Jyothi Engineering College (AUTONOMOUS)
Reaccredited with NAAC (Grade A) and
NBA Programmes* (*CE, CS, EC, EE, ME, MR)
Jyothi Hills, P. O. Vettikkattiri, Cheruthuruthy
Thrissur, Kerala, India, 679531
04884 259000 | info@jecc.ac.in | www.jecc.ac.in
A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur

B. TECH CURRICULUM – 2026

Semester I to VIII

(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Department of Mechanical Engineering

Branch Code: ME

Recommended by BoS on 14/11/2025

Approved by Academic Council on 27/11/2025

(Reference: JEC/2025/AC/MOM/02/AC/02/A2)

VISION & MISSION OF THE INSTITUTE

VISION: To be a global leader in education, nurturing ethical professionals, fostering holistic excellence and sustainable societal impact.

MISSION

1. **Excellence in Education:** Provide outcome-based and industry-relevant education that builds technical competence, innovation, and lifelong learning.
2. **Ethics and Values:** Inspire integrity, empathy, and social responsibility to develop ethical and service-oriented professionals.
3. **Research, Innovation, and Entrepreneurship:** Encourage creativity, research, and entrepreneurship for sustainable technological and economic growth.
4. **Holistic and Global Development:** Promote all-round development, leadership, and global competence through collaboration and community engagement.

VISION & MISSION OF THE DEPARTMENT

VISION: To be a centre of excellence in Mechanical Engineering, research, and innovation, nurturing ethical professionals and leaders committed to sustainable technological advancement and societal well-being.

MISSION

1. Provide outcome-based, industry-relevant Mechanical Engineering education that builds strong fundamentals, technical competence, problem- solving ability, and lifelong learning skills.
2. Cultivate integrity, empathy, professional ethics, environmental consciousness, and social responsibility to develop responsible engineering professionals.
3. Promote research, innovation, interdisciplinary collaboration, and entrepreneurship for sustainable technological and economic development.
4. Foster leadership, teamwork, communication skills, and collaboration through industry interaction, professional activities, and community engagement.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 1	Graduates will apply strong Mechanical Engineering knowledge, technical competence, and problem-solving skills to excel in industry, higher studies, and related professional pursuits.
PEO 2	Graduates will demonstrate innovation, research aptitude, interdisciplinary collaboration, and entrepreneurial thinking to develop sustainable engineering solutions.
PEO 3	Graduates will exhibit ethical values, leadership, teamwork, communication skills, and social responsibility in their professional and societal engagements.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO 1	Apply principles of thermal, manufacturing, design, and fluid sciences to develop sustainable solutions to Mechanical Engineering problems.
PSO 2	Utilize modern engineering tools, including CAD/CAM, simulation, and analytical software, for product design, development, and optimization.
PSO 3	Apply engineering, research, innovation, and management principles to address industrial, entrepreneurial, and societal challenges for holistic development.

PROGRAMME OUTCOMES

PO1	**Engineering Knowledge**: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop the solution of complex engineering problems
PO2	**Problem Analysis**: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
PO3	**Design/Development of Solutions**: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
PO4	**Conduct Investigations of Complex Problems**: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8)
PO5	**Engineering Tool Usage**: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
PO6	**The Engineer and The World**: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7)
PO7	**Ethics**: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
PO8	**Individual and Collaborative Team work**: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9	**Communication**: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
PO10	**Project Management and Finance**: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
PO11	**Life-Long Learning**: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

KNOWLEDGE AND ATTITUDE PROFILE (WK)

WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.
WK2	Conceptually based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.
WK5	Knowledge, including efficient resource use, environmental impacts, whole-life cost, re-use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.
WK8	Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.
WK9	Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

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CUMULATIVE CREDITS

Cumulative credits for the entire B. Tech program is 170 credits

CREDIT ASSIGNMENT

[Ref: National Credit Framework – Sept 2022]

Course Delivery	Code	Hours per Week	Credit
Lecture	L	1	1
Tutorial	T	1	1
Practical	P	2	1
Hands on Project	H	3/4	1

CREDIT DISTRIBUTION: YEAR/SEMESTER WISE

Year	ODD Semester	Even Semester	Total credit
First	20	22	42
Second	25	24	49
Third	23	23	46
Fourth	18	12	30
Academic Credits			**167**
Student Activities			**3**
B Tech			**170**
B Tech with Honours			**185**
B Tech with Minor			**185**
B Tech with Minor and Honours			**200**

