

Department of Mechanical Engineering

[L= Lecture, T = Tutorials, P = Practical's, C=Credits]

DEPARTMENT OF MECHANICAL ENGINEERING										
Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER I										
THEORY COURSES										
1	HS	26HS1101	தமிழர் மரபு / Heritage of Tamils	1	0	0	1	40	60	100
2	HS	26EN1101	Professional English	3	0	0	3	40	60	100
3	BS	26MA1201	Matrices and Calculus	3	1	0	4	40	60	100
4	ES	26CS1302	C Programming	3	0	0	3	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
6	ES	26ME1301	Computer Aided Engineering Drawing	3	0	2	4	50	50	100
LABORATORY COURSES										
7	ES	26CS1L02	C Programming Laboratory	0	0	4	2	60	40	100
8	ES	26ME1L01	Engineering Practices Laboratory	0	0	4	2	60	40	100
MANDATORY COURSES										
9	MC	26MC1001	Mandatory Course I	1	0	0	0	0	0	0
TOTAL CREDITS:				19						

Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER II										
THEORY COURSES										
1	HS	26HS1102	Universal Human Values	2	0	0	2	40	60	100
2	HS	26HS2101	தமிழர்களும் தொழில் நுட்பமும் / Tamils and Technology	1	0	0	1	40	60	100
3	BS	26MA2203	Differential Equations and Transform Techniques	3	1	0	4	40	60	100
4	PC	26ME2401	Engineering Mechanics	3	1	0	4	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
5	BS	26PH2201	Physics for Mechanical Engineers	2	0	3	4	50	50	100
6	ES	26EE2301	Basic Electrical and Electronics Engineering	1	0	4	3	50	50	100
LABORATORY COURSES										
7	PC	26ME2L01	Product Engineering Laboratory	0	0	4	2	60	40	100
CAREER ENHANCEMENT COURSES										
8	CEC	26CD1X01	Communication Skills	1	0	0	1			
MANDATORY COURSES										
9	MC	26MC2001	Environmental Science	1	0	0	0	0	0	0
TOTAL CREDITS:				21						

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				L	T	P		CIA	ESE	Total
SEMESTER III										
THEORY COURSES										
1	PC	26ME3401	Engineering Thermodynamics	3	1	0	4	40	60	100
2	PC	26ME3402	Fluid Mechanics and Machinery	3	0	0	3	40	60	100
3	PC	26ME3403	Mechanics of Solids	3	0	0	3	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
4	PC	26ME3404	Manufacturing Technology-I	3	0	2	4	50	50	100
5	ES	26IT3301	Basics of Python Programming	3	0	2	4	50	50	100
LABORATORY COURSES										
6	PC	26ME3L01	Fluid Mechanics and Strength of Materials Laboratory	0	0	4	2	60	40	100
7	PC	26ME3L02	Computer Aided Machine Drawing Laboratory	0	0	4	2	60	40	100
8	HS	26EN3L01	English Language Proficiency Laboratory	0	0	4	2	60	40	100
CAREER ENHANCEMENT COURSES										
9	CEC	26CD3X01	Logical & Analytical Thinking	1	0	0	1			
TOTAL CREDITS:				25						

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				L	T	P		CIA	ESE	Total
SEMESTER IV										
THEORY COURSES										
1	HS	26HS3101	Climate Change and Sustainability	2	0	0	2	40	60	100
2	BS	26MA4201	Statistics and Numerical Methods	3	1	0	4	40	60	100
3	PC	26ME4401	Industrial Metallurgy	3	0	0	3	40	60	100
4	PC	26ME4402	Manufacturing Technology-II	3	0	0	3	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
5	PC	26ME4403	Thermal Engineering	3	0	2	4	50	50	100
6	PC	26ME4404	Metrology and Measurements	3	0	2	4	50	50	100
LABORATORY COURSES										
7	PC	26ME4L01	Special Machines Laboratory	0	0	4	2	60	40	100
CAREER ENHANCEMENT COURSES										
8	CEC	26CD4X01	Advanced Aptitude & Reasoning	1	0	0	1			
TOTAL CREDITS:				23						

Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER V										
THEORY COURSES										
1	PC	26ME5401	Machine Design	3	0	1	4	40	60	100
2	PC	26ME5402	Theory of Machines	3	0	0	3	40	60	100
3	PE	26MEXXX	Professional Elective-I	3	0	0	3	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
4	PC	26ME5403	Heat and Mass Transfer	3	0	2	4	50	50	100
5	PC	26ME5404	Industrial Robotics	3	0	2	4	50	50	100
LABORATORY COURSES										
6	PC	26ME5L01	Dynamics Laboratory	0	0	4	2	60	40	100
7	PC	26ME5L02	Computer Aided Modeling and Prototyping Laboratory	0	0	4	2	60	40	100
CAREER ENHANCEMENT COURSES										
8	CEC	26CD5X01	Professional Coding for Career Development	1	0	0	1			
TOTAL CREDITS:				23						

Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER VI										
THEORY COURSES										
1	PC	26ME6401	Additive Manufacturing Technology	3	0	0	3	40	60	100
2	PE	26MEXXX	Professional Elective-II	3	0	0	3	40	60	100
3	PE	26MEXXX	Professional Elective-III	3	0	0	3	40	60	100
4	OE	26MEXXX	Open Elective-I	3	0	0	3	40	60	100
5	PC	26MEXXX	Industry Supported Course	0	0	4	2	40	60	100
THEORY COURSES WITH LABORATORY COMPONENT										
6	PC	26ME6402	Automation and IoT	3	0	2	4	50	50	100
7	PC	26ME6403	Finite Element Methods	3	0	2	4	50	50	100
CAREER ENHANCEMENT COURSES										
8	CEC	26CD6X01	Advanced Programming Skills	1	0	0	1			
PROJECT WORK										
9	PW	26ME6701	Mini Project	0	0	4	2			
TOTAL CREDITS:				25						

Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER VII										
THEORY COURSES										
1	HS	26HS7101	Research, Innovation and Entrepreneurship	2	0	0	2	40	60	100
2	PC	26ME6401	Power Generation Technologies	3	0	0	3	40	60	100
3	PE	26MEXXX	Professional Elective-IV	3	0	0	3	40	60	100
4	PE	26MEXXX	Professional Elective-V	3	0	0	3	40	60	100
5	OE	26MEXXX	Open Elective-II	3	0	0	3	40	60	100
CAREER ENHANCEMENT COURSES										
6	CEC	26CD7X01	Career Readiness & Employability Skills	1	0	0	1			
7	CEC	26INXXX	Internship	0	0	4	2			
PROJECT WORK										
8	PW	26MEXXX	Project Work -Phase I	0	0	4	2			
TOTAL CREDITS:				19						

Sl. No	Category	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
SEMESTER VIII										
PROJECT										
1	PW		Project Work- Phase II	0	0	16	08			
TOTAL CREDITS:				08						

LIST OF PROFESSIONAL ELECTIVES

Sl.No	Category	Course Code	Course Name	L	T	P	Credits	CIA	ESE	Total
Vertical 1: Product Design and Digital Manufacturing										
1	PE	26MEX401	Design Concepts in Engineering	3	0	0	3	40	60	100
2	PE	26MEX402	Ergonomics in Product Design	3	0	0	3	40	60	100
3	PE	26MEX403	Computer Aided Product Design	3	0	0	3	40	60	100
4	PE	26MEX404	Reverse Engineering	3	0	0	3	40	60	100
5	PE	26MEX405	Digital Manufacturing	3	0	0	3	40	60	100
6	PE	26MEX406	Industrial Internet of Things (IIoT)	3	0	0	3	40	60	100
7	PE	26MEX407	Lean systems for Smart Manufacturing	3	0	0	3	40	60	100
8	PE	26MEX408	Industry 4.0	3	0	0	3	40	60	100
Vertical 2: Industrial Engineering and Energy Technology										
1	PE	26MEX409	Principle of Industrial Engineering	3	0	0	3	40	60	100
2	PE	26MEX410	Smart Logistics and Digital Supply Networks	3	0	0	3	40	60	100
3	PE	26MEX411	Industrial Safety	3	0	0	3	40	60	100
4	PE	26MEX412	Operations Research	3	0	0	3	40	60	100
5	PE	26MEX413	Electric and Hybrid Vehicles	3	0	0	3	40	60	100
6	PE	26MEX414	Renewable Energy Technology	3	0	0	3	40	60	100
7	PE	26MEX415	Alternative Fuels and Energy Systems	3	0	0	3	40	60	100
8	PE	26MEX416	Energy Storage Technology	3	0	0	3	40	60	100
Vertical 3: 3D Printing and Drone Technology										
1.	PE	26MEX417	3D Printing Materials and Applications	3	0	0	3	40	60	100
2	PE	26MEX418	Design for Additive Manufacturing	3	0	0	3	40	60	100
3	PE	26MEX419	3D Printing for Medical Applications	3	0	0	3	40	60	100
4	PE	26MEX420	Computational tools for additive manufacturing	3	0	0	3	40	60	100
5	PE	26MEX421	UAV Systems Design and Fundamentals	3	0	0	3	40	60	100
6	PE	26MEX422	Drone Technology and Applications	3	0	0	3	40	60	100

