SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY (AUTONOMOUS)

VIDYA NAGAR, PALISSERY, KARUKUTTY - 683 576

DEPARTMENT OF MECHANICAL ENGINEERING

Curriculum for B.Tech. in Mechanical Engineering

Branch Code – ME

(Group C)

2026 Scheme • Semesters S1 – S8

Vision

To be a leader in Mechanical Engineering education through sustainable innovation and impactful research.

Mission

- Integrate service-learning into Mechanical Engineering education to solve local and global challenges.
- Upskill students in emerging technologies to lead design, manufacturing, and allied industrial sectors.
- Promote innovative and interdisciplinary research in Mechanical Engineering, emphasizing sustainable and ethical practices.

Program Outcomes (POs)

- PO1: Engineering Knowledge: Apply math, science, computing, and engineering fundamentals to complex problems.
- PO2: Problem Analysis: Formulate and analyse complex engineering research and literature.
- PO3: Design/Development of Solutions: Design solutions considering public safety, cost, and net-zero carbon goals.
- PO4: Conduct Investigations: Use research methods, experiment design, and data analysis for valid conclusions.
- PO5: Engineering Tool Usage: Select and apply modern engineering and IT tools with an understanding of limits.
- PO6: The Engineer and the World: Evaluate societal, health, legal, and environmental sustainability impacts
- PO7: Ethics: Apply professional ethics, human values, inclusivity, and legal compliance.
- PO8: Individual and Collaborative Teamwork: Function effectively as an individual or team leader.
- PO9: Communication: Communicate and write effectively across diverse cultural and technical communities.
- PO10: Project Management and Finance: Apply management and economic principles in multidisciplinary settings.
- PO11: Life-Long Learning: Adapt to emerging technologies and engage in independent critical thinking.

Program Specific Outcomes (PSOs)

- PSO1: Apply community-based learning to identify and solve engineering problems.
- PSO2: Analyse and design mechanical systems with emphasis on sustainable development goals through research-based learning.
- PSO3: Apply advanced digital and manufacturing tools in project-based practice.

Program Educational Objectives (PEOs)

- PEO1: Graduates will address global challenges by applying technical knowledge and skills.
- PEO2: Graduates will contribute to sustainable development goals through innovative research.
- PEO2: Graduates will engage in lifelong learning and upskilling through industrial projects.

ABBREVIATIONS & COURSE CATEGORIES

L – Lecture (hours)	T – Tutorial (hours)	P – Practical (hours)
SL – Self-Learning (hours)	MC – MOOC Course	Cr. - Credits
IAT1 / IAT2 – Internal Assessment Test 1/2	CIA – Continuous Internal Assessment	SEE – Semester End Examination
BSC – Basic Science Course	ESC – Engineering Science Course	PC / PCL – Programme Core / Programme Core Lab
PC-PBL – Programme Core – Project Based Learning	PE – Programme Elective	OE / ILE – Open Elective / Industry Linked Elective
HMC – Humanities Management Course	SEC – Skill Enhancement Course	HWP – Health & Wellness Programme
PWS – Project Work / Seminar	GC / UC / UE – Group Course / Universal Course/ Universal Elective	MOOC – Massive Open Online Course

SEMESTER 1 (S1)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT101	BSC	GC	Matrices, Ordinary Differential Equations and Transforms	3	45	0	0	45	90	40	40	40	60	100
2	B	26GCPHT121 / 26GCCYT122	BSC	GC	Physics for Physical Science / Chemistry for Physical Science	4	45	0	30	45	120	40	40	40	60	100
3	C	26GCEST103	ESC	GC	Engineering Mechanics	3	45	0	0	45	90	40	40	40	60	100
4	D	26GCEST104	ESC	GC	Introduction to Mechanical and Civil Engineering	4	60	0	0	60	120	40	40	40	60	100
5	E	26UCEST105	ESC	UC	Programming in C	4	45	0	30	45	120	40	40	40	60	100
6	F	26GCESL106	ESC	GC	Basic Engineering workshop	1	0	0	30	0	30	-	-	50	50	100
7	G	26UCHWT127	HWP	UC	Health and Wellness	1	0	0	30	0	30	-	-	50	-	50
		26UCHUT128	HMC		Life Skills and Professional Communication									100	-	100
8		26UCSEM129	SEC	UC	MOOC Course/Communicative English (8 WEEKS)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**20**	**240**	**0**	**120**	**240**	**600**					
Bridge Course : Total 15 Hours																

