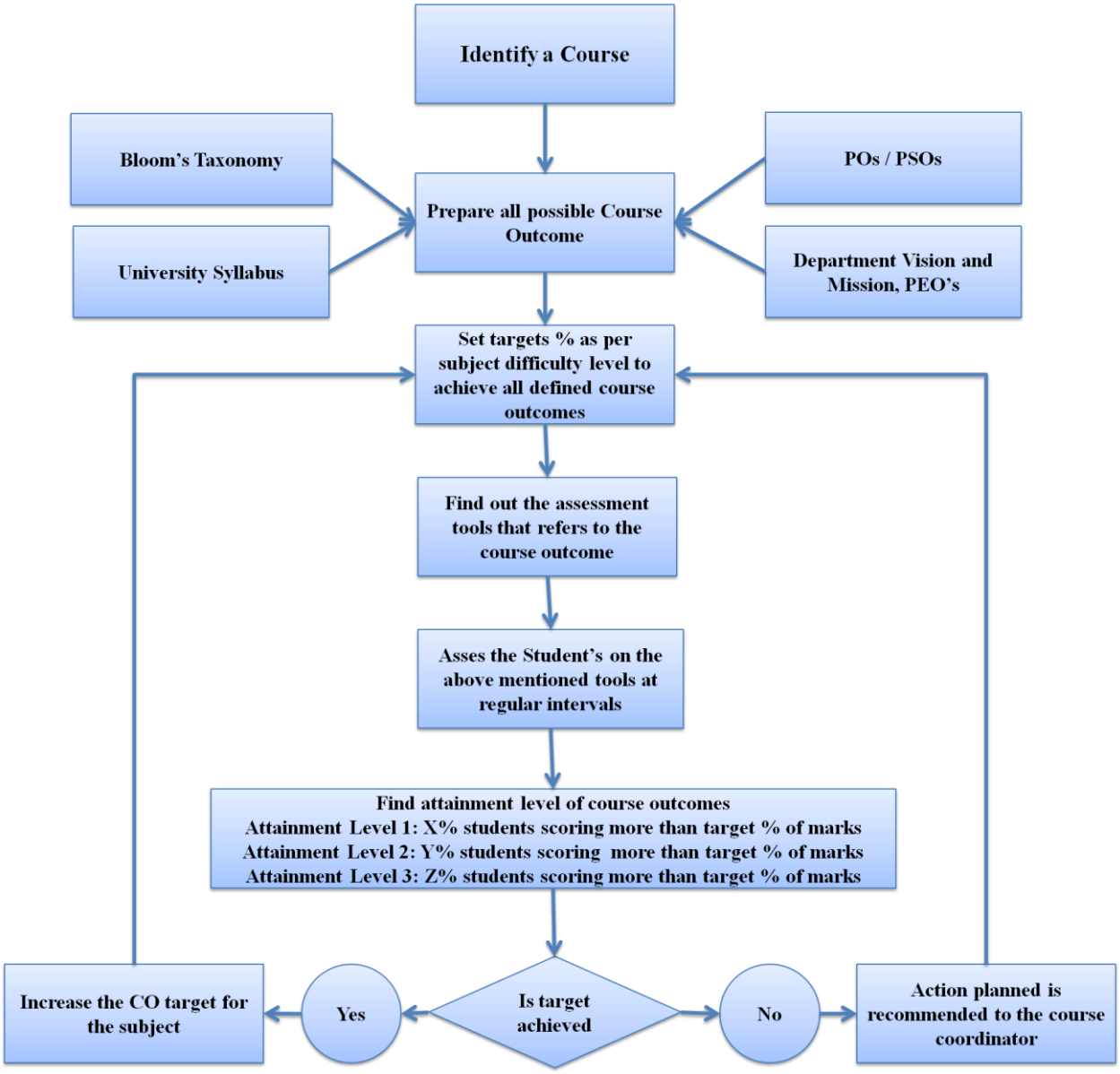

Figure. Course Outcome Attainment Process

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11.2 List of CO & CO mapping with PO

0					PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
1	3ME1-02	Technical Communications	CO1	Explain the fundamentals characteristics and structure of	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Apply the fundamentals of technical writing to prepare the professional	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analyse the professional documents in grametical perspective	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Prepare report, artical, research	-	-	2	-	-	-	-	2	2	3	-	2	-	-	-
					2.5	2	2	-	-	-	-	2	2	3	-	2	-	-	-
2	3ME2-01	Advanced Engineering Mathematics	CO1	Understanding the concept of num	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Explain numerical methods to find	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Apply the appropriate technology	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyze the Fundamentals of the F	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO5	Solve differential equations involv	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
					2.00	3.00	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3ME3-04	Engineering Mechanics	CO1	Explain the Statics and Dynamic forces in Mechanical System	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Apply the motion characteristics of a body subjected to a System of	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Analyse the equilibrium and motion of various Mechanical systems and	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the engineering problems of statics and dynamics systems	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	3.00	2.00	-	-	-	-	-	-	-	-	-	3.00	2.00	2.00
4	3ME4-05	Engineering Thermodynamics	CO1	Describe the basic concept of the	2	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO2	Apply the basic concepts of therm	3	-	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO3	Analyze the thermodynamic powe	-	3	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO4	Evaluate the various thermodynan	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
					2.50	2.50	-	-	-	-	-	-	-	-	-	-	3.00	2.00	3.00
5	3ME4-06	Material Science And Engineering	CO1	Describe the various mechanical properties and the testing methods	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Identify general crystal structures and engineering materials on the	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the iron carbon equilibrium diagram and the phase	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Justify the isothermal transformation diagrams and heat treatment	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	2.00	2.00	-	-	-	-	-	-	-	-	-	2.25	2.00	2.00
6	3ME4-07	Mechanics of Solids	CO1	Explain basic concepts of stress, strain, torsion, bending and strain Energy	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply the concept of stresses and strain, theories of failure, bending & torsion on different types of loading	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze the stresses in shafts, cylindrical and sperical thin wall pressure vessels, long and short columns for different conditions	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the detection of cracks and stresses in principal plane by analytical & graphical method	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	2.50	-	-	-	-	-	-	-	-	-	-	2.75	2.00	2.00
7	3ME4-21	Machine Drawing Practice	CO1	Draw & illustrate simple mechanical parts & their assembly using fundamental Engineering Drawing Standards by using conventional	2	-	-	-	-	-	-	_	_	-	-	-	3	2	2
			CO2	Apply the Geometrical Limits & tolerances using BIS Codes to Machine Parts drawings & their	3	-	-	-	-	-	_	-	-	-	-	-	3	2	2
			CO3	Analyze dimensioning, sectioning and development of views of complex feature components & improve their technical	-	3	-	-	-	-	-	-	-	2	-	-	3	2	2
			CO4	Create 2D and 3D drafting of components using CAD software &	-	-	3	-	2	-	_	-	_	-	-	-	3	2	2
					2.50	3.00	3.00	-	2.00	-	-	-	-	2.00	-	-	3.00	2.00	2.00
8	3ME4-22	Material Testing Lab-I	CO1	Explain the crystal structrure of engin	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the basic concepts of material science for material testings through	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Identify mechanical properties of engineering materials through	-	2	-	-	-	-	-	-	-	-	-	2	2	2	-
			CO4	Compare the micro-structures and mechanical properties of metallic	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	2.50	-	-	-	-	-	-	-	-	-	2.00	2.00	2.00	-
9	3ME4-23	Basic Mechanical Engineering Lab	CO1	Explain the various component and working of the machines like	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Identify the various types of Washing Machine, AC, Refrigerator	-	2	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Analyse the basic engineering concepts in the equipments like	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Write and present the report on	-	-	-	-	-	-	-	2	2	2	-	2	-	-	-
					2.00	2.50	-	-	-	-	-	-	-	-	-	-	2.00	2.00	2.00
10	3ME4-24	Programming Using MATLAB	CO1	Apply Basic commands, built-in functions, applications of MATLAB	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Analyse the mathematical problems encountered in Mechanical	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Design and Develop code for problems involving different types of	-	-	3	-	3	-	-	-	-	-	-	-	2	2	-
			CO4	Execute the coding for evaluation and simulation of problems in	-	-	-	-	2	-	-	2	2	-	-	2	-	2	-
					3.00	2.00	3.00	-	2.50	-	-	2.00	2.00	-	-	-	2.00	2.00	-