COURSE CATEGORY AND CREDIT DISTRIBUTION

Sl.	Course Category	Nomenclature	Credits	Number of Courses
1	Basic Science Courses	BS	21	6
2	Engineering Science Courses	ES	28	10
3	Humanities, Social Science and Management	HM	10	6
4	Programme Core Courses	PC	61	21
5	Programme Elective Courses	PE	20	6
6	Open Elective Courses/Industry Linked Elective Courses.	OE/IE	8	3
7	Project Work/Seminar/ Internship	PI	13	3
8	Skill Enhancement Courses	SE	3	3
9	Indian Knowledge System	IK	2	1
10	Health and Wellness	HW	1	1
11	Student Activities	SA	3	-
Total			**170**	**60**

COURSE TYPES AND ASSESSMENT PATTERN

Course Type	Nomenclature	Credits	Assessment pattern		
			CIE	ESE	Total
Workshop	PL	1	100	NA	100
Theory Course	TC	1/2/3/4	40	60	100
Lab Course	PL	2	50	50	100
Theory + Practical	TP	4	60	40	100
Theory + Project	PB	4	60	40	100
Project	PT	3, 4	50	50	100
Seminar	SR	2	100	NA	100
Skill Enhancement Courses.	SE	1	100	NA	100

SEMESTER I

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST131	BS	TC	Linear Algebra, Differential Equations and Transforms	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP132	BS	TP	Engineering Physics	3	0	2	0	5.5	4	60	40	100
3	C	J1ESP103	ES	TP	Algorithmic Thinking with Python	3	0	2	0	5.5	4	60	40	100
4	D	J1EST104	ES	TC	Engineering Mechanics	2	1	0	0	3.5	3	40	60	100
5	E	J1EST125	ES	TC	Introduction to Mechanical and Civil Engineering.	4	0	0	0	6	4	40	60	100
6	F	J1HWP126 / J1HMP126	HW / HM	TP	Health and Wellness / Life Skills and Professional Communication	1	0	1	0	2	1	100	-	100
7	J	J1ESL137	ES	PL	Mechanical and Civil Engineering Workshop	0	0	2	0	1	1	100	-	100
8	S	J1SET109	SE	TP	Skill Enhancement Course	0	0	0	0	2	-	-	-	-
Total						**16**	**1**	**7**	**0**	**30**	**20**			**700**

SEMESTER II

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST231	BS	TC	Multivariable and Vector Calculus	3	0	0	0	4.5	3	40	60	100
2	B	J1BSP222	BS	TP	Engineering Chemistry	3	0	2	0	5.5	4	60	40	100
3	C	J1EST243	ES	TC	Basics of Electrical and Electronics Engineering.	4	0	0	0	6	4	40	60	100
4	D	J1ESP104	ES	TP	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	3	60	40	100
5	E	J1EST205	ES	TC	Engineering Entrepreneurship and IPR	2	0	0	0	3	2	40	60	100
6	F	J1HMP126 / J1HWP126	HM / HW	TP	Life Skills and Professional Communication / Health and Wellness	1	0	1	0	2	1	100	-	100
7	G	J1MET207	PC	TC	Material Science and Engineering	2	1	0	0	3.5	3	40	60	100
8	J	J1ESL127	ES	PL	Electrical and Electronics Engineering Workshop	0	0	2	0	1	1	100	-	
9	S	J1SET109	SE	TP	Skill Enhancement Course	0	0	0	0	2	1	-	-	-
Total						**17**	**1**	**7**	**0**	**31.5**	**22**			**800**

SEMESTER III

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1BST331	BS	TC	Complex Analysis and Partial Differential Equations	3	0	0	0	4.5	3	40	60	100
2	B	J1MET302	PC	TC	Fluid Mechanics and Machinery	3	1	0	0	5	3	40	60	100
3	C	J1MEZ303	PC	PB	Manufacturing Processes	3	0	0	2	6.5	4	60	40	100
4	D	J1MEP304	PC	TP	Mechanics of Solids	3	0	2	0	5.5	4	60	40	100
5	E	J1EST315	ES	TC	Introduction to Artificial Intelligence and Data Science	3	1	0	0	5	4	40	60	100
6	F	J1HMT436 / J1HMT346	HM	TC	Engineering Ethics and Sustainable Development / Economics for Engineers	2	0	0	0	3	2	40	60	100
7	J	J1MEL307	PC	PL	Computer Aided Machine Drawing and Modelling Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MEL308	PC	PL	Fluid Mechanics and Hydraulic Machines Lab	0	0	3	0	1.5	2	50	50	100
9	S	J1SET3N9	SE	TP	Skill Enhancement Course	1	0	0	0	1.5	1	100	-	100
Total						**18**	**2**	**8**	**2**	**34**	**25**			**900**