SEMESTER 2 (S2)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT201	BSC	GC	Partial Differential Equations and Vector Calculus	3	45	0	0	45	90	40	40	40	60	100
2	B	26GCPHT121 / 26GCCYT122	BSC	GC	Physics for Physical Science / Chemistry for Physical Science	4	45	0	30	45	120	40	40	40	60	100
3	C	26GCEST203	ESC	GC	Engineering Graphics	3	30	0	30	30	90	60	60	40	60	100
4	D	26PCMET204	PC	PC	Mechanics of Solids	4	45	15	0	60	120	40	40	40	60	100
5	E	26UCEST205	ESC	UC	Engineering Entrepreneurship & IPR	3	45	0	0	45	90	40	40	60	40	100
6	F	26GCMEL206	ESC	GC	Strength of Materials Workshop	1	0	0	30	0	0	-	-	50	50	100
7	G	26UCHWT127	HWP	UC	Health and Wellness	1	0	0	30	0	30	-	-	50	-	50
		26UCHUT128	HMC		Life Skills and Professional Communication									100	-	100
8		26UCSEM129	SEC	UC	MOOC Course/Communicative English (8 WEEKS)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**20**	**210**	**15**	**120**	**255**	**600**					

SEMESTER 3 (S3)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GYMAT301	BSC	GC	Complex Analysis and Integral Transforms	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCMET302	PC	PC	Material Science and Engineering	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCMET303	PC	PC	Fluid Mechanics and Machinery	4	45	15	0	60	120	40	40	40	60	100
4	D	26PBMET304	PC-PBL	PB	Manufacturing Processes	4	60	0	0	60	120	40	40	60	40	100
5	E	26GCEST305	ESC	GC	Introduction to Electrical, Electronics and AI	3	45	0	0	45	90	40	40	40	60	100
6	F	26UCHUT346	HMC	UC	Economics for Engineers	2	30	0	0	30	60	40	40	50	50	100
		26UCHUT347			Engineering Ethics and Sustainable Development							-	-	50	50	100
7	G	26PCMEL307	PCL	PC	Computer Aided Machine Drawing & Modelling	2	0	0	60	15	60	-	-	50	50	100
8	H	26PCMEL308	PCL	PC	Electrical and Electronics Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC Course (8 WEEKS)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**23**	**270**	**15**	**90**	**315**	**690**					
Bridge Course for Lateral Entry Students: Total 15 Hrs.																

SEMESTER 4 (S4)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26GCMAT401	BSC	GC	Probability Distributions and Numerical Methods	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCMET402	PC	PC	Machine Tools and Metrology	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCMET403	PC	PC	Engineering Thermodynamics	4	45	15	0	60	120	40	40	40	60	100
4	D	26PBMET404	PC-PBL	PB	Mechanics of Machinery	4	60	0	0	60	120	40	40	60	40	100
5	E	26PEMET41N	PE	PE	Program Elective-1	3/5	45	0	0	45/105	90/150	40	40	40	60	100
6	F	26UCHUT346	HMC	UC	Economics for Engineers	2	30	0	0	30	60	40	40	50	50	100
		26UCHUT347			Engineering Ethics and Sustainable Development							-	-	50	50	100
7	G	26PCMEL407	PCL	PC	Fluid Mechanics and Hydraulic Machines Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCMEL408	PCL	PC	Machine Tools Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC Course (8 WEEKS)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**24/26**	**270**	**15**	**90**	**345/405**	**720/780**					

SEMESTER 5 (S5)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PCMET501	PC	PC	Dynamics of Machinery	4	45	15	0	60	120	40	40	40	60	100
2	B	26PCMET502	PC	PC	Advanced Manufacturing Engineering	3	45	0	0	45	90	40	40	40	60	100
3	C	26PCMET503	PC	PC	Mechatronics	3	45	0	0	45	90	40	40	40	60	100
4	D	26PBMET504	PC-PBL	PB	Thermal Engineering	4	60	0	0	60	120	40	40	60	40	100
5	E	26PEMET52N	PE	PE	Program Elective-2	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
6	F	26GCEST566	ESC	GC	Design Thinking and Product Development (Group specific)	2	30	0	0	30	60	40	40	40	60	100
		26UCHUT567	HMC	UC	Constitution of India											
7	G	26PCMEL507	PCL	PC	Thermal Engineering Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCMEL508	PCL	PC	Measurements and Vibration Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC (8 weeks)	0	0	0	0	0	0	-	-	-	-	-
TOTAL						**23/ 25**	**270**	**15**	**90**	**315/ 375**	**690/ 750**					

Industrial Visit: Maximum 12 days are permitted in S5/S6, not exceeding more than 6 working days.
Industrial Training: Students who are not participating in the industrial visit must attend industrial training during that period.

