

B. TECH CURRICULUM - 2025



(AUTONOMOUS)
CREATING TECHNOLOGY
LEADERS OF TOMORROW
ESTD 2002

Semester I to VIII

Mechanical Engineering

Branch Code: ME

Approved by the Academic Council on 25-08-2025. (Ref:JEC/2025/AC/MOM/01/AC/01/A2)



Jyothi
Engineering College
(AUTONOMOUS)

Reaccredited with NAAC (Grade A) and
NBA Programmes* (*CE, CS, EC, EE, ME, MR)
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A Centre of Excellence in Science and Technology by the Catholic Archdiocese of Trichur



VISION & MISSION OF THE INSTITUTE

VISION: Creating eminent and ethical leaders through quality professional education with emphasis on holistic excellence.

MISSION

- To emerge as an institution par excellence of global standards by imparting quality engineering and other professional programmes with state-of-the-art facilities.
- To equip the students with appropriate skills for a meaningful career in the global scenario.
- To inculcate ethical values among students and ignite their passion for holistic excellence through social initiatives.
- To participate in the development of society through technology incubation, entrepreneurship and industry interaction.

VISION & MISSION OF THE DEPARTMENT

VISION: To provide quality education of international standards in Mechanical Engineering and promote professionalism with ethical values, to work in a team and to face global challenges.

MISSION

- To provide an education that builds a solid foundation in Mechanical Engineering.
- To prepare graduates for employment, higher education and enable a lifelong growth in their profession.
- To develop good communication, leadership and entrepreneurship skills to enable good knowledge transfer.
- To inculcate world class research program in Mechanical Engineering



PROGRAMME EDUCATIONAL OBJECTIVES

PEO 1: Graduate Engineers shall have strong practical and theoretical exposure in the field of Mechanical Engineering and will contribute to the society through innovation and enterprise.

PEO 2: Graduate Engineers shall have global outlook and technological leadership, good employments or opt for higher studies/research and have creative thinking to initiate and develop innovative ideas.

PEO 3: Graduate Engineers shall have excellent teamwork, communication, and interpersonal skills, having high morals and ethical values.

PROGRAMME SPECIFIC OUTCOMES

PSO 1: Graduates would be able to apply their knowledge in the domains of manufacturing, fluid, and thermal sciences to solve engineering problems.

PSO 2: Graduates would be able to apply the principles of design and analysis on product design with the help of modern CAD/CAM tools.

PSO 3: Graduates would be able to apply the basic principles of engineering and management practices in various practical fields to engage themselves in research/ Industry/Society.

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)

FIRST SEMESTER (July-December)														
10 Days Compulsory Induction Program and UHV														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT102	BSC	GC	Mathematics for Physical Science-1	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT103	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		25CHT102			Chemistry for Physical Science									
3	C	25EST106	ESC	GC	Engineering Mechanics	3	0	0	0	4.5	40	60	3	3
4	D	25EST107	ESC	GC	Introduction to Mechanical Engineering & Civil Engineering (Part1: Mechanical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Civil Engineering)	2	0	0	0	3	20	30		
5	F	25EST105	ESC	UC	Algorithmic Thinking with Python	3	0	2	0	5.5	40	60	4	5
6	L	25ESL108	ESC	GC	Engineering Workshop	0	0	2	0	1	50	50	1	2
7	I* S1/ S2	25HUT106	HWP	UC	Health and wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	S1/ S2	25SEC101	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC				2			-	
Total									30/ 32			20	24/ 25	
Bridge Course (Mathematics or Introduction to Computer Science) *:										Total 15 Hrs.				

- L-T-P-R: Lecture-Tutorial-Practical-Project
- SS (Self Study) Hours= 1.5L+0.5 T+0.5P+R
- CIA: Continuous Internal Assessment, ESE: End Semester Examination

Digital 101 (NASSCOM)		
Sl. No:	Technologies Covered	Hours
1	Artificial intelligence and Big Data Analytics (AI/BDA)	11
2	Internet of Things (IoT)	2.5
3	Cyber Security	2.5
4	Block Chain	2.5
5	Robotic Process Automation	1.5
6	Augmented and Virtual Reality (AR and VR)	2.5
7	Cloud Computing	2.5
8	3 D Printing and Modelling	2
9	Web, Mobile Dev and Marketing	2
10	Responsible AI	1
Total Hours		30

Note: Physics, Chemistry, Health and Wellness & Life Skill and Professional Communication can be offered in both Semester 1 (S1) and Semester 2 (S2). Institutions are encouraged to guide approximately 50% of their branches to choose between Physics or Chemistry (Slot B) and Health and Wellness or Life Skill and Professional Communication (Slot I) in Semester 1.