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11	3ME7-30	Industrial Training	CO1	Relating the real time applications to the mechanical engineering	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO2	Develop the problem solving approach by developing projects in	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO4	Create a well organized report employing elements of technical	-	-	-	-	-	-	-	2	-	3	-	3	-	2	1
					-	3.00	3.00	-	2.00	-	-	2.00	2.50	3.00	2.00	2.33	2.00	2.50	1.50
12	4ME1-03	Managerial Economics and Financial Accounting	CO1	Describe the fundamental concepts of Economics and Financial Management and define the	-	-	-	-	-	1	-	-	-	2	3	-	-	-	1
			CO2	Calculate the domestic product, national product and elasticity of price, on demand and supply	-	2	-	-	-	-	-	-	-	-	3	-	-	-	1
			CO3	Draw the cost graphs, revenue graphs and forecast the impact of change in price in various perfect as well as imperfect market structures	3	-	2	-	2	-	-	-	-	-	-	-	-	-	1
			CO4	Compare the financial statements to interpret the financial position of the firm and evaluate the project investment decisions	-	3	-	2	-	-	-	-	-	-	3	-	-	1	-
					3.00	2.50	2.00	2.00	2.00	1.00	-	-	-	2.00	3.00	-	-	1.00	1.00
13	4ME2-01	Data Analytics	CO1	Apply statistical tools for different types of problems in Data Analytics.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Analyze sample data and interpret the same for given problem.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Formulate data analysis problems by selecting appropriate analysis	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Evaluate complex engineering	-	-	2	-	-	-	-	-	-	-	-	-	2	2	-
					2.00	2.50	-	-	-	-	-	-	-	-	-	-	2.00	2.00	-
14	4ME3-04	Digital Electronics	CO1	Explain the concepts of electronics components like Diodes, BJT,	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the concepts of electronics to	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analyse the performance.parameters	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Design and develop the application b	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
					2.50	3.00	-	-	-	-	-	-	-	-	-	-	-	2.00	-
15	4ME4-05	Fluid Mechanics and Fluid Machines	CO1	Explain the basic principles of fluid mechanics and its application	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Apply the concept of pressure, Flow characteristics and theory of rota-	3	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Analyse basic equation of fluid statics and fluid dynamics	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the work done and efficiencies of pump and turbines	-	-	2	-	-	-	-	-	-	-	-	-	3	2	-
					2.50	3.00	2.00	-	-	-	-	-	-	-	-	-	3.00	2.00	-
16	4ME4-06	Manufacturing Processes	CO1	Describe the principle and applications of Manufacturing	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the concepts of manufacturing processes to develop a product.	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Identify the possible defects in manufacturing processes and their	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Anlayse the various processing parameters of manufacturing	2	3	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.33	2.50	-	-	-	-	-	-	-	-	-	-	2.00	2.00	-
17	4ME4-07	Theory of Machines	CO1	Explain the basic principles of machines, mechanisms & its	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Solve the basic problems on various fundamental machine mechanisms	3	-	-	-	-	-	-	-	-	-	-	-	3	2	1
			CO3	Evaluate the various mechanisms and motion of various mechanical	-	2	-	-	-	-	-	-	-	-	-	-	3	2	3
			CO4	Analyse the terms, laws and concepts related with machines,	-	-	2	-	-	-	-	-	-	-	-	-	3	2	3
					2.50	2.00	2.00	-	-	-	-	-	-	-	-	-	3.00	2.00	2.25
18	4ME3-21	Digital Electronics Lab	CO1	Explain the various types of logic gates, digital ICs, Boolean algebra	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO2	Identify the digital cicuits in electronics systems	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO3	Analysis of the combinational and sequential circuits using digital ICs.	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Design of the various arithmatic a	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
					2.25	2.33	2.50	-	-	-	-	-	-	-	-	-	3.00	2.00	2.25
19	4ME4-22	Fluid Mechanics Lab	CO1	Determine the various fluid parameters for venturimeter,	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the concepts of fluid mechanics theorems for its	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Detrermine various parameter and losses in flow pipes.	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Analyse the characteristic curves drawn through experimental data of	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	2.50	-	-	-	-	-	-	-	-	-	-	2.00	2.00	-
20	4ME4-23	Production Practise Lab	CO1	Explain the working principle of general machine tools such as	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the knowledge of the machining to perform operations on	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Prepare the tool layout for capastor	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			CO4	Analyse the moulding sand properties like moisture content,	-	3	-	-	-	-	-	-	2	-	-	2	-	-	-
					2.50	2.50	-	-	-	-	-	-	2.00	-	-	-	-	-	-

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21	4ME4-24	Theory of Machines Lab	CO1	Explain the basic mechanism of Mechanical elements and systems.	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Demonstrate the models of stearing mechanism, cam followers,	3	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Analyse the velocity acceleration diagram, coefficient of friction and	-	2	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Evaluate theoritical and experimental parameter of gyroscope, governers,	-	-	2	-	-	-	-	2	2	-	-	2	2	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**
22	5ME3-01	Mechatronic Systems	CO1	Explain the basic fundamentals and applications of Mechatronic systems	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the concept of sensors, actuators, pneumatic & hydraulic	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze the role of controls and modeling in mechatronics.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Design Instrumentation and Data Acquisition system for automation.	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
23	5ME4-02	Heat Transfer	CO1	Explain the concept of heat transfer and its different modes conduction,	2	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO2	Apply the concept of heat transfer to calculate the heat transfer	3	-	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO3	Analize the heat tranfer parametrs	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Design the Heat exchangers for suitable applications .	-	-	2	-	-	-	-	-	-	-	-	-	2	2	2
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.25**	**2.00**	**2.00**
24	5ME4-03	Manufacturing Technology	CO1	Explain different types of machining and finishing processes and their	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the machining process concepts in assessing the	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Analyse the machining processes in calculation of the forces acting	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Design the process of machining to develop a industrial product using	-	-	2	-	2	-	-	-	-	-	-	-	2	2	-
					2.50	**2.00**	**2.00**	**-**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
25	5ME4-04	Design of Machine Elements-I	CO1	Explain fundamentals of mechanical components design subjected to static loading based on material &	2	-	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Apply the basic design concept to design various Mechanical components, such as joints, beam,	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse the problems of various machine members which are subjected to different loading	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Evaluate the design stresses & parameters of mechanical components like beam, shaft, joints,	-	-	3	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**3.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
26	5ME4-05	Principles of Management	CO1	Explain the different concepts of management.	2	-	-	-	-	-	-	-	-	-	2	-	-	2	-
			CO2	Apply the concepts of the management on the functions and	3	-	-	-	-	-	-	-	-	-	2	-	-	2	-
			CO3	Analys the function of management for leading, organising, planning,	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Prepare a leadership profile using c	-	-	2	-	-	-	-	-	-	2	-	-	-	2	-
			CO5	Plan the course of action using case studies to solve behavioural	-	-	3	-	-	-	-	-	-	2	2	-	-	2	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**-**
27	5ME5-12	Automobile Engineering	CO1	Explain various parts, their mechanism and functions of	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO2	Identify the Gear boxes, brakes, cluches and drives for specific	3	-	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO3	Analyse the various automobile systems like wheel and tyre, steering , suspenssion, electrical, ignition, automobile AC and safety	-	2	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO4	Evaluate the various parameter of automobile systems.	-	-	2	-	-	-	-	-	-	-	-	-	-	2	3
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**3.00**
28	5ME5-11	NDET	CO1	Describe NDT methods used for evaluation of materials	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the various inspection processes in accordance with the	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Analyze various defect occurs in materials and select the appropriate	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO4	Identify the effect of Regenerative	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
29	5ME3-21	Mechatroncs Lab	CO1	Explain the fundamental knowledge of Transducers, mobile robot, PLC	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the knowledge of programming for mobile robots as	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Analyse the programmimg parameters for PLC and MAT Lab	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Develop a mini project with integra	-	-	3	-	-	-	-	2	2	2	2	2	-	2	2
					2.50	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**2.00**
30	5ME4-22	Heat Transfer Lab	CO1	Apply the concepts of conduction, convection and radiation heat	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Compare the Effectiveness in Parallel and Counter Flow Heat	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyse the rates of heat transfer for different materials and	-	3	-	-	-	-	-	-	-	-	-	-	-	-	2
			CO4	Evaluate the importance and validity of engineering assumptions through	-	-	3	-	-	-	-	-	-	-	-	-	-	2	2
					3.00	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**			