SEMESTER 6 (S6)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PCMET601	PC	PC	Heat and Mass Transfer	3	45	0	0	45	90	40	40	40	60	100
2	B	26PCMET602	PC	PC	Machine Design	4	45	15	0	60	120	40	40	40	60	100
3	C	26PBMET603	PC-PBL	PB	Operations Management	4	60	0	0	60	120	40	40	60	40	100
4	D	26PEMET63N	PE	PE	Program Elective-3	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
5	E	26OEMET61N/ 26IEMET611	OE/ ILE	OE/IE	Open Elective-1/Industry Linked Elective-1	3	45	0	0	45	90	40	40	40	60	100
6	F	26GCEST566	ESC	GC	Design Thinking and Product Development (Group specific)	2	30	0	0	30	60	40	40	40	60	100
		26UCHUT567	HMC	UC	Constitution of India											
7	G	26PCMEL607	PCL	PC	Computer Aided Design and Analysis Lab	2	0	0	45	15	60	-	-	50	50	100
8	H	26PCMEL608	PCL	PC	Heat Transfer Lab	2	0	0	45	15	60	-	-	50	50	100
9			SEC	MC	MOOC (8 weeks)	1	0	0	0	30	30	-	-	-	-	-
TOTAL						**24/ 26**	**270**	**15**	**90**	**345/ 405**	**720/ 780**					

Industrial Visit: Maximum 12 days are permitted in S5/S6, not exceeding more than 6 working days.
Industrial Training: Students who are not participating in the industrial visit must attend industrial training during that period.

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

SEMESTER 7 (S7)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PEMET74N/ 26PEMEM74N	PE	PE	Program Elective-4 (Self Study/MOOC/ONLINE)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
2	B	26PEMET75N/ 26PEMEM75N	PE	PE	Program Elective-5 (Self Study/MOOC/ONLINE)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
3	C	26UEHUT71N / 26UEHUM71N	HMC	UE	HMC Elective (Self Study/ MOOC/ONLINE)	2	30	0	0	30	60	40	40	50	50	100
4	D	26OEMET72N / 26IEMET721/ 26OEMEM72N	OE/ ILE	OE/IE	Open Elective-2/ Industry Linked Elective-2 (Self Study/ MOOC/ONLINE)	3	45	0	0	45	90	40	40	40	60	100
5	E	26PCMES705	PWS	PC	Seminar	2	0	0	60	0	60	-	-	50	-	50
6	F	26PCMEP706/ 26PCMEI706	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months)	5	0	0	150	0	150	-	-	100	-	100
					TOTAL	**18/ 20/ 22**	**165**	**0**	**210**	**165/ 225/ 285**	**540/ 600/ 660**					

SEMESTER 8 (S8)

Sl.	Slot	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
							L	T	P	SL		IAT 1	IAT 2			
1	A	26PEMET86N / 26PEMEM86N	PE	PE	Program Elective-6 (Self Study/ MOOC/ONLINE)	3/5	45	0	0	45/ 105	90/ 150	40	40	40	60	100
2	B	26UCHUT802 / 26UCHUM802	HMC	UC	Organizational Behavior and Business Communication (Self Study/MOOC/ONLINE)	2	30	0	0	30	60	40	40	50	50	100
3	C	26OEMET83N/ 26IEMET831/ 26OEMEM83N	OE/ ILE	OE/IE	Open Elective-3/Industry Linked Elective-3 (Self Study/ MOOC/ONLINE)	3	45	0	0	45	90	40	40	40	60	100
4	D	26PCMEP806/ 26PCMEI806/ 26PCMEJ806	PWS	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project - Phase II	5	0	0	150	0	150	-	-	100	-	100
					TOTAL	**13/ 15**	**120**	**0**	**150**	**120 / 180**	**390/ 450**					