SECOND SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT202	BSC	GC	Mathematics for Physical Science-2	3	0	0	0	4.5	40	60	3	3
2	B S1/ S2	25PHT103	BSC	GC	Physics for Physical Science	3	0	2	0	5.5	40	60	4	5
		25CHT102			Chemistry for Physical Science									
3	C	25EST103	ESC	GC	Engineering Graphics and Computer Aided Drawing	2	0	2	0	4	40	60	3	4
4	D	25EST205	ESC	GC	Basic Electrical & Electronics Engineering (Part 1: Electrical Engineering)	2	0	0	0	3	20	30	2+2=4	4
					(Part 2: Electronics Engineering)	2	0	0	0	3	20	30		
5	E	25MET205	PC	PC	Material Science and Engineering	3	1	0	0	5	40	60	4	4
6	F	25EST206	ESC	UC	Engineering Entrepreneurship & IPR	3	0	0	0	4.5	60	40	3	3
7	I* S1/ S2	25HUT106	HWP	UC	Health and wellness	1	0	1	0	0	50	0	1	2/3
		25HUT107	HMC		Life Skills and Professional Communication	2	0	1	0	3.5	100	0		
8	L	25ESL107	ESC	GC	Basic Electrical and Electronics Engineering workshop	0	0	2	0	1	50	50	1	2
9	S1/ S2	25SEC101	SEC	UC	Skill Enhancement Course: Digital 101(30 Hours, NASSCOM)	MOOC							1	
Total									34			24	27/28	

*No Grade Points will be awarded for the MOOC course and I slot course.

THIRD SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT302	BSC	GC	Mathematics for Physical Science-3	3	0	0	0	4.5	40	60	3	3
2	B	25MET302	PC	PC	Mechanics of Solids	3	1	0	0	5	40	60	4	4
3	C	25MET303	PC	PC	Fluid Mechanics and Machinery	3	1	0	0	5	40	60	4	4
4	D	25MEZ304	PC-PBL	PB	Manufacturing Processes	3	0	0	1	5.5	60	40	4	4
5	F	25EST305	ESC	GC	Introduction to Artificial Intelligence and Data Science	3	1	0	0	5	40	60	4	4
6	G S3/S4	25HUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25MEL307	PCL	PC	Computer Aided Machine Drawing & Modelling	0	0	3	0	1.5	50	50	2	3
8	Q	25MEL308	PCL	PC	Materials Testing lab	0	0	3	0	1.5	50	50	2	3
9	R/M		VAC		REMEDIAL/MINOR/COURSE	3	1	0	0	5			4*	4*
Total									31/36			25/29*	27/31*	

FOURTH SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MAT403	BSC	GC	Mathematics for Physical Science-4	3	0	0	0	4.5	40	60	3	3
2	B	25MET402	PC	PC	Machine Tools and Metrology	3	1	0	0	5	40	60	4	4
3	C	25MET403	PC	PC	Engineering Thermodynamics	3	1	0	0	5	40	60	4	4
4	D	25MEZ404	PC-PBL	PB	Mechanics of Machinery	3	0	0	1	5.5	60	40	4	4
5	E	25MET41N	PE	PE	Elective-1	3	0	0	0	4.5	40	60	3	3
6	G S3/S4	25HUT346	HMC	UC	Economics for Engineers	2	0	0	0	3	50	50	2	2
		25HUT347			Engineering Ethics and Sustainable Development									
7	L	25MEL407	PCL	PC	Fluid Mechanics and Hydraulic Machines Lab	0	0	3	0	1.5	50	50	2	3
8	Q	25MEL408	PCL	PC	Manufacturing Technology Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/ H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
Total									31/ 36			24/ 28*	26/ 30*	

Note: Economics for Engineers and Engineering Ethics and Sustainable Development shall be offered in both S3 and S4. Institutions can advise students belonging to about 50% of the number of branches in the Institution to opt for Economics for Engineers in S3 and Engineering Ethics & Sustainable Development in S4 and vice versa.