SEMESTER IV

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MET401	PC	TC	Engineering Thermodynamics	2	1	0	0	3.5	3	40	60	100
2	B	J1MET402	PC	TC	Machine Tools and Metrology	3	0	0	0	4.5	3	40	60	100
3	C	J1MEZ403	PC	PB	Mechanics of Machinery	3	0	0	2	6.5	4	60	40	100
4	D	J1BSP434	BS	TP	Statistics and Numerical Methods	3	0	2	0	5.5	4	60	40	100
5	E	J1MET4N5	PE	TC	Programme Elective -1	3	0	0	0	4.5	3	40	60	100
6	F	J1HMT346 / J1HMT436	HM	TC	Economics for Engineers / Engineering Ethics and Sustainable Development	2	0	0	0	3	2	40	60	100
7	J	J1MEL407	PC	PL	Computer Aided Design and Analysis Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MEL408	PC	PL	Manufacturing Technology Lab	0	0	3	0	1.5	2	50	50	100
9	S	J1SET4N9	SE	TP	Skill Enhancement Course	1	0	0	0	1.5	1	100	-	100
Total						**17**	**1**	**8**	**2**	**32**	**24**			**900**

SEMESTER V

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MET501	PC	TC	Thermal Engineering	2	1	0	0	3.5	3	40	60	100
2	B	J1MET502	PC	TC	Dynamics of Machinery	2	1	0	0	3.5	3	40	60	100
3	C	J1MEZ503	PC	PB	Industrial Engineering and Management	3	0	0	2	6.5	4	60	40	100
4	D	J1MET504	PC	TC	Mechatronics	3	0	0	0	4.5	3	40	60	100
5	E	J1MEP5N5	PE	TP	Programme Elective-2	3	0	2	0	5.5	4	60	40	100
6	F	JIIKT5N6	IK	TC	Indian Knowledge System (IKS)	2	0	0	0	3	2	40	60	100
7	J	J1MEL507	PC	PL	Heat Engines Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MEL508	PC	PL	Dynamics of Machinery and Automation Lab	0	0	3	0	1.5	2	50	50	100
Total						**15**	**2**	**8**	**2**	**29.5**	**23**			**800**

SEMESTER VI

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MET601	PC	TC	Machine Design	3	1	0	0	5	4	40	60	100
2	B	J1MET602	PC	TC	Advanced Manufacturing Engineering	3	0	0	0	4.5	3	40	60	100
3	C	J1EST6N3	ES	TC	Design Thinking and Product Development	2	0	0	0	3	2	40	60	100
4	D	J1MEP604	PC	TP	Heat and Mass Transfer	3	0	2	0	5.5	4	60	40	100
5	E	J1MEZ6N5	PE	PB	Programme Elective -3	3	0	0	2	6.5	4	60	40	100
6	F	J1XXO6N6 / J1XXI6N6	OE / IE	TC	Open Elective / Industry Linked Elective	2	0	0	0	3	2	40	60	100
7	J	J1MEL607	PC	PL	Heat Transfer Lab	0	0	3	0	1.5	2	50	50	100
8	K	J1MEL608	PC	PL	Metrology and Instrumentation Lab	0	0	3	0	1.5	2	50	50	100
Total						**16**	**1**	**8**	**2**	**30.5**	**23**			**800**