TOTAL PROGRAMME CREDITS (S1 – S8):
165 + Additional Credits from level 5 courses (if awarded) + 3 Credits from Activity Points

PROGRAMME ELECTIVES, OPEN ELECTIVES & HMC ELECTIVES

***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. - 2026 regulations. If those conditions are not fulfilled, the student will receive only 3 credits for the course.*

PROGRAM ELECTIVE-1

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET411	PE	PE	Turbo Machinery	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET412	PE	PE	Nuclear Energy	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET413	PE	PE	Composite Materials	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET414	PE	PE	Components of Intelligent Systems	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET416	PE	PE	Advanced Metal Joining Techniques	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET417	PE	PE	Technology Management	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET418	PE	PE	Supply Chain and Logistics Management	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET415**	**PE**	**PE**	**Advanced Mechanics of Solids**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-2

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET521	PE	PE	Finite Element Methods	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET522	PE	PE	Design for Manufacture and Assembly	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET523	PE	PE	Computer Aided Design and Analysis	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET524	PE	PE	Additive Manufacturing	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET526	PE	PE	Energy Economics and Policy	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET527	PE	PE	Human Resources Management	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET528	PE	PE	Operations Research	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET525**	**PE**	**PE**	**Instrumentation and Control Systems**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-3

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET631	PE	PE	Power Plant Engineering	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET632	PE	PE	Compressible Fluid Flow	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET633	PE	PE	Industrial Tribology	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET634	PE	PE	Computational Fluid Dynamics	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET636	PE	PE	Non-Destructive Testing	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET637	PE	PE	Industrial Safety Engineering	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET638	PE	PE	Marketing Management	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET635**	**PE**	**PE**	**Advanced Materials**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-4

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET741	PE	PE	Industrial Engineering	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET742	PE	PE	Automobile Engineering	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET743	PE	PE	Design of Machine Elements	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET744	PE	PE	Failure Analysis and Design	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET746	PE	PE	Lean Manufacturing	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET747	PE	PE	Reliability Engineering	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET748	PE	PE	Robotics	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET745**	**PE**	**PE**	**Gas Turbine and Jet Propulsion**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-5

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET751	PE	PE	Refrigeration and Air Conditioning	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET752	PE	PE	Acoustics and Noise Control	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET753	PE	PE	Aerospace Engineering	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET754	PE	PE	Renewable Energy Engineering	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET756	PE	PE	Mobile Robotics	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET757	PE	PE	Flexible Manufacturing Systems	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET758	PE	PE	Quality Engineering and Management	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET755**	**PE**	**PE**	**Optimization Techniques**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

PROGRAM ELECTIVE-6

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26PEMET861	PE	PE	Cryogenic Engineering	3	45	0	0	45	90	40	40	40	60	100
2	26PEMET862	PE	PE	Pressure Vessel and Piping Design	3	45	0	0	45	90	40	40	40	60	100
3	26PEMET863	PE	PE	Hybrid and Electric Vehicles	3	45	0	0	45	90	40	40	40	60	100
4	26PEMET864	PE	PE	Micro and Nano Manufacturing	3	45	0	0	45	90	40	40	40	60	100
5	26PEMET866	PE	PE	Advanced Numerical Control in Manufacturing	3	45	0	0	45	90	40	40	40	60	100
6	26PEMET867	PE	PE	Metal Additive Manufacturing	3	45	0	0	45	90	40	40	40	60	100
7	26PEMET868	PE	PE	Nanotechnology	3	45	0	0	45	90	40	40	40	60	100
8	**26PEMET865**	**PE**	**PE**	**Aircraft Design**	**5/3**	**45**	**0**	**0**	**105**	**150**	**40**	**40**	**40**	**60**	**100**

OPEN ELECTIVE-1

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEMET611	OE	OE	Human Resource Management	3	45	0	0	45	90	40	40	40	60	100
2	26OEMET612	OE	OE	Engineering Instruments and Measurements	3	45	0	0	45	90	40	40	40	60	100
3	26OEMET613	OE	OE	Automotive Technology	3	45	0	0	45	90	40	40	40	60	100
4	26OEMET614	OE	OE	Renewable Energy Engineering	3	45	0	0	45	90	40	40	40	60	100
5	26OEMET615	OE	OE	Quality Engineering	3	45	0	0	45	90	40	40	40	60	100
6	26OEMET616	OE	OE	Engineering Materials	3	45	0	0	45	90	40	40	40	60	100
7	26OEMET617	OE	OE	Turbomachinery	3	45	0	0	45	90	40	40	40	60	100