PROGRAM ELECTIVE I: 25MET41N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	25MET411	Turbo Machinery	3-0-0-0	3	3
	25MET412	Nuclear Energy	3-0-0-0		3
	25MET413	Composite Materials	3-0-0-0		3
	25MET414	Components of Intelligent Systems	3-0-0-0		3
	25MET416	Advanced Metal Joining Techniques	3-0-0-0		3
	25MET417	Technology Management	3-0-0-0		3
	25MET418	Supply Chain and Logistics Management	3-0-0-0		3
	25MET415	Advanced Mechanics of Solids	3-0-0-0		5/3

Note : Level 5 courses in the B. Tech curriculum carry a total of 5 credits, consisting of 3 credits for the Programme Elective and 2 additional credits. The additional 2 credits shall be awarded only if the student meets the eligibility conditions specified in the B. Tech. -2024 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.

FIFTH SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs./Week
						L	T	P	R		CIA	ESE		
1	A	25MET501	PC	PC	Dynamics of Machinery	3	1	0	0	5	40	60	4	4
2	B	25MET502	PC	PC	Advanced Manufacturing Engineering	3	1	0	0	5	40	60	4	4
3	C	25MET503	PC	PC	Heat and Mass Transfer	3	0	0	0	4.5	40	60	3	3
4	D	25MEZ504	PC-PBL	PB	Management for Engineers	3	0	0	1	5.5	60	40	4	4
5	E	25MET52N	PE	PE	Elective-2	3	0	0	0	4.5	40	60	3	3
6	I*	25HUX506	HMC	UC	Constitution Of India (MOOC)	-	-	-	-	2	-	-	1	-
7	L	25MEL507	PCL	PC	Thermal Engineering Lab-1	0	0	3	0	1.5	50	50	2	3
8	Q	25MEL508	PCL	PC	Mechanical Engineering Lab	0	0	3	0	1.5	50	50	2	3
9	R/M/H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
	S ₅ / S ₆	Industrial Visit (Maximum 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total									30/35			23/27*	24/28*	

*No Grade Points will be awarded for the MOOC course and I slot course.

PROGRAM ELECTIVE 2: 25MET52N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
E	25MET521	Computational Fluid Dynamics	3-0-0-0	3	3
	25MET522	Design for Manufacture and Assembly	3-0-0-0		3
	25MET523	Computer Aided Design and Analysis	3-0-0-0		3
	25MET524	Additive Manufacturing	3-0-0-0		3
	25MET526	Energy Economics and Policy	3-0-0-0		3
	25MET527	Human Resources Management	3-0-0-0		3
	25MET528	Operations Research	3-0-0-0		3
	25MET525	Instrumentation and Control Systems	3-0-0-0		5/3

SIXTH SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/Week
						L	T	P	R		CIA	ESE		
1	A	25MET601	PC	PC	Industrial and Systems Engineering	3	0	0	0	4.5	40	60	3	3
2	B	25MET602	PC	PC	Machine Design	3	0	0	0	4.5	40	60	3	3
3	C	25MET63N	PE	PE	Elective-3	3	0	0	0	4.5	40	60	3	3
4	D	25MEZ604	PC-PBL	PB	Thermal Engineering	3	0	0	1	5.5	60	40	4	4
5	F	25EST605	ESC	GC	Design Thinking and Product Development (Group Specific Syllabus)	2	0	0	0	3	40	60	2	2
6	O	25MET61N /25MEI61N	OE/ILE	OE/IE	Open Elective/Industry Linked Elective-1	3	0	0	0	4.5	40	60	3	3
7	L	25MEL607	PCL	PC	Computer Aided Design and Analysis Lab	0	0	3	0	1.5	50	50	2	3
8	P	25MEP608	PWS	PC	Mini Project: Socially Relevant Project	0	0	0	3	3	50	50	2	3
9	Q	25MEL609	PCL	PC	Thermal engineering Lab-2	0	0	2	0	1	50	50	1	2
10	R/ M/ H		VAC		Remedial/Minor/Honours Course	3	1	0	0	5			4*	4*
S5/ S6		Industrial Visit (Maximum of 12 Days are permitted, Not Exceeding more than 6 Working Days) /Industrial Training												
Total									32/ 37			23/26*	26/29*	

Note: Open Electives are such courses which will be offered by other departments. Like CSE department students have to opt open electives from ECE/ME/EEE etc. departments.