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31	5ME4-23	Production Engineering Lab	CO1	Apply the principle of metrology for measuring various parameters like	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Analyzing the force generated on the workpiece during various	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Testing the learning and skills of measurement and metrology to	-	-	-	-	-	-	-	2	2	2	-	2	2	2	-
			CO4	Create mini project using various	-	-	3	-	3	-	-	2	2	2	2	2	2	-	-
					2.50	**2.25**	**3.00**	**-**	**3.00**	**-**	**-**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**	**2.00**
32	5ME4-24	Machine Design Practice - I	CO1	Explain the material properties, manufacturing considerations. ISO standards for selection of materials, selection of fits for various	2	-	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO2	Apply the design procedure and acquire skill of finding resisting areas against failure of designing under static load to various machine	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO3	Evaluate the efficient design criteria related with manufacturing, production, strength and stiffness, limits, fits and engineering tolerances	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Synthesize or simple mechanical elements using modern tools and compile the results with help of mini project in team	-	-	-	-	2	2	-	-	2	-	-	2	3	2	-
					2.00	**3.00**	**3.00**	**-**	**2.00**	**2.00**	**-**	**-**	**2.00**	**-**	**-**	**2.00**	**3.00**	**2.00**	**-**
33	5ME7-30	Industrial Training	CO1	Relating the real time applications to the mechanical engineering	-	3	-	-	-	-	-	-	-	-	-	2	2	-	1
			CO2	Develop the problem solving approach by developing projects in	-	-	3	-	2	-	-	-	2	-	2	2	2	-	2
			CO3	Build skills to be working as a team member and become employable.	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2
			CO4	Create a well organized report employing elements of technical	-	-	-	-	-	-	-	2	-	3	-	3	-	2	-
					-	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**2.00**	**2.50**	**3.00**	**2.00**	**2.33**	**2.00**	**2.50**	**1.67**
34	6ME3-01	Measurement and Metrology	CO1	Describe the measuring concept and working principle of metrological	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Identify the appropriate measuring device and method as per their	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Apply metrological concept for measuring engineering parameters.	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Evaluate various parameters of measurement in Instrumentation and Metrological Engineering	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-
					3.00	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**-**
35	6ME4-02	CIMS	CO1	Describe the importance and scope CIM in fabrication/ manufacturing	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Explain and compare the different components of CIM.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Apply modern tools in manufacturing industry for automation i.e.	3	-	-	-	3	-	-	-	-	-	-	-	-	2	-
			CO4	Create program for varies parts made by CNC machine.	-	-	3	-	-	-	-	-	-	-	-	-	3	2	-
					2.33	**-**	**3.00**	**-**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**-**
36	6ME4-03	Mechanical Vibrations	CO1	Explain the fundamentals of mechanical vibrations, sound and	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply different methods to formulate the equation of motion for free	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Analyse and compute the natural frequencies and mode shapes of 2	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Evaluate the natural frequency of vibrations of continous system.	-	-	2	-	-	-	-	-	-	-	-	-	-	2	-
					2.50	**2.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**-**
37	6ME4-04	Design of Machine Elements-II	CO1	Explain the fundamentals on designing of machine elements subjected to variable load.	2	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO2	Apply the basic design concept to design Shaft, IC Engine components, bolts, springs, rope and belt drives and other	3	-	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyse and solve the problems of components when designed for variable stresses, considering stress concentration, fatigue and combined	-	3	-	-	-	-	-	-	-	-	-	-	3	2	-
			CO4	Evaluate the design, stresses & parameters of mechanical components like beam, shaft, bolts, bearings, IC Engine Components	-	-	2	-	-	-	-	-	-	-	-	-	3	2	2
					2.50	**3.00**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3.00**	**2.00**	**2.00**
38	6ME4-05	Quality Management	CO1	Describe the basic concept of Quality Management.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Implement the process to meet desired needs within limits using	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Identify the technique of Design of experiments to solve engineering	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Analize the concept of Quality Assurance, Acceptance sampling	-	3	-	-	-	-	-	-	-	-	-	-	2	3	-
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.25**	**-**
39	6ME4-21	CIMS Lab	CO1	Explain the concept of G & M codes and cutting tool path of CNC	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Write the CNC programming using G codes and M codes	3	-	-	-	2	-	-	-	-	-	-	-	-	2	-
			CO3	Analyse the Tool Path for different	-	3	-	-	-	-	-	-	-	-	-	2	2	2	-
			CO4	Develop program for parts made by	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
					2.50	**3.00**	**3.00**	**-**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**
40	6ME4-22	Vibration Lab	CO1	Explain various aspects of mechanical vibrations and their	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO2	Apply the concept of vibration to m	3	-	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO3	Analyse the different mechanical properties like moment of inertia,	-	2	-	-	-	-	-	-	-	-	-	-	-	2	-
			CO4	Evaluate the frequency of simple and compound pendulum, damped	-	-	3	-	-	-	-	-	-	-	-	-	-	2	-
					2.50	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**			

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41	**6ME4-23**	**Machine Design Practice - II**	CO1	Apply the knowledge of machine design principles to solve various problems related to fatigue Loading.	3	-	-	-	-	-	-	-	-	-	-	-	3	-	-
			CO2	Evaluate & Compare mechanical components (Bolts, Shaft, Bearings, IC Engine Components, Gears etc.) under variable stresses	-	2	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO3	Analyze Fatigue life cycle & failure criteria of IC engine and other mechanical components	-	3	-	-	-	-	-	-	-	-	-	-	3	2	2
			CO4	Synthesize mechanical components (Shaft, IC Engine components, springs, rope and belt drives, Gear etc.) using data book and document	-	-	2	-	-	-	-	2	2	2	-	2	3	2	2
					3.00	**2.50**	**2.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**3.00**	**2.00**	**2.00**
42	**6ME4-24**	**Thermal Engineering Lab I**	CO1	Explain the working of I C Engines, Boilers and automobile systems	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the basics of thermal enginer	3	-	3	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyse the valve timing diagram of single cylinder diesel engines and	-	2	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Write a term paper on advanced thermal technilogy and present it in	-	-	3	-	-	-	-	2	2	2	-	2	-	2	2
					2.50	**2.00**	**3.00**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**	**-**	**2.00**	**2.00**	**2.00**	**2.00**
43	**6ME5-11**	**Refrigeration and Air Conditioning (Elective-1)**	CO1	Explain the fundamentals of refrigeration and air-conditioning	2	-	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO2	Apply the basics of refrigeration an	3	2	-	-	-	-	-	-	-	-	-	-	-	2	3
			CO3	Identify the suitable refrigeration and air conditioning systems as per the	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Design the refrigeration and air-conditioning system for various	-	-	3	-	-	-	-	-	-	-	-	-	3	2	3
					2.50	**2.50**	**3.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.50**	**2.00**	**2.75**
44	**6ME5-12**	**Non Conventional Machining Methods (Elective-2)**	CO1	Explain the various non conventional machining methods.	2	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Apply the principle and mechanics of metal removal for non conventional	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Identify the non conventional machining methods for real time	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO4	Analyse the process parameters of non conventional machining	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
					2.50	**2.50**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
45	**7ME5-11**	**I. C. Engines**	CO1	Explain the fundamental concepts and working of I C engine systems	3	-	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO2	Identify fuel metering, fuel supply, lubricating and Ignition systems for I	-	2	-	-	-	-	-	-	-	-	-	-	-	2	2
			CO3	Analyze the performance, emission and combustion characteristics of I	-	3	-	-	-	-	-	-	-	-	-	-	2	2	2
			CO4	Evaluate the fuel mixture ratio for	-	-	2	-	-	-	-	-	-	-	-	-	-	2	2
					3.00	**2.50**	**2.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.00**	**2.00**	**2.00**
46	**7ME5-13**	**Turbo Machine**	CO1	Explain the fundamentals concepts of turbomachines	2	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO2	Apply the basic concepts of turbomachines to solve real time	3	-	-	-	-	-	-	-	-	-	-	-	2	2	-
			CO3	Analyze the basic principles of gas turbines through velocity triangles	-	2	-	-	-	-	-	-	-	-	-	-	2	2	-