OPEN ELECTIVE-2

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEMET721	OE	OE	Introduction to Business Analytics	3	45	0	0	45	90	40	40	40	60	100
2	26OEMET722	OE	OE	Lithographic Processes	3	45	0	0	45	90	40	40	40	60	100
3	26OEMET723	OE	OE	Robotics	3	45	0	0	45	90	40	40	40	60	100
4	26OEMET724	OE	OE	Power Plant Engineering	3	45	0	0	45	90	40	40	40	60	100
5	26OEMET725	OE	OE	Operation Research	3	45	0	0	45	90	40	40	40	60	100
6	26OEMET726	OE	OE	Additive Manufacturing	3	45	0	0	45	90	40	40	40	60	100
7	26OEMET727	OE	OE	Finite Element Methods	3	45	0	0	45	90	40	40	40	60	100

OPEN ELECTIVE-3

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT 1	IAT 2			
1	26OEMET821	OE	OE	Industrial Revolution X	3	45	0	0	45	90	40	40	40	60	100
2	26OEMET822	OE	OE	Quantitative Techniques for Engineers	3	45	0	0	45	90	40	40	40	60	100
3	26OEMET823	OE	OE	Surface Coating Technology	3	45	0	0	45	90	40	40	40	60	100
4	26OEMET824	OE	OE	Solar Energy Conservation Systems	3	45	0	0	45	90	40	40	40	60	100
5	26OEMET825	OE	OE	Reliability Engineering and Maintenance	3	45	0	0	45	90	40	40	40	60	100
6	26OEMET826	OE	OE	Non-Destructive Testing	3	45	0	0	45	90	40	40	40	60	100
7	26OEMET827	OE	OE	Computational Heat Transfer	3	45	0	0	45	90	40	40	40	60	100

HMC ELECTIVE

Sl.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT1	IAT2			
1	26UEHUT711	HMC	UE	Project Management: Planning, Execution, Evaluation and Control	2	30	0	0	30	60	40	40	50	50	100
2	26UEHUT712	HMC	UE	Proficiency course in Foreign Language (MOOC only)	2	0	0	0	60	60	-	-	-	-	-
3	26UEHUT713	HMC	UE	Financial Management	2	30	0	0	30	60	40	40	50	50	100

MINOR PROGRAM - INTELLIGENT SYSTEMS DESIGN AND MANUFACTURING

Sem.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT1	IAT2			
S3	26MNMET309	MN	MN	Introduction to product design and Associated Development Tools	4	45	0	15	60	120	40	40	40	60	100
S4	26MNMET409/ 26MNMEM40N	MN	MN	Introduction to Computational Methods / MOOC	4	45	0	15	60	120	40	40	40	60	100
S5	26MNMET509/ 26MNMEM50N	MN	MN	Intelligent Design Practices and Smart Manufacturing / MOOC	4	45	15	0	60	120	40	40	40	60	100
S6	26MNMET609/ 26MNMEM60N	MN	MN	Mechatronics and robotics / MOOC	3	45	0	0	45	90	40	40	40	60	100
				TOTAL	**15**										

Slot M is assigned to Minor Examinations in the respective semesters.

HONOURS PROGRAM

Sem.	Course Code	Type	Cat.	Course Title	Cr.	Hour Structure				Total Hrs.	Internal Test		CIA	SEE	Overall Marks
						L	T	P	SL		IAT1	IAT2			
S4	26HNMET409	HN	HN	Artificial Intelligence in Human Resource Management	4	45	15	0	60	120	40	40	40	60	100
S5	26HNMET509/ 26HNMEM50N	HN	HN	Micro Manufacturing / MOOC	4	45	15	0	60	120	40	40	40	60	100
S6	26HNMET609/ 26HNMEM60N	HN	HN	Optimization Methods for Engineering Design/ MOOC	4	45	15	0	60	120	40	40	40	60	100
S7	26HNMET709/ 26HNMEM70N	HN	HN	Microfluidics / MOOC	3	45	0	0	45	90	40	40	40	60	100
				TOTAL	**15**										

Slot N is assigned to Honours Examinations in the respective semesters.