SEMESTER VII

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours/Week					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MET7N1/ J1MEM7N1	PE	TC	Programme Elective-4/ MOOC/Self Study	3	0	0	0	4.5	3	40	60	100
2	B	J1MET7N2/ J1MEM7N2	PE	TC	Programme Elective-5/ MOOC/Self Study	3	0	0	0	4.5	3	40	60	100
3	C	J1XXO7N3/ J1XXI7N3/ J1XXM7N3	OE	TC	Open Elective-2/ILE/MOOC/Self Study	3	0	0	0	4.5	3	40	60	100
4	D	J1HMT7N4/ J1HMM7N4	HM	TC	HM-6 /MOOC/Self Study	2	0	0	0	3	2	40	60	100
5	E	J1HMT705/ J1HMM7N5	HM	TC	Constitution of India / MOOC/Self Study	1	0	0	0	1.5	1	40	60	100
6	J	J1MEQ706	PC	PI	Seminar	0	0	2	0	1	2	100	-	100
7	K	J1MED707/ J1INT707	PC	PI	Project/Internship (4-6 Months)	0	0	0	16	16	4	100	-	100
Total						**12**	**0**	**2**	**16**	**35**	**18**			**700**

SEMESTER VIII

Sl.	Slot	Course Code	Course Category	Course Type	Course Title	Hours					Credits	Total Marks		Total
						L	T	P	H	S		CIE	ESE	
1	A	J1MET8N1/ J1MEM8N1	PE	TC	Programme Elective 6/MOOC/ Self Study	3	0	0	0	4.5	3	40	60	100
2	B	J1XXO8N2/ J1XXM8N2	OE	TC	Open Elective-3/MOOC/ Self Study	3	0	0	0	4.5	3	40	60	100
3	C	J1HMT8N3/ J1HMM8N3	HM	TC	HM-7 / MOOC/ Self Study	2	0	0	0	3	2	40	60	100
4	K	J1MED804/ J1INT804	PC	PI	Project/ Internship (4-6 Months)	0	0	0	16	16	4	50	50	100
Total						**8**	**0**	**0**	**16**	**28**	**12**			**400**

APPENDIX-I- COURSE CATEGORY

*(**TC** -Theory Course, **TP**, Theory course embedded with Practical's, **PB**-Theory course with project-based learning)*

1.PROGRAMME CORE COURSES

Sl.	Semester	Course Code	Course Name	Course Type	Credits
1	S2	J1MET207	Material Science and Engineering	TC	3
2	S3	J1MET302	Fluid Mechanics and Machinery	TC	3
3	S3	J1MEZ303	Manufacturing Processes	PB	4
4	S3	J1MEP304	Mechanics of Solids	TP	4
5	S4	J1MET401	Engineering Thermodynamics	TC	3
6	S4	J1MET402	Machine Tools and Metrology	TC	3
7	S4	J1MEZ403	Mechanics of Machinery	PB	4
8	S5	J1MET501	Thermal Engineering	TC	3
9	S5	J1MET502	Dynamics of Machinery	TC	3
10	S5	J1MEZ503	Industrial Engineering and Management	PB	4
11	S5	J1MET504	Mechatronics	TC	3
12	S6	J1MET601	Machine Design	TC	4
13	S6	J1MET602	Advanced Manufacturing Engineering	TC	3
14	S6	J1MEP604	Heat and Mass Transfer	TP	4
15	S3	J1MEL307	Computer Aided Machine Drawing and Modelling Lab	PL	2
16	S3	J1MEL308	Fluid Mechanics and Hydraulic Machines Lab	PL	2
17	S4	J1MEL407	Computer Aided Design and Analysis Lab	PL	2
18	S4	J1MEL408	Manufacturing Technology Lab	PL	2
19	S5	J1MEL507	Heat Engines Lab	PL	2
20	S5	J1MEL508	Dynamics of Machinery and Automation Lab	PL	2
21	S6	J1MEL607	Heat Transfer Lab	PL	2
22	S6	J1MEL608	Metrology and Instrumentation Lab	PL	2
Total Credits					**64**

2. PROGRAMME ELECTIVE

2.1 PROGRAMME ELECTIVE-1 (SEMESTER-IV)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MET415	Composite Materials	Stream Elective-1
2	E	J1MET425	Fundamentals of Energy Systems	Stream Elective-2
3	E	J1MET435	Tool and Die Engineering	Stream Elective-3
4	E	J1MET445	Technology Management	Stream Elective-4
5	E	J1MET455	Introduction to Robotics and Automation	Stream Elective-5
6	E	J1MET465	Solar Energy Conservation System	General Elective
7	E	J1MET475	Surface Engineering and Coatings	General Elective