PROGRAM ELECTIVE 3: 25MET63N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
C	25MET631	Power Plant Engineering	3-0-0-0	3	3
	25MET632	Compressible Fluid Flow	3-0-0-0		3
	25MET633	Industrial Tribology	3-0-0-0		3
	25MET634	Finite Element Methods	3-0-0-0		3
	25MET636	Nondestructive Testing	3-0-0-0		3
	25MET637	Industrial Safety Engineering	3-0-0-0		3
	25MET638	Marketing Management	3-0-0-0		3
	25MET635	Advanced Materials	3-0-0-0		5/3

OPEN ELECTIVE 1: 25MET61N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	25MET611	Introduction to Business Analytics	3-0-0-0	3	3
	25MET612	Quantitative Techniques for Engineers	3-0-0-0		3
	25MET613	Automotive Technology	3-0-0-0		3
	25MET614	Renewable Energy Engineering	3-0-0-0		3
	25MET615	Quality Engineering and Management	3-0-0-0		3
	25MET616	Additive Manufacturing	3-0-0-0		3
	25MET617	Solar Energy Conservation Systems	3-0-0-0		3

SEVENTH SEMESTER (July-December)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/Week
						L	T	P	R		CIA	ESE		
1	A	25MET74N/ 25MEX74N	PE	PE	Elective-4 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	B	25MET75N/ 25MEX75N	PE	PE	Elective-5 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	O	25MET72N/ 25MEI72N/ 25MEX72N	OE/ ILE	OE/IE	Open Elective/Industry Linked Elective-2 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
4	I*	25HUT704/ 25HUX70N	HMC	UE	University Elective (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	2	2
5	S	25MES705	PS	PC	Seminar	0	0	3	0	1.5	50	0	2	3
6	P	25MEP706/ 25MEI706	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	0	0	0	12	12	100	0	4	8
7	R/H		VAC		Remedial/Honours Course	3	0	0	0	4.5			3*	3*
Total										26/ 31			17/20*	22/25*

*No Grade Points will be awarded for the I slot courses

*The students can take the internship option either in 7th or in 8th semester.

* Option 1: Work on a Project in the institute/department under the mentorship of faculty members.

Option 2: Full semester Internship in Industry/organization (7th or 8th semester)

Note: Open Electives are such courses which will be offered by other departments.

PROGRAM ELECTIVE 4: 25MET74N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	25MET741	Gas Turbine and Jet Propulsion	3-0-0-0	3	3
	25MET742	Automobile Engineering	3-0-0-0		3
	25MET743	Design of Machine Elements	3-0-0-0		3
	25MET744	Failure Analysis and Design	3-0-0-0		3
	25MET746	Lean Manufacturing	3-0-0-0		3
	25MET747	Reliability Engineering	3-0-0-0		3
	25MET748	Robotics	3-0-0-0		3
	25MET745	Mechatronics	3-0-0-0		5/3

PROGRAM ELECTIVE 5: 25MET75N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
B	25MET751	Refrigeration and Air Conditioning	3-0-0-0	3	3
	25MET752	Acoustics and noise Control	3-0-0-0		3
	25MET753	Aerospace Engineering	3-0-0-0		3
	25MET754	Renewable Energy Engineering	3-0-0-0		3
	25MET756	Mobile Robotics	3-0-0-0		3
	25MET757	Flexible Manufacturing Systems	3-0-0-0		3
	25MET758	Quality Engineering and Management	3-0-0-0		3
	25MET755	Optimization Techniques	3-0-0-0		5/3

OPEN ELECTIVE 2: 25MET72N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	25MET721	Engineering Materials	3-0-0-0	3	3
	25MET722	Robotics	3-0-0-0		3
	25MET723	Finite Element Methods	3-0-0-0		3
	25MET724	Nondestructive Testing	3-0-0-0		3
	25MET725	Engineering Instruments and Measurements	3-0-0-0		3
	25MET726	Computational Heat Transfer	3-0-0-0		3
	25MET727	Power Plant Engineering	3-0-0-0		3