COURSES UNDER VARIOUS COURSE CLASSIFICATION

Engineering Science Courses (ESC)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S1	GC	Engineering Mechanics	3
2		GC	Introduction to Mechanical Engineering and Civil Engineering	4
3		UC	Programming in C	4
4		GC	Basic Engineering workshop	1
5	S2	GC	Engineering Graphics	3
6		UC	Engineering Entrepreneurship & IPR	3
7		GC	Strength of Materials Workshop	1
8	S3	GC	Introduction to Electrical, Electronics and AI	3
9	S5/S6	GC	Design Thinking and Product Development (Group specific)	2
			TOTAL	24

Basic Science Course (BSC)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S1	GC	Matrices, Ordinary Differential Equations and Transforms	**3**
2	S1/S2	GC	Physics for Physical Science	**4**
3			Chemistry for Physical Science	**4**
4	S2	GC	Partial Differential Equations and Vector Calculus	**3**
5	S3	GC	Complex Analysis and Integral Transforms	**3**
6	S4	GC	Probability Distributions and Numerical Methods	**3**
			TOTAL	**20**

Humanities Based Courses (HMC)/Health and Wellness (HWP)				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S1/S2	UC	Health and Wellness	1
2	S1/S2	UC	Life Skills and Professional Communication	1
3	S3/S4	UC	Economics for Engineers	2
4	S3/S4	UC	Engineering Ethics and Sustainable Development	2
5	S5/S6	UC	Constitution of India	2
6	S7	UE	HMC Elective (Self Study/MOOC/ONLINE)	2
7	S8	UC	Organizational Behavior and Business Communication (Self Study/MOOC/ONLINE)	2
			TOTAL	**12**

Program Core (PC) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S2	PC	Mechanics of Solids	4
2	S3	PC	Material Science and Engineering	3
3	S3	PC	Fluid Mechanics and Machinery	4
4	S4	PC	Machine Tools and Metrology	3
5	S4	PC	Engineering Thermodynamics	4
6	S5	PC	Advanced Manufacturing Engineering	3
7	S5	PC	Mechatronics	3
8	S5	PC	Dynamics of Machinery	4
9	S6	PC	Heat and Mass Transfer	3
10	S6	PC	Machine Design	4
			TOTAL	**35**
Project Based Program Core (PC-PBL) Course				
1	S3	PB	Manufacturing Processes	4
2	S4	PB	Mechanics of Machinery	4
3	S5	PB	Thermal Engineering	4
4	S6	PB	Operations Management	4
			TOTAL	**16**
Program Core Laboratory (PCL) Course				
1	S3	PC	Computer Aided Machine Drawing & Modelling	2
2	S3	PC	Electrical and Electronics Lab	2
3	S4	PC	Fluid Mechanics and Hydraulic Machines Lab	2
4	S4	PC	Machine Tools Lab	2
5	S5	PC	Thermal Engineering Lab	2
6	S5	PC	Measurements and Vibration Lab	2
7	S6	PC	Computer Aided Design and Analysis Lab	2
8	S6	PC	Heat Transfer Lab	2
			TOTAL	**16**
			GRAND TOTAL for Program Core	**67**

Program Elective (PE) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S4	PE	Program Elective-1	3
2	S5	PE	Program Elective-2	3
3	S6	PE	Program Elective-3	3
4	S7	PE	Program Elective-4 (Self Study/MOOC/ONLINE)	3
5	S7	PE	Program Elective-5 (Self Study/MOOC/ONLINE)	3
6	S8	PE	Program Elective-6 (Self Study/ MOOC/ONLINE)	3
			TOTAL	**18**

Project/Internship & Seminar (PWS)				
Sl. No:	**Semester**	**Course Category**	**Course Name**	**Credits**
1	S7	PC	Seminar	2
2		PC	Option 1: Major Project Option 2: Internship (4-6 Months)	5
3	S8	PC	Option 1: Major Project Option 2: Internship (4-6 Months) Option 3: Major Project Phase-2 (For the students who have not opted for internship in either S7 or S8)	5
			TOTAL	**12**