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7	PE	26MEX423	Embedded Systems and Flight Electronics for UAVs	3	0	0	3	40	60	100
8	PE	26MEX424	Advanced UAVs and Autonomous Drones	3	0	0	3	40	60	100
Vertical 4: Robotics and Automation										
1.	PE	26MEX425	Intelligent Robotics	3	0	0	3	40	60	100
2	PE	26MEX426	Actuators and Drives	3	0	0	3	40	60	100
3	PE	26MEX427	Robot Kinematics and Dynamics	3	0	0	3	40	60	100
4	PE	26MEX428	Industrial Robotics and Robot Programming	3	0	0	3	40	60	100
5	PE	26MEX429	PLC and SCADA Systems	3	0	0	3	40	60	100
6	PE	26MEX430	Machine Vision and AI for Robotics	3	0	0	3	40	60	100
7	PE	26MEX431	Collaborative Robots	3	0	0	3	40	60	100
8	PE	26MEX432	Flexible and Autonomous Systems for Automation	3	0	0	3	40	60	100
Vertical 5: Artificial Intelligence & Machine Learning										
1	PE	26MEX433	Computer Vision and Image Processing	3	0	0	3	40	60	100
2	PE	26MEX434	Introduction to Artificial Intelligence	3	0	0	3	40	60	100
3	PE	26MEX435	Programming for Artificial Intelligence and Machine Learning	3	0	0	3	40	60	100
4	PE	26MEX436	Fundamentals of Machine Learning	3	0	0	3	40	60	100
5	PE	26MEX437	Machine Learning and Data Analytics	3	0	0	3	40	60	100
6	PE	26MEX438	Deep Learning and Neural Networks	3	0	0	3	40	60	100
7	PE	26MEX439	Probabilistic Machine Learning	3	0	0	3	40	60	100
8	PE	26MEX440	Optimization Techniques for Machine Learning	3	0	0	3	40	60	100
Vertical 6: Diversified Courses										
1.	PE	26MEX441	Heating Ventilation and Air-Conditioning	3	0	0	3	40	60	100
2	PE	26MEX442	Composite Material and Mechanics	3	0	0	3	40	60	100
3	PE	26MEX443	Automobile Engineering	3	0	0	3	40	60	100

4	PE	26MEX444	Cryogenic Engineering	3	0	0	3	40	60	100
5	PE	26MEX445	Production Planning and Quality Control	3	0	0	3	40	60	100
6	PE	26MEX446	Process Planning and Cost Estimation	3	0	0	3	40	60	100
7	PE	26MEX447	Computational Fluid Dynamics	3	0	0	3	40	60	100
8	PE	26MEX448	Applied Hydraulics and Pneumatics	3	0	0	3	40	60	100