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12 Course File Sample

Outcome Based Process Implementation Guidelines for Faculty

12.1 Labelling your course file

- **Name of faculty:**
- **Class- SEM:**
- **Branch:**
- **Course Code:**
- **Course Name:**
- **Session:**

12.2 List of Documents:

1. **Vision & Mission Statements of the Institute**
2. **Vision & Mission Statements of the Department**
3. **List of PEO, PSO and PO of department**
4. **Personal Time Table**
5. **RTU Syllabus**
6. **Document as per point no. 1-4 in guidelines**
7. **Course Plan**
8. **Document as per point no 6-12 in guidelines**
9. **Document for CO Assessment Stage 1: As per point no 13, up to 13.2.5**
10. **Document for CO Assessment Stage 2: As per point no 13, up to 13.2.5, with comparison to previous**
11. **Document for CO Assessment Stage 3: As per point no 13, up to 13.2.5, with comparison to previous**
12. **Document for CO Attainment through RTU Component: Previous RTU Result: point no. 13.3 upto 13.3.2**
13. **Document for PO attainment through RTU Component: Previous RTU Result: point no. 13.4 upto 13.4.2**
14. **Document for Overall Attainment of PO through CO: As per point no 13.5**
15. **Document for last three years (Repeat process from 6-14 above): Comparative data should be included in course file**
16. **Lecture Notes**
17. **Copy of Assignments questions given from time to time**
18. **Copy of Tutorial Sheets given (if applicable)**
19. **RTU Question Papers with answer**
20. **Internal Assessment Question Papers with answer from time to time**
21. **Topics covered beyond syllabus- References**
22. **Details of any other activity and its assessment through rubric be included**
23. **Mapping department level/ focus activities with your COs**

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13 Outcome Based Process Implementation Guidelines for Faculty

Course CO-PO, Preparation, Assessment Formats

Academic Session: 2021-2022 **Class:** **Semester:**

Name of the Faculty:

Subject: **Subject Code:**

This document is meant as guidelines for implementing Outcome based education system as a part of NBA process.

1. **Vision & Mission of Department: Statement and Mapping with Institute Mission** **Here you have to include department mission & vision statements and show mapping of keywords with institute mission.**
2. **Program Educational Objectives (PEOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PEO statements and show mapping of keywords with department vision & mission.
3. **Program Specific Outcome (PSOs): Statement and Mapping with Department Vision & Mission**
   Here you have to include department PSO statements and show mapping of keywords with department vision & mission.
4. **Program Outcome (POs): Statement and Mapping with PEO and PSO**
   Here you have to include PO statements and show mapping of keywords with department PEOs & PSOs.
5. **Course Plan (Deployment):**

(Please write how you intend to cover the contents: i.e., coverage of Units by lectures, guest lectures, design exercises, solving numerical problems, demonstration of models, model preparation, or by assignments, etc.), **for example**

- **coverage of Units by lectures**
- **design exercises**
- **demonstration of models**
- **by assignments**

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Lecture No.	Lect. No.	Topics, Problems, Applications	CO/LO	Target Date of Coverage	Actual Date of Coverage	Ref. Book/Journal with Page No.
1.	1	Introduction of ET	CO1	16/08/2022	16/08/2022	T1 Page 121 - 126
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

Example T1: Principles of OS, By Ramesh Soni, Tata MGHill, Edition 2019

6. **Course Outcomes:** Look for strong mapping of course with specific PO (2-3). Define Generic Course Outcomes (max 4 to 6) using Blooms Taxonomy. (In case of Lab Course define generic Lab Outcomes LO and refer CO as LO in this document).

i. **5ME4-05.1(CO1)-**
ii. **5ME4-05.2(CO2)-**
iii. **5ME4-05.3(CO3)-**
iv. **5ME4-05.4(CO4)-**
v. **5ME4-05.5(CO5)-**

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7. **CO-PO-PSO Mapping: Mapping Levels: 1- Low, 2- Moderate, 3-Strong**
   First try to find out 2-3 PO those are strongly related to your subject contents. Go through the contents and try to formulate 4-5 Course Outcome as per bloom taxonomy. Map each CO with PO and PSO as above. While mapping please rethink if you map any PO with 3, it means you are planning to deliver the contents of that
   level and you will also examine the students at that level.

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

7.1 PO Strongly Mapped: (Example):

O **PO2: Write full statement with keywords highlighted** o **PO3: Write full statement with keywords highlighted** o **PO4: Write full statement with keywords highlighted**

7.2 PO Moderately Mapped: (Example)

O **PO1: Write full statement with keywords highlighted**

O **PO11: Write full statement with keywords highlighted**

7.3 PO Low Mapped: (Example)

O **PO12: Write full statement with keywords highlighted**

7.4 PSO Strongly Mapped: (Example)

O **PSO 1 : Write full statement with keywords highlighted**

7.5 P S O Moderately Mapped: (Example)

O **PSO 2: Write full statement with keywords highlighted**

6.6 PSO Low Mapped: (Example)

O **PSO 3: Write full statement with keywords highlighted**

8. **Rules for CO/LO Attainment Levels: (Targets)**

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty –(Easy)
According to difficulty level, you can decide specific range for CO attainment targets for Continuous assessment from the following table.
Remember that targets for internal assessment should be higher.

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Course Category	Level 3	Level 2	Level 1
A	**60 % of students getting > 60% marks**	**50-60 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**
B	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**
C	**90 % of students getting > 60% marks**	**70-90 % of students getting > 60% marks**	**40-70 % of students getting > 60% marks**

9. End Term RTU Component: CO Attainment Levels

All the courses of your department should be divided into three categories A-Most Difficult course, B-Medium level of Difficulty, C- Low level of Difficulty –(Easy)
According to difficulty level and the results of past 3-5 years, you can decide specific range for CO attainment targets for RTU component from the following table.

Course Category	Level 3	Level 2	Level 1
A	**50 % of students getting > 60% marks**	**40-50 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
B	**60 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**	**30-40 % of students getting > 60% marks**
C	**80 % of students getting > 60% marks**	**60-80 % of students getting > 60% marks**	**40-60 % of students getting > 60% marks**

For the specific CO/LO attainment levels of your respective course please use the above tables as reference according your subject difficulty level and prepare following table.