Open Elective (OE) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S6	OE	Open Elective-1	3
2	S7	OE	Open Elective-2 (Self Study/ MOOC/ ONLINE)	3
3	S8	OE	Open Elective-3 (Self Study/ MOOC/ ONLINE)	3
			TOTAL	**9**

Skill Enhancement (SEC) Courses				
Sl. No:	**Semester**	**Course Category**	**Courses**	**Credits**
1	S1/S2	UC	MOOC (8 Weeks)	1
1	S3/S4	MC	MOOC (8 Weeks)	1
1	S5/S6	MC	MOOC (8 Weeks)	1
			TOTAL	**3**

Activity Points					
Sl. No.	**Group**	**Activities**	**Point**	**Credit**	**Minimum Credit Requirements**
Participation					**3 Credits (One credit from each Group)**
1	I	Short Term Internship (Minimum 2 weeks offline).	10 points	1 Credit for 40 Points	
2		Industrial Training (Minimum 2 weeks).	10 points		
3		Attending Conference (Within Institute or outside).	5 points		
4		Attended Conference with Paper Presentation (Within Institute or outside).	10 points		
5		Attended Workshops/STTP (Totaling 5 days of all programs per semester).	5 points per semester		
6		Professional Body member.	5 points		
7		Participation in Club activity within institutions.	2 points		
8		Participation in Inter/Intra college Hackathons/project competitions/ Technical festivals/Technical Events.	5 points per event		
9		Participation in Industrial Visit organized as per S5/S6 curriculum.	10 points		
10		Participation in GATE/National Exams (On submission of score card/result).	10 points		
11		Participation in IEDC Activities (minimum 2 activities per year).	10 points per year		
12		MOOC certification on Indian knowledge systems (IKS).	10 points		
Technical/ Academic/Cocurricular ACHIEVEMENTS					
1	II	Journal/Conference Publication.	40 points per publication	1 Credit for 40 Points	
2		Patent Publishing.	40 points per publication		
3		Department/College owned Magazine/newsletter publication.	5 points per year		
4		Winners in Inter/Intra college Hackathons/ project competitions/ Technical festivals/Technical Events.	20 points per win		
5		Winners of Club Activities (college level).	10 points per win		
6		Academic achievement (Above 9 SGPA in any semester).	20 points		
7		Silver or above certification in any NPTEL/SWAYAM MOOCs.	20 points for each MOOC		
8		Aptitude Proficiency Certification (GRE, CAT, GMAT etc.)/ Valid Gate Score.	40 points for every single score		
9		Funded Projects.	40 points per funded project		
10		Individual Start-up/Entrepreneurship activity validated by the department.	20 points (per year)		
11		Elected Student Representatives of Club/University/National/International Technical Bodies.	20 points		
12		Foreign Language Skill (TOEFL/IELTS/BEC exams).	20 points per score		
13		International Internship.	40 points		
14		Coordinators of Editorial board/Club/University/National Technical events.	10 points per year		
Extracurricular					
1	III	NSS, NCC, NSO (National Sports Organization) (minimum 2 years of activity done as member)	40 points	1 Credit for 40 Points	
2		Arts/Sports/Games: (Multiply by 2 for University level, Multiply by 3 for state level, Multiply by 4 for national level)	5 points for Participation per year		
			10 points for winning in any event per year		
			10 points for coordinating any event per year		

3		Union Activities	5 points for Participation in Election as a voter per year		
			10 points for Standing in Election as a candidate per year (must have come in top 5 in election result within the category)		
			15 points for Elected members		
4		Participation Social outreach program (initiated or approved by Department/College/NSS/Government bodies/professional bodies)	5 points per certificate		

Course classifications of the B. Tech Program and Overall Credit Structure			
S.No.	**Code Type**	**Category**	**Credits**
1	ESC	Engineering Science Courses	24
2	BSC	Basic Science Course	20
3	HMC/ HWP	Humanities Based Courses /Health and Wellness	12
4	PC	Program Core Courses	35
5	PC-PBL	Project Based Program Core Course	16
6	PCL	Program Core Laboratory Course	16
7	PE	Program Elective Courses	18
8	PWS	Project/Internship & Seminar	12
9	OE	Open Elective Courses	9
10	SEC	Skill Enhancement Courses	3
11	MSA	Mandatory Student Activities	3
		TOTAL CREDITS	**168**