SL. No	Course Code	Slot I: HMC Elective
1	25HUT704	Project Management: Planning, Execution, Evaluation and Control
2	25HUX701	Proficiency course in French. (MOOC) (B1 level)
3	25HUX702	Proficiency Course in German (B1 Level). (MOOC)
4	25HUX703	Proficiency Course in Spanish (B1 Level) (MOOC)
5	25HUX704	Introduction to Japanese Language and Culture (N5 level). (MOOC)

EIGHTH SEMESTER (January-June)														
Sl. No:	Slot	Course Code	Course Type	Course Category	Course Title (Course Name)	Credit Structure				SS	Total Marks		Credits	Hrs/Week
						L	T	P	R		CIA	ESE		
1	A	25MET86N / 25MEX86N	PE	PE	Elective-6 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
2	O	25MET83N / 25MEI83N / 25MEX83N	OE/ILE	OE/IE	Open Elective/Industry Linked Elective-3 (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	3	0	0	0	4.5	40	60	3	3
3	I*	25HUT803 / 25HUX80N	HMC	UC	Organizational Behavior and Business Communication (Internship Students: Self Study/MOOC Approved by the University/Online Classes)	2	0	0	0	3	50	50	1	2
4	P	25MEP806/ 25MEI806/ 25MEP807	PS	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase -II (For the students who have not opted for internship in S7/S8)	0	0	0	12	12	100	0	4	8
5	R/H		VAC		Project: Honours Course	0	0	0	4	4			4*	4
Total									24/28			11/15*	16/20	

*No Grade Points will be awarded for the I slot courses

* Option 2: Full semester Internship in Industry/organization (7th or 8th semester)

PROGRAM ELECTIVE 6: 25MET86N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
A	25MET861	Cryogenic Engineering	3-0-0-0	3	3
	25MET862	Pressure Vessel and Piping Design	3-0-0-0		3
	25MET863	Hybrid and Electric Vehicles	3-0-0-0		3
	25MET864	Micro and Nano Manufacturing	3-0-0-0		3
	25MET866	Advanced Numerical Control in Manufacturing	3-0-0-0		3
	25MET867	Metal Additive Manufacturing	3-0-0-0		3
	25MET868	Nanotechnology	3-0-0-0		3
	25MET865	Aircraft Design	3-0-0-0		5/3

OPEN ELECTIVE 3:25MET83N					
SLOT	COURSE CODE	COURSES	L-T-P-R	HOURS	CREDIT
O	25MET831	Industrial Hydraulics and Automation	3-0-0-0	3	3
	25MET832	3D Printing and Tooling	3-0-0-0		3
	25MET833	Numerical Techniques Engineering	3-0-0-0		3
	25MET834	Business Organization and Development	3-0-0-0		3
	25MET835	World Class Manufacturing	3-0-0-0		3
	25MET836	Micro Electro Mechanical Systems	3-0-0-0		3
	25MET837	Product Design and Innovation	3-0-0-0		3

HMC Courses			
Sl. No:	Semester	Course Area	Credits
1	S1/S2	Life Skills and Professional Communication	1
2	S3	Economics for Engineers	2
3	/S4	Engineering Ethics and Sustainable Development	2
4	S5	Constitution Of India. (MOOC)	1
5	S7	Elective (Project Management/Foreign Languages)	2
6	S8	Organizational Behavior and Business Communication	1
Total Credits			9

BSC Courses			
Sl. No:	Semester	Course Area	Credits
1	S1	Mathematics for Physical Science-1	3
2	S1/S2	Physics for Physical Science	4
3		Chemistry for Physical Science	4
4	S2	Mathematics for Physical Science-2	3
5	S3	Mathematics for Physical Science-3	3
6	S4	Mathematics for Physical Science-4	3
Total Credits			20

ESC Courses			
Sl. No:	Semester	Course Area	Credits
1	S1	Engineering Mechanics	3
2		Introduction to Mechanical Engineering/ Civil Engineering	4
3		Algorithmic Thinking with Python	4
4		Engineering Workshop	1
5	S2	Engineering Graphics and Computer Aided Drawing	3
6		Basic Electrical and Electronics Engineering	4
7		Engineering Entrepreneurship and IPR	3
8		Basic Electrical and Electronics Engineering Workshop	1
9	S3	Introduction to Artificial Intelligence and Data Science	4
10	S6	Design Thinking and Creativity	2
Total Credits			29