S. No.	Course Type	Attainment Level=1	Attainment Level=2	Attainment Level=3
1	**Theory Courses** Mid Semester Exams			
2	**Theory Courses** University Exam			
4	**Practical Courses** – Internal Exams			
5	**Practical Courses** - University Exam			
6	**Assignments/Unit Test**			
7.	**Any other**			

10. CO wise Assessment Activities (as Mentioned in Session Plan):
You can plan for each CO, activities/ assessment tools to be conducted/ used for its achievement.
Use X to those you select for specific CO. Remove all unused columns.

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	Activities															
CO	**Pre Mid I Test**	**Post Mid I Test**	**Quiz 1**	**Quiz 2**	**Pre Mid II Test**	**Post Mid II Test**	**Assignment 1**	**Assignment 2**	**Workshop**	**Seminar**	**Project**	**Training**	**Discussion**	**Mid 1**	**Mid 2**	**Ind. visit**
CO1																
CO2																
CO3																
CO4																
CO5																
CO6																

In case of Lab course some activities are as follows:

LO	Internal Practical exams	Laboratory Tests	Viva	Records	Project Presentation	Project Evaluation	External practical exams
LO1							
LO2							
LO3							
LO4							

11. CO wise Assessment Activities:

Based on CO-PO mapping, determine targets for each CO as average of targets of all relevant POs.

CO	PO												Avg.	PSO		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**CO Targets**	**PSO1**	**PSO2**	**PSO3**
CO1																
CO2																
CO3																
CO4																
CO5																

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12. Activity wise Assessment Tools:

This gives you generalized view of different direct and indirect tools those can be used for assessment / achievement of CO/PO. (Decide which tools are required for assessing a particular CO/LO and in reference to Course A, B, C difficulty level).

Sr. No.	Activity	Assessment Method	Tools	Weightage Marks	Recommendation
1.	Pre-Mid Term 1	Direct	Marks	10	For CO
2.	Post-Mid Term 1	Direct	Marks	10	For CO
3.	Quiz 1	Direct	Marks	10	For CO
4.	Quiz 2	Direct	Marks	10	For CO
5.	Pre Mid Term 2	Direct	Marks	10	For CO
6.	Post Mid Term 2	Direct	Marks	10	For CO
7.	Mid Term 1	Direct	Marks	20	For CO
8.	Mid Term 2	Direct	Marks	20	For CO
9.	Assignment 1	Direct	Marks	10	For CO
10.	Assignment 2	Direct	Marks	10	For CO
11.	Workshop	Indirect	Rubrics	5	For LO
12.	Seminar/ SPL	Indirect	Rubrics	5	For CO/LO
13.	Project (Mini or NSP)	Indirect	Rubrics	20	For LO
14.	Discussion	Indirect	Rubrics	5	For LO
15.	Training	Indirect	Rubrics	20	For LO
16.	Industrial Visit	Indirect	Rubrics	20	For LO
17.	Or any other activity	Direct/ Indirect	Marks/ Rubrics	any	For LO
18.					
Note that for every rubrics you need to decide assessment criteria, range of marks or weightage – above values are indicative					

13. CO Assessment Process:

After every activity (Ideally as per above table): (Frequency of Assessment- Can be taken as monthly). So the assessment can be for all activities held during the month. Do the following.

13.1 Attainment of COs

13.1.1 Attainment Table for CO1: 5ME4-05.1

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CO1: 5ME4-05.1: Attainment Table (Columns) As Applicable CO wise-Monthly									
Student	**Pre Mid I Test 10**	**Quiz 1 10**	**Assignment 10**	**Quiz 1 10**	**WS 10**	**Training 10**	**Total (60)**	**% 0f Marks**	**Level of Attainment**
Name1									**3**
Name2									**2**
Name 3									**1**
Name 4									**2**
Name 5									**1**
Name 6									**2**
----									**--**
------									**--**
	No. of Students attained level 3=					**% of Students Attained Level 3=**			
	No. of Students attained level 2=					**% of Students Attained Level 2=**			
	No. of Students attained level 1=					**% of Students Attained Level 1=**			
	Target Achieved= ? (Check Level 3 % attainment -If No Find Gap)								
	Mark X for absent- Take avg. of all present								

(Repeat it for all other COs, (CO2 – CO5))

13.1.2 CO-Gap Identifications

COs	CO 1	CO 2	CO 3	CO4	CO5
Target					
Achieved					
Gap					

13.1.3 Gaps Identified:

Describe what the reasons for gaps are

i.

ii.

Overall CO Attainment Table: Example

COs	CO 1	CO 2	CO 3	CO4	CO5	Co6
Attainment level as per rules set	3	1	3	3	3	3
Average CO attainment through internal assessment	**2.67**					

13.1.4: Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

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13.2 Attainment of POs & PSO:

13.2.1 Target-Expected Attainment of PO by attainment of CO- Put all mappings of 3, 2 and 1. Based on CO-PO mapping, determine targets for each PO as average of targets of all relevant COs.

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
5ME4-05.1															
5ME4-05.2															
5ME4-05.3															
5ME4-05.4															
5ME4-05.5															
Obtain Average-PO/PSO Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets	Targets

13.2.2 Attainment of POs & PSO through CO as Continuous Evaluation:

Put all attainment values of CO as per mappings with 3, 2, 1 as evaluated in 13.1.1 (Frequency- Monthly)

CO	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
5ME4-05.1															
5ME4-05.2															
5ME4-05.3															
5ME4-05.4															
5ME4-05.5															
Obtain Avg. PO/PSO Attainment	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved	Achieved

13.2.3 PO Gap Identification:

	PO												PSO		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Targets															
Achieved															
Gap															

13.2.4 Gaps Identified:

Describe what the reasons for gap (for PO) are.

i.

ii.

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13.2.5 Activities Decided to bridge the gap

Please do analyze whether you could get improvement through activities decided and conducted for improvements. Reason should be noted why / how it is improved or not.

Repeat whole process after one month, Two months, and three months. Plot bar chart for improvement in CO, PO & PSO. (Every month)

13.3 Attainment of CO through RTU Exam:

This may be possible for previous semester results so overall attainment. If faculty is changed, data will be evaluated by concerned faculty who taught and handed over to current faculty. If faculty not available, then current faculty will do the same.

Attainment of CO: 5ME4-05: Subject:			
Student	**RTU Marks (80)**	**% 0f Marks**	**Level of Attainment**
Name1			**3**
Name2			**2**
Name 3			**1**
Name 4			**2**
Name 5			**1**
Name 6			**2**
----			**--**
------			**--**
No. of Students attained level 3=		**% of Students Attained Level 3=**	
No. of Students attained level 2=		**% of Students Attained Level 2=**	
No. of Students attained level 1=		**% of Students Attained Level 1=**	
CO Attainment = ? (Check Level 3 % attainment -If No Find Gap)			
Mark X for absent- Take avg. of all present			

13.3.1 Attainment of CO through RTU Component:

CO: Course Code: Course Name					
Target					
Achieved					
Gap					

13.3.1 Gaps for CO attainment through RTU Component:

Analyze RTU Question paper with respect to COs formulated, contents delivered and students examined, find out reasons for gaps

i.

ii.

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13.3.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.4 Attainment of PO through CO (RTU) Component

Put RTU Results as per target achieved only and mapping level, in following table

Attainment of PO through CO (RTU) Component															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
5ME4-05															

Attainment of PO through CO (RTU) Component															
5ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.4.1 Gaps in PO through CO from RTU component:

Analyze RTU Question paper with respect to COs formulated & mapped, contents delivered and students examined, find out reasons for gaps

Describe what are the reasons for gap

i.

ii.

13.4.2 Action to be taken:

Prepare recommendations for improvement in planning & teaching for gaps identified.

13.5 Overall Attainment of PO & PSO: Through Continuous Assessment & RTU

While combining attainment through Continuous evaluation and RTU component, following weightage be considered.

1. **Internal Assessment – Total weightage- 40 %**
2. **RTU Component ------- Weightage – 60 %**

Put all attainments in the following Table and compute.