2.2 PROGRAMME ELECTIVE-2 (SEMESTER-V)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MEP515	Smart and Nanomaterials	Stream Elective-1
2	E	J1MEP525	Energy Economics and Policy	Stream Elective-2
3	E	J1MEP535	Computer Integrated Manufacturing	Stream Elective-3
4	E	J1MEP545	Operations Management	Stream Elective-4
5	E	J1MEP555	Industrial Automation	Stream Elective-5
6	E	J1MEP565	Additive Manufacturing	General Elective
7	E	J1MEP575	Micro Electro Mechanical Systems (MEMS)	General Elective

2.3 PROGRAMME ELECTIVE-3 (SEMESTER-VI)

Sl.	Slot	Subject Code	Subject	Category
1	E	J1MEZ615	Powder Metallurgy and Sustainable Materials	Stream Elective-1
2	E	J1MEZ625	Hybrid Renewable Energy Systems	Stream Elective-2
3	E	J1MEZ635	Flexible Manufacturing Systems	Stream Elective-3
4	E	J1MEZ645	Logistics and Supply Chain Management	Stream Elective-4
5	E	J1MEZ655	Industrial Instrumentation and Automation	Stream Elective-5
6	E	J1MEZ665	Non-Destructive Evaluation and Inspection	General Elective
7	E	J1MEZ675	Six Sigma Manufacturing	General Elective

2.4 PROGRAMME ELECTIVE-4 (SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	A	J1MET711	Automobile Engineering	General Elective/MOOC
2	A	J1MET721	Refrigeration and Air Conditioning	General Elective/MOOC
3	A	J1MET731	Advanced Non-Destructive Technology	General Elective/MOOC
4	A	J1MET741	Quality Engineering and Management	General Elective/MOOC
5	A	J1MET751	Optimization Techniques	General Elective/MOOC
6	A	J1MET761	Lean Manufacturing	General Elective/MOOC
7	A	J1MET771	Supervisory Control	General Elective/MOOC

2.5 PROGRAMME ELECTIVE-5(SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	B	J1MET712	Compressible Fluid Flow	General Elective/MOOC
2	B	J1MET722	Industrial Safety Engineering	General Elective/MOOC
3	B	J1MET732	Numerical Control and Machine Tools	General Elective/MOOC
4	B	J1MET742	Finite Element Analysis	General Elective/MOOC
5	B	J1MET752	Design for Manufacture and Assembly	General Elective/MOOC
6	B	J1MET762	Human Resources Management	General Elective/MOOC
7	B	J1MET772	Operations Research	General Elective/MOOC

2.6 PROGRAMME ELECTIVE-6(SEMESTER-VIII)

Sl.	Slot	Subject Code	Subject	Category
1	A	J1MET811	Industrial Tribology	General Elective/MOOC
2	A	J1MET821	Marketing Management	General Elective/MOOC
3	A	J1MET831	Ergonomics	General Elective/MOOC
4	A	J1MET841	Hybrid and Electric Vehicles	General Elective/MOOC
5	A	J1MET851	Micro and Nano Manufacturing	General Elective/MOOC
6	A	J1MET861	World Class Manufacturing	General Elective/MOOC
7	A	J1MET871	Maintenance Engineering	General Elective/MOOC

3. OPEN/INDUSTRY LINKED ELECTIVES

3.1 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VI)

Sl.	Slot	Subject Code	Subject	Category
1	F	J1MEO616	Automotive Technology	Open Elective
2	F	J1MEO626	Renewable Energy Engineering	Open Elective
3	F	J1MEO636	Fundamentals of Quality Engineering	Open Elective
4	F	J1MEO646	Introduction to Additive Manufacturing	Open Elective

3.2 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VII)

Sl.	Slot	Subject Code	Subject	Category
1	C	J1MEO713	Engineering Materials	Open Elective
2	C	J1MEO723	Non-destructive Testing Methods	Open Elective
3	C	J1MEO733	Power Plant Engineering	Open Elective
4	C	J1MEO743	Engineering Instruments and Measurements	Open Elective

3.3 OPEN/INDUSTRY LINKED ELECTIVES (SEMESTER-VIII)

Sl.	Slot	Subject Code	Subject	Category
1	B	J1MEO812	Industrial Hydraulics and Automation	Open Elective
2	B	J1MEO822	3D-Printing and Tooling	Open Elective
3	B	J1MEO832	Product Design and Innovation	Open Elective
4	B	J1MEO842	Business Organization and Development	Open Elective