LIST OF OPEN ELECTIVES

<u>S.No</u>	DEPT.	Course Code	Course Title	Hours/Week			Credits	Maximum Marks		
				L	T	P		CIA	ESE	Total
1.	AIDS	26ADX601	Exploratory Data Analysis	3	0	0	3	40	60	100
2.	CSE	26CSX601	Introduction to Java Programming	3	0	0	3	40	60	100
3.	CSE (CS)	26CYX601	Introduction to Cyber Security	3	0	0	3	40	60	100
4.	EEE	26EEX601	Electrical Safety and Standards	3	0	0	3	40	60	100
5.	EEE	26EEX602	IoT for Smart Energy	3	0	0	3	40	60	100
6.	ECE	26ECX601	Basics of Biomedical Instrumentation	3	0	0	3	40	60	100
7.	ECE	26ECX602	Fundamentals of Microprocessor and Microcontrollers	3	0	0	3	40	60	100
8.	IT	26ITX601	Industry 5.0	3	0	0	3	40	60	100
9.	MECH	26MEX601	Drone Design and Development	3	0	0	3	40	60	100
10.	Chemistry	26CHX601	Solid and E-Waste Management	3	0	0	3	40	60	100
11.	Chemistry	26CHX602	Energy Conservation and Management	3	0	0	3	40	60	100
12.	Chemistry	26CHX603	Sustainable Development Goals and Engineering Practices	3	0	0	3	40	60	100
13.	Physics	26PHX601	Nano Science and Technology	3	0	0	3	40	60	100
14.	Physics	26PHX602	Nano Electronics and Photonics	3	0	0	3	40	60	100
15.	Mathematics	26MAX601	Essential Statistical Techniques for Data Science	3	0	0	3	40	60	100
16.	Mathematics	26MAX602	Optimization Methods	3	0	0	3	40	60	100

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			and Applications.							
17.	English	26ENX601	English for Digital media	3	0	0	3	40	60	100
18.	MBA	26PMX601	Stress Management	3	0	0	3	40	60	100
19.	MBA	26PMX602	AI in Human Resource Management	3	0	0	3	40	60	100
20.	MBA	26PMX603	Ethical values of business	3	0	0	3	40	60	100
21.	MBA	26PMX604	Entrepreneurship Development	3	0	0	3	40	60	100

LIST OF OPEN ELECTIVES NPTEL

Sl.No	Course Title
1.	Fundamentals of Semiconductor Devices
2.	Principles of Communication Systems – I
3.	Introduction to Machine Learning
4.	Introduction to Artificial Intelligence
5.	Smart Materials and Structures
6.	Cryogenic Engineering
7.	EV Essentials
8.	Introduction to Green Energy Technologies
9.	Cryptography and Network Security
10.	Introduction to Database Concepts
11.	Data Analytics with Python
12.	Social Networks
13.	Entrepreneurship Essentials
14.	United Nations Sustainable Development Goals (UN SDGs)
15.	Energy and the Climate Crisis: The Path to Net-Zero Emissions
16.	Elements of Literature and Creative Communication

***Course titles are subject to change as per NPTEL/SWAYAM schedule.**

***Only 12-week courses are considered for 3 credits.**

LIST OF MANDATORY COURSES

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S. No	Course Code	Course Title	Hours / Week			Credits
			L	T	P	
1	26MC1001	Indian Constitution	1	-	-	-
2	26MC1002	Indian Knowledge Systems	1	-	-	-
3	26MC2001	Environmental Science	1	-	-	-

CREDIT SUMMARY

S.No	Category	Credits/Semester								Credits	Credits %
		I	II	III	IV	V	VI	VII	VIII		
1	HS	4	3	2	2	-	-	2	-	13	7.97%
2	BS	4	8	-	4	-	-	-	-	16	9.82%
3	ES	11	3	4	-	-	-	-	-	18	11.0%
4	PC	-	6	18	16	19	13	3	-	75	46.0%
5	PE	-	-	-	-	3	6	6	-	15	9.2%
6	OE	-	-	-	-	-	3	3	-	6	3.7%
7	PW	-	-	-	-	-	2	2	8	12	7.4%
8	CEC	-	1	1	1	1	1	3	-	8	4.91%
9	MC	NC	NC	-	-	-	-	-	-	-	-
	Total	19	21	25	23	23	25	19	8	163	100%

Total Number of Credits: 163

HS-Humanities& Science; BS-Basic Science; EC-Engineering Science; PC-Professional Core; PE-Professional Elective; OE-Open Elective

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