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13.5.1: Table 1

	RTU Component			Internal Assessment				
Student	**RTU Marks (80)**	**% of Marks**	**60% Weightage X6/100 (A)**	**Overall CO (-----)**	**% of Marks**	**Weightage X4/100 (B)**	**Total (A+B)**	**Level of Attainment**
Name1								**3**
Name2								**2**
Name 3								**1**
Name 4								**2**
Name 5								**1**
Name 6								**2**
----								**--**
------								**--**
No. of Students attained level 3=					**% of Students Attained Level 3=**			
No. of Students attained level 2=					**% of Students Attained Level 2=**			
No. of Students attained level 1=					**% of Students Attained Level 1=**			
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)								
Mark X for absent- Take avg. of all present								

OR

13.5.2: Table 2

	RTU			Internal CO1/ Activity 1 (Weightage %)			Internal CO2/ Activity 2 (Weightage			Internal CO3/ Activity 3 (Weightage %)				
Student	**RTU Marks (80)**	**% 0f Marks**	**60% Weightage X-----/100 A**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 B**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 C**	**Overall CO (-----)**	**% 0f Marks**	**Weightage X--/100 D**	**Total (A+B+C+D)**	**Level of Attainment**
Name1														**3**
Name2														**2**
Name 3														**1**
Name 4														**2**
Name 5														**1**
Name 6														**2**
----														**--**
------														**--**

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No. of Students attained level 3= Attained Level 3=	**% of Students**
No. of Students attained level 2= Attained Level 2=	**% of Students**
No. of Students attained level 1= Attained Level 1=	**% of Students**
PO Attainment = ? (Check Level 3 % attainment -If No Find Gap)	
Mark X for absent- Take avg. of all present	

13.5.3: Overall PO & PSO Attainment through Course:
Put Overall PO & PSO attainment as per mapping 3,2,1 above:

Attainment of Overall PO for Session 2018-2019															
CO	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
5ME4-05															
PO Attainment															

13.5.4: Overall Gaps for Attainment of PO and PSO from the Course
Put Overall PO & PSO targets & attainment as per mapping 3,2,1 above:

Attainment & Gap of Overall PO Session ----------															
5ME4-05	**PO**												**PSO**		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
Targets															
Achieved															
Gap															

13.5.5. Overall Gaps for Course taught:
Go through all gaps identified above and summarize. Describe what the reasons are.
i.
ii.

13.5.6 Action to be taken:
Prepare recommendations for improvement in planning & teaching (Internal & RTU) for gaps identified. Decide Activities to be conducted to bridge the gaps in COs.

Repeat whole process after One year before, Two year before, and three year before. Plot bar charts for Continuous improvements check in CO, PO & PSO. (Every Year).

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14 File Formats

14.1 List of File Formats

i. Front Page of Course File
ii. ABC Analysis Format
iii. Blown-up Format
iv. Deployment Format
v. Zero Lecture Format
vi. Tutorial Format
vii. Assignment Format
viii. Lecture Note Format
ix. Mid Term Question Paper Format
x. Mid Term Practical Exam Format
xi. Evaluation Sheets Format
xii. Activity Report Format

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14.2 Front Page of Course File

POORNIMA
COLLEGE OF ENGINEERING

TEACHING MANUAL

COURSE: _____

SEMESTER: _____

SUBJECT: _____

SUB. CODE: _____

CONTENT: **Syllabus, Blown-up, Deployment, Zero Lectures,**
Detailed lecture notes with cover page, Tutorial/Home-Assignment Sheets

_____

SESSION: 20___-___

NAME OF FACULTY: _____

DEPARTMENT: _____

CAMPUS: _____

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14.3 ABC Analysis Format

POORNIMA
COLLEGE OF ENGINEERING

Department of Mechanical Engineering
Even Semester 2021-22

ABC Analysis

Course: B. Tech. **Class/Section: 3rd Year/A** **Date: 10/01/2022**
Name of Faculty: XYZ **Name of Subject: DME-II** **Subject Code: 6ME4-04**

Sr. No.	Category A (Hard topics)	Category B (Topics with average hardness level)	Category C (Easy to understand topics)	Preparedness for "A" topics
1	Bolts subjected to variable stresses.	Goodman line, Soderberg line, Design of machine members subjected to combined, steady and alternating stresses. Design for finite life, Design of Shafts under Variable Stresses,	Variable load, loading pattern, endurance stresses, Influence of size, surface finish, notch sensitivity and stress concentration.	PPT & Notes
2	Design of IC Engine parts: Piston, Connecting rod, Crank shaft	----------	----------	PPT & Notes
3	Design of IC Engine components: Piston, Cylinder, Connecting Rod and Crank Shaft.	Design of helical compression, tension, torsional springs, springs under variable stresses.	Design of belt, rope and pulley drive system,	SPL & PPT
4	Design and force analysis of spur, helical, bevel and worm gears, Bearing reactions due to gear tooth forces.	Design of gear teeth: Lewis and Buckingham equations, wear and dynamic load considerations.		PPT
5	Design of Sliding and Journal Bearing: Methods of lubrication, hydrodynamic, hydrostatic, boundary etc. Minimum film thickness and thermal equilibrium.	Selection of anti-friction bearings for different loads and load cycles, Mounting of the bearings, Method of lubrication.		SPL & PPT

SAMPLE

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14.4 Blown-up Format

POORNIMA
COLLEGE OF ENGINEERING
BLOWN UP SYLLABUS

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date:06/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

Sr. No.	Topic as per Syllabus	BLOWN UP TOPICS (Upto 10 Times Syllabus)
1	**PART-1** **FATIGUE CONSIDERATION IN DESIGN**	
	1.1 Review of Fatigue (Loading pattern)	1.1.1 Types of load 1.1.2 What is fatigue? 1.1.3 Fatigue curve 1.1.4 Endurance limit
	1.2 Factor affecting endurance limit	1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor
	1.3 Notch sensitivity & Stress concentration	1.3.1 factor of safety 1.3.2 stress concentration 1.3.3 stress concentration curve 1.3.4 notch sensitivity 1.3.5 theoretical stress concentration factor
	DESIGN OF MACHINE MEMBER	
	1.4 Goodman, Goderberg line, Design of machine member under steady, Variable and alternating stress Design for variable stresses	1.4.1 Good men line, Soderberg line, Gerber parabola method 1.4.2 Design under axial, bending and torsional stress 1.4.3 Mean and variable stress 1.4.4 Design for combined stress 1.4.4 Numerical approach for the design of member
	1.5 Design for finite life	1.5.1 Requirement of finite life design 1.5.2 Goodman approach toward finite life 1.5.3 Numerical approach for finite life design
2	**PART-2** **DESIGN OF I.C ENGINE PARTS**	
	2.1 Design of I .C Engine Piston	2.1.1 What is Piston and its importance? 2.1.2 Different materials used for the piston. 2.1.3 Effect of materials on the Piston design 2.1.4 Calculation of various pressure and inertia forces

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14.5 Deployment Format

POORNIMA COLLEGE OF ENGINEERING

SYLLABUS DEPLOYMENT

Campus: PCE	Course: B.Tech.	Class/Section: VIth sem./A	Date: 05/01/2022
Name of Faculty: XYZ		Name of Subject: DME-II	Code: 6ME4-04