4. HUMANITIES, SOCIAL SCIENCE AND MANAGEMENT

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HMP126	Life Skills and Professional Communication	TC	1
2	S3/S4	J1HMT346	Economics for Engineers	TC	2
3		J1HMT436	Engineering Ethics and Sustainable Development	TC	2
4	S7	J1HMT7N4/ J1HMM7N4	HM-6 /MOOC/Self Study	TC	2
		J1HMT714	Project Management: Planning, Execution, Evaluation and Control ***(HMC Elective)***	TC	2
		J1HMM714	Proficiency course in French. (MOOC) (B1 level)	TC	
		J1HMM724	Proficiency Course in German (B1 Level). (MOOC)	TC	
		J1HMM734	Proficiency Course in Spanish (B1 Level) (MOOC)	TC	
		J1HMM744	Introduction to Japanese Language and Culture (N5 level). (MOOC)	TC	
5	S7	J1HMT705/ J1HMM7N5	Constitution Of India / MOOC/ Self Study	TC	1
6	S8	J1HMT8N3/ J1HMM8N3	HM-6 /MOOC/Self Study	TC	2
		J1HMT813	Organizational Behavior and Business Communication	TC	2
Total Credits					**10**

5.INDIAN KNOWLEDGE SYSTEM

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S5	J1IKT5N6	Indian Knowledge System	TC	2
Total Credits					**2**

6.HEALTH AND WELLNESS

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1/S2	J1HWP126	Health and Wellness	TP	1
Total Credits					**1**

7.BASIC SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1BST131	Linear Algebra, Differential Equations and Transforms	TC	3
2	S1	JIBSP132	Engineering Physics	TP	4
3	S2	J1BSP222	Engineering Chemistry	TP	4
4	S2	J1BST231	Multivariable and Vector Calculus	TC	3
5	S3	J1BST331	Complex Analysis and Partial Differential Equations	TC	3
6	S4	J1BSP434	Statistics and Numerical Methods	TP	4
Total Credits					**21**

8. ENGINEERING SCIENCE COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1ESP103	Algorithmic Thinking with Python	TP	4
2	S1	J1EST104	Engineering Mechanics	TC	3
3	S1	J1EST125	Introduction to Mechanical and Civil Engineering	TC	4
4	S1	J1ESL137	Mechanical and Civil Engineering Workshop	PL	1
5	S2	J1ESP104	Engineering Graphics and Computer Aided Drawing	TP	3
6	S2	J1EST243	Basics of Electrical and Electronics Engineering	TC	4
7	S2	J1ESL127	Electrical and Electronics Engineering Workshop	PL	1
8	S2	J1EST205	Engineering Entrepreneurship and IPR	TC	2
9	S3	J1EST315	Introduction to Artificial Intelligence and Data science	TC	4
10	S6	J1EST603	Design Thinking and Product Development	TC	2
Total Credits					**28**

9. SKILL ENHANCEMENT COURSES / ADD ON COURSES

Sl.	Semester	Course Code	Course	Course Type	Credits
1	S1	J1SET109	Skill Enhancement Course	TP	-
	S2	J1SET109	Skill Enhancement Course	TP	1
2	S3	J1SET3N9	Skill Enhancement Course (Aptitude Proficiency-1)	TP/TC	1
3	S4	J1SET4N9	Skill Enhancement Course (Aptitude Proficiency-2)	TP/TC	1
4	S5		ADD ON Courses		P/F
5	S6		ADD ON Courses		P/F
Total Credits					**3**

APPENDIX-II
ABBREVIATIONS

L	Lecture hours per week
T	Tutorial hours per week
P	Practical hours per week
H	Hands-on projects per week
S	Self-learning hours per week
PO	Programme Outcome
PSO	Programme Specific Outcome
PEO	Programme Educational Objective
WK	Knowledge and Attitude Profile
BS	Basic Science Courses
ES	Engineering Science Courses
HM	Humanities, Social Science and Management Courses
PC	Programme Core Courses
PE	Programme Elective Courses
PI	Project Work/Seminar/ Internship
IK	Indian Knowledge System
HW	Health and Wellness
SA	Student Activities
TC	Theory Course
PL	Practical Course
TP	Theory Course Embedded with Practical
PB	Theory Course Embedded with Micro projects
SE	Skill Enhancement Courses.