Programme Core Courses (PC) (ME)			
Sl. No:	Semester	Course Area	Credits
1	S2	Material Science and Engineering	4
2	S3	Mechanics of Solids	4
3		Fluid Mechanics and Machinery	4
4		Computer Aided Machine Drawing & Modelling	2
5		Materials Testing lab	2
6		S4	Machine Tools and Metrology
7	Engineering Thermodynamics		4
8	Fluid Mechanics and Hydraulic Machines Lab		2
9	Manufacturing Technology Lab		2
10	S5	Dynamics of Machinery	4
11		Advanced Manufacturing Engineering	4
12		Industrial and Systems Engineering	3
13		Thermal Engineering Lab-1	2
14		Mechanical Engineering Lab	2
15	S6	Heat and Mass Transfer	3
16		Machine Design	3
17		Computer Aided Design and Analysis Lab	2
18		Thermal engineering Lab-2	1
Total Credits (Theory -10, Lab-8)			52

Programme Core-Project Based Learning (PBL)			
Sl. No:	Semester	Course Area	Credits
1	S3	25MEZ304 Manufacturing Processes	4
2	S4	25MEZ404 Mechanics of Machinery	4
3	S5	25MEZ504 Thermal Engineering	4
4	S6	25MEZ604 Management for Engineers	4
Total Credits			16

Programme Elective Courses (PE)			
Sl. No:	Semester	Course Type	Credits
1	S4	PE-1	3
2	S5	PE-2	3
3	S6	PE-3	3
4	S7	PE-4	3
5		PE-5	3
6	S8	PE-6	3
Total Credits			18

Open Elective Courses/Industry Elective (OE/IEL)			
Sl. No:	Semester	Course Type	Credits
1	S6	OE/ILE-1	3
2	S7	OE/ILE-2	3
3	S8	OE/ILE-3	3
Total Credits			9

Project/ Internship and Seminar			
Sl. No:	Semester	Course Type	Credits
1	S6	Mini Project	2
2	S7	Seminar	2
3		Major Project/Internship	4
4	S8	Major Project/Internship/Research Project	4
Total Credits			12

Activity Points				
Sl. No.	Group	Courses	Credits	Minimum Credit Requirements
1	I	NSS, NCC, NSO (National Sports Organization)	1 (40 Points)	3 Credits (One credit from each Group)
2		Arts/Sports/Games		
3		Union/Club Activities		
4	II	English Proficiency Certification (TOFEL, IELTS, BEC etc.)	1 (40 Points)	
5		Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score.		
6		Short Term Internship (Minimum 2 weeks), Clinical Exposure/Training (Minimum 2 weeks), Conferences/Paper Presentation/ Workshop Activities/ Professional Body Activities, Participation in University level/State Level/ National Level Hackathons		
7	III	Journal Publication, Patents, Start-Up, Innovation, Winners of National/ International Level Hackathons	1 (40 Points)	
8		Skilling Certificates (Approved by the University)		

- *Students are required to acquire a minimum of 120 activity points, with at least 40 points per group, to fulfill the curriculum requirement of 3 activity credits.*
- *For B. Tech Lateral Entry students, 30 points per group are required. A minimum of 90 activity points must be acquired to obtain the 3 activity credits mandated by the curriculum.*

Course classifications of the B. Tech Programmes and Overall Credit Structure			
Sl. No	Category	Code	Credits
1	Humanities and Social Sciences including Management Courses	HMC	9
2	Basic Science Courses	BSC	20
3	Engineering Science Courses	ESC	29
4	Programme (Professional) Core Courses	PCC	52
5	Programme (Professional) Core Courses-Project Based Learning	PBL	16
6	Programme Elective Courses	PEC	18
7	Open Elective Courses/Industry Linked Elective	OEC/ILE	9
8	Mini Project, Project Work/Internship and Seminar	PWS	12
9	Health and Wellness	PW	1
10	Skill Enhancement Courses (Digital 101)	SEC	1
11	Mandatory Student Activities	MSA	3
Total Credits			170