S.No.	TOPIC AS PER BLOWNUP SYLLABUS	LECT . NO.	CO/LO	Target Date of Coverage	Actual Date of Coverage	Teaching method	Ref. Book/Journal with Page No.
1	**ZERO LECTURE**	L-1	CO1	11/01/2022	11/01/2022	PPT	Machine design by V.B Bhandari & R. S Khurmi
2	***Introduction to Unit :1*** **Introduction of the lecture** 1.1.1 Types of load 1.1.2 What is fatigue 1.1.3 Fatigue curve 1.1.4 Endurance limit ***Conclusion of the lecture*** ***Brief of next lecture***	L-2	CO1	12/01/2022	12/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 34-38
3	**Introduction of the lecture** 1.2.1 Surface finish factor 1.2.2 Size factor 1.2.3 Reliability factor 1.2.4 Temperature factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-3	CO1	14/01/2022	14/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 44-52
4	**Introduction of the lecture** 1.3.1 Factor of safety 1.3.2 Stress concentration 1.3.3 Stress concentration curve ***Conclusion of the lecture*** ***Brief of next lecture***	L-4	CO1,2	16/01/2022	16/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 58-62
5	**Introduction of the lecture** 1.3.4 Notch sensitivity 1.3.5 Theoretical stress concentration factor ***Conclusion of the lecture*** ***Brief of next lecture***	L-5	CO1	17/01/2022	17/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 73-82
6	**Introduction of the lecture** 1.4.1 Goodman line, Soderberg line, Gerber parabola method the design of member	L-6	CO1,2	18/01/2022	18/01/2022	*Chalk/ Board*	Machine design by V.B Bhandari & R. S Khurmi Page No 82-88

SAMPLE

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14.6 Zero Lecture Format

POORNIMA
COLLEGE OF ENGINEERING

ZERO LECTURE

Session: 20 - (Sem.)

Campus: …… Course: …… Class/Section: ……

Name of Faculty: ……

Zero Lecture

1). Name of Subject: …….. Code: ……

2). Self-Introduction:

a). Name:
b). Qualification:
c). Designation:
d). Research Area:
e). E-mail Id: ……@poornima.org
f). Other details: Information about areas of proficiency/ expertise such as subject taught, laboratory taken, Member of Professional body, Academic Proficiency, Book Authored, Paper published in National and International Conference/Journals etc.

3). Introduction of Students:

a*). Records of students in 12th*

Sr. No.	Average result of 12th	Name of student scored highest marks	Marks 60% above (No. of students)	Marks between 40%-60% (No. of students)	English Medium Students (No.)	Hindi Medium Students (No.)	No. of Hostellers	No. of Day Scholar

b*). Name of 05 best students based on previous results: ……, ……, ……, ……, ……*

4). Instructional Language: - ……%English; ……..% Hindi (English not less than 60%)

5). Introduction to subject: - (Pl. separate out subject specific matter and general matter valid for all subjects and group/place them appropriately)

a). Relevance to Branch:
b). Relevance to Society:
c). Relevance to Self:
d). Relation with laboratory:
e). Connection with previous year and next year:

6). Syllabus

a). Unit Name:
b). ABC analysis (RGB method) of unit & topics

7). Books/ Website/Journals & Handbooks/ Association & Institution:

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a). Recommended Text & Reference Books and Websites:

S. No.	Title of Book	Authors	Publisher	Cost (Rs.)	No. of books in Library
Text Books					
T1					
T2					
T3					
Reference Books					
R1					
R2					
R3					
Websites related to subject					
1					
2					

b). Journals & Handbooks: - To give information about different Journals & Handbooks available in library related to the subject and branch.

c). Associations and Institutions: - To give information about different Associations and Institutions related to the subject and branch.

8). Syllabus Deployment: -

a). Total weeks available for academics (excluding holidays) as per Poornima Foundation calendar-

Semester	
No. of Working days available(Approx.)	
No. of Weeks (Approx.)	

- Total weeks available for special activities (as mentioned below)- 02 weeks (Approx.)

Note: Individual faculty must calculate the exact no. of lectures available according to time table etc. after consultation with HOD.

b). Special Activities (To be approved by HOD & Dean & must be mentioned in deployment):

- Open Book Test- Once in a semester
- Quiz - Once in a semester
- Special Lectures (SPL)- Minimum 10% of total no. of lectures including following
  - i. Smart Class by the faculty, who is teaching the subject
  - ii. SPL by expert faculty
  - iii. SPL by expert from industry/academia (other institution)
- Revision classes (Solving Important Question Bank):- 1 class before Mid Term and 2 classes before End Term Exam

c). Lecture schedule per week

i). University scheme (L+T+P) = ...+....+.....

Sr. No.	Name of Unit	No. of lectures	Broad Area	Degree of difficulty (High/Medium/Low)	Text/ Reference books
1.					
2.					
3.					
4.					
5.					

d). Introduction & Conclusion: Each subject, unit and topic shall start with introduction & close with conclusion. In case of the subject, it is Zero lecture.

e). Time Distribution in lecture class: - Time allotted: 60 min.

i. First 5 min. should be utilized for paying attention towards students who were absent for last lecture or continuously absent for many days + taking attendance by calling the names of the students and also sharing any new/relevant information.

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ii. Actual lecture delivery should be of 50 min.
iii. Last 5 min. should be utilized by recapping/ conclusion of the topic. Providing brief introduction of the coming up lecture and suggesting portion to read.
iv. After completion of any Unit/Chapter a short quiz should be organized.
v. During lecture student should be encouraged to ask questions.

Note: Pl. ensure that each student is having Lecture Note Book. Also, write on the black board day and date, name of the teacher, name of subject with code, unit and lecture no. and topics to be covered at the beginning of each lecture and ensure that students write in lecture note book. Ask students to leave 4/5 pages blank for copying the note from fellow students in case of their absenteeism.

9). Tutorial: - An essential component of Teaching- Learning process in Professional Education.

Objective: - To enhance the recall mechanism.
To promote logical reasoning and thinking of the students.
To interact personally to the students for improve numerical solving ability.

a). *Tutorial processing:* - Tutorial sheet shall be provided to each students

Ist Phase: - It is consisting of questions to be solved in the class assignment session in test mode on perforated sheet given in tutorial notebook and to be collected & kept by respective faculty for review & analysis (20 minutes).

IInd Phase: - Indicating/Initializing the weak issues/ drawback and Evaluating and providing the grade. Making a group with good student for assisting the weak students to explain/solve questions by every student on plain papers given in tutorial note book (20 minutes).

IIIrd Phase: - Solving/ explaining difficulties of lecture class and providing the new home assignment (20 minutes). To be done in tutorial note book.

b). *Home assignment shall comprise of two parts:*

Part (i) Minimum essential questions, which are to be solved and submitted by all with in specified due date.

Part (ii) Other important questions, which may also be solved and submitted for examining and guidance by teacher.

10). Examination Systems:

A. FOR ALL THEORY COURSES:-

a. Continuous Internal Evaluation (CIE)	**20%**
-Assignment / Project / Papers / Essays / Class Participation	10%
-Quiz / Class Test (Announced / Unannounced)	5%
- Attendance and Discipline	5%
b. Mid Semester Exams (MSE) – Two	**20%**
c. End Semester Exam (ESE) - One	**60%**
TOTAL	**100 %**

B. FOR ALL PRACTICAL (LABORATORY) COURSES:-

a. Continuous Internal Evaluation (CIE)	**40%**
-Performance (Lab Record, Viva,)	30%
-Attendance and Participation in laboratory work	10%
b. Mid Semester Exam (MSE)– Two	**20 %**
c. End Semester Exam (ESE) - One	**40%**
TOTAL	**100 %**

11). Any other important point:

Place & Date:

Name of Faculty with Designation

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14.7 Lecture Note Front page Format

POORNIMA
COLLEGE OF ENGINEERING

LECTURE NOTES

Campus: …….…. **Course:** ……..……... **Class/Section:** …….…… **Date:** …….…….

Name of Faculty: …….…….. **Name of Subject:** …….…… **Code:** ……..

Date (Prep.): ……..……. **Date (Del.):** ……..……**Unit No.:**……..…….**Lect. No:** ……..…….

OBJECTIVE: To be written before taking the lecture (Pl. write in bullet points the main topics/concepts etc., which will be taught in this lecture)

IMPORTANT & RELEVANT QUESTIONS:

FEED BACK QUESTIONS (AFTER 20 MINUTES):

OUTCOME OF THE DELIVERED LECTURE: To be written after taking the lecture (Pl. write in bullet points about students' feedback on this lecture, level of understanding of this lecture by students etc.)

REFERENCES: Text/Ref. Book with Page No. and relevant Internet Websites:

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14.7.1 Detailed Lecture Note Format-1

POORNIMA
COLLEGE OF ENGINEERING

DETAILED LECTURE NOTES

Campus:	**Course:**	**Class/Section:**	**Date:** .....
Name of Faculty:		**Name of Subject:**	**Code:** .....

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14.7.2 Detailed Lecture Note Format-2

POORNIMA
COLLEGE OF ENGINEERING

DETAILED LECTURE NOTES

PAGE NO. .....

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14.8 Assignment Format

POORNIMA
COLLEGE OF ENGINEERING

Assignment Sheet-1

Campus: PCE **Course:** B.Tech. **Class/Section:** III **Date:** .....

Name of Faculty: SKT **Name of Subject:** Design Machine of Machine Element-II **Code:** 6ME4-04

Date of Preparation: ..... **Scheduled Date of Submission:** .....

Q. No.	Questions	COs	POs	PSOs
1	Discuss influence of size, surface, reliability and modifying factor on endurance limit of material.	CO1	PO2	PSO1
2	Discuss various methods of mitigation of stress concentration.	CO1	PO2	PSO1
3	Define the following terms used in design of machine elements (i) Size Factor (ii) Notch Sensitivity (iii) Surface Finish Factor	CO1	PO2	PSO1
4	What do you mean by stress concentration? How do you take it into consideration in case of components subjected to dynamic loads?	CO1	PO2	PSO1
5	Explain difference between Soderberg, Goodman and Gerber criteria in detail.	CO1	PO2	PSO1
6	What is physical significance of notch sensitivity factor being one of zero.	CO1	PO2	PSO1
7	What is fluctuating stresses? Draw stress-time curves for different fluctuating stresses.	CO1	PO2	PSO1
8	What is endurance strength? Draw S-N diagram and list various factors affecting it.	CO1	PO2	PSO1
9	Draw and describe Goodman and Soderberg diagram.	CO1	PO2	PSO1
10	Explain modified Goodman diagram for bending stresses.	CO1	PO2	PSO1

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14.9 Tutorial Format

POORNIMA
COLLEGE OF ENGINEERING

TUTORIAL SHEET

TUTORIAL SHEET SHEET No.....

Campus: ..... Course: ..... Class/Section: ..... Date: .....

Name of Faculty: ..... Name of Subject: ..... Code: .....

Date of Tut. Sheet Preparation:..... Scheduled Date of Tut.:.....Actual Date of Tut. :.....

Name of Student:.....Scheduled & Actual Date of H.A. Submission:.....&.....

	Questions	CO	PO
FIRST 20 MT. CLASS QUESTIONS			
2 HRS. SOLVABLE HOME ASSIGNMENT (H.A.) QUESTIONS			
OTHER IMPORTANT QUESTIONS			

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14.10 Mid Term/ End Term Practical Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- A**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

III B.TECH. (VI Sem.) **SET- B**

FIRST MID TERM PRACTICAL EXAMINATION 2021-22
Code: 6ME4-23 Category: PCC Subject Name: MACHINE DESIGN PRACTICE-II
(BRANCH – MECHANICAL ENGINEERING)

Max. Time: 60 Minutes **Max. Marks: 22 + 8 (Viva) = 30**

NOTE: - **All questions are compulsory. Use of Design Data Book is allowed.**

Q. No.	Question	Marks	LO	PO
Q.1				
Q.2				
Q.3				

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14.11 Mid Term Theory Question Paper Format

POORNIMA COLLEGE OF ENGINEERING, JAIPUR

II B.TECH. (III Sem.) **Roll No. _____**

SECOND MID TERM EXAMINATION 2021-22

Code: 3CE2-01 Category: PCC Subject Name–ADVANCE ENGINEERING MATHEMATICS -I

(BRANCH – CIVIL ENGINEERING)

Course Credit: ___

Max. Time: 2 hrs. **Max. Marks: 60**

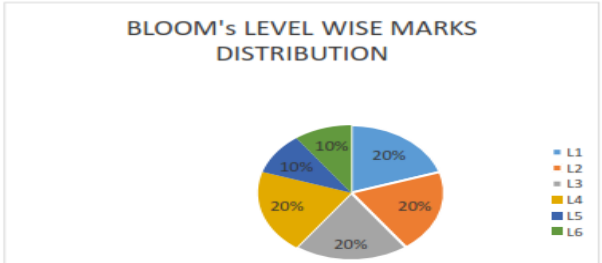
NOTE:- Read the guidelines given with each part carefully.

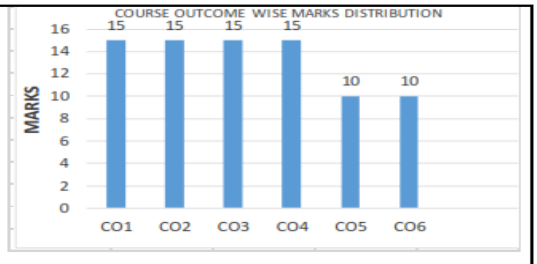
Course Outcomes (CO):

At the end of the course the student should be able to:

CO1:
CO2:
CO3:
CO4:
CO5:
CO6:

	PART - A: (All questions are compulsory) Max. Marks (10)				
		Marks	**CO**	**BL**	**PO**
Q.1		**2**			
Q.2		**2**			
Q.3		**2**			
Q.4		**2**			
Q.5		**2**			
	PART - B: (Attempt 4 questions out of 6) Max. Marks (20)				
Q.6		**5**			
Q.7		**5**			
Q.8		**5**			
Q.9		**5**			
Q.10		**5**			
Q.11		**5**			
	PART - C: (Attempt 3 questions out of 4) Max. Marks (30)				
Q.12		**10**			
Q.13		**10**			
Q.14		**10**			
Q. 15		**10**			





BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analyzing, 5 – Evaluating, 6 - Creating)

CO – Course Outcomes; PO – Program Outcomes

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13. List of Important Links

List of Important Links		
Sr. No.	**Link**	**Particulars**
1	https://www.rtu.ac.in/index/	Rajasthan Technical University
2	http://www.pce.poornima.org	Institute Website
3	http://www.pce.poornima.org/Downloads.html	Format of Students & Employees
4	https://www.turnitin.com/login_page.asp?lang=en_us	Plagiarism Checker
5	http://pcelibrary.poornima.org/	PCE Digital Library
6	https://ndl.iitkgp.ac.in/	National Digital Library of India (NDLI)
7	https://swayam.gov.in/	SWAYAM MOOCs platform
8	https://www.vlab.co.in/	Virtual Labs
9	https://spoken-tutorial.org/	Spoken Tutorial
10	https://fossee.in/	FOSSEE (Free/Libre and Open Source Software for Education)
11	https://www.sih.gov.in/	Smart India Hackathon
12	https://www.swayamprabha.gov.in/	32 high quality educational channels through DTH on 24X7 basis.
13	https://ieeexplore.ieee.org/Xplore/home.jsp.You	IEEE All Society Periodicals Package
14	https://booksc.org/	Link for Free for book and articles
15	https://jgateplus.com/home/	J-gate Plus (JOURNALS -GATE) subscriptions
16	http://www.delnet.nic.in/	Developing Library Network
17	https://dst.rajasthan.gov.in/content/dst-gov/en/home.html	Department of Science & Technology, Government of Rajasthan
18	https://ipindia.gov.in/index.htm	Official website of Intellectual Property India
19	http://pce.poornima.org/Downloads.html	Academic Formats Word File
Note:- Required Credentials can be taken from Respective Department Heads		

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