

ADHIYAMAAN COLLEGE OF ENGINEERING

(AUTONOMOUS)

HOSUR- 635 130

DEPARTMENT OF MECHANICAL ENGINEERING

B.E. MECHANICAL ENGINEERING

REGULATION: 2022

CURRICULUM

Sl No.	I Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
-	122IP001	Induction Programme	-	-	-	-	-
THEORY							
1	122ENI01	Professional English - I	HS/EEC	2	0	2	3
2	122MAT02	Matrices and Calculus	BS	3	1	0	4
3	122PHT03	Engineering Physics	BS	2	0	0	2
4	122CYT04	Engineering Chemistry	BS	2	0	0	2
5	122EGT05	Engineering Graphics	ES	2	0	4	4
6	122EET06	Basic Electrical Electronics and Instrumentation Engineering	ES	3	0	0	3
7	122HST07	Heritage of Tamils*	HS	1	0	0	1
PRACTICALS							
8	122CYP08	Engineering Chemistry Laboratory	BS	0	0	2	1
9	122EPP09	Engineering Practice Laboratory	ES	0	0	2	1
Total Mandatory Credits				15	1	10	20

Sl No.	II Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	222ENI01	Professional English - II	HS/EEC	2	0	2	3
2	222MAT02	Probability and Statistics	BS	3	1	0	4
3	222EST03	Environmental Science and Sustainability	BS	2	0	0	2
4	222PPI04	Python Programming	BS	3	0	2	4
5	222MST05	Material Science	ES	2	0	0	2
6	222EMT06	Engineering Mechanics	ES	3	0	0	3
7	222HST07	Tamils and Technology*	HS	1	0	0	1
PRACTICALS							
8	222PHP08	Engineering Physics Laboratory	BS	0	0	2	1
Total Mandatory Credits				16	1	6	19

* Credit mentioned will be Over and Above the total credit required for the award of the degree.

Sl No.	III Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	322MAT01	Transforms and Partial Differential Equations	BS	3	1	0	4
2	322MET02	Engineering Thermodynamics	PC	3	0	0	3
3	322MET03	Fluid Mechanics and Machinery	PC	3	0	0	3
4	322MET04	Strength of Materials	PC	3	0	0	3
5	322MET05	Engineering Materials and Metallurgy	PC	3	0	0	3
6	322MEI06	Manufacturing Technology	PC	3	0	2	4
PRACTICALS							
7	322MEP07	Material Testing and Metallurgy Laboratory	PC	0	0	2	1
8	322MEP08	Fluid Mechanics and Machinery Laboratory	PC	0	0	2	1
9	322MEP09	Professional Development*	EEC	0	0	2	1
Total Mandatory Credits				18	1	8	22

Sl No.	IV Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	422MAT01	Numerical Methods	BS	3	1	0	4
2	422MEI02	Thermal Engineering	PC	3	0	2	4
3	422MET03	Machine Drawing	PC	2	0	2	3
4	422MET04	Digital Manufacturing and 3D Printing	PC	3	0	0	3
5	422MET05	Electric Systems for E-Mobility	PC	3	0	0	3
6	422MET06	Kinematics of Machinery	PC	3	0	0	3
PRACTICALS							
7	422MEP07	Computer Aided Machine Drawing	PC	0	0	2	1
8	422MEP08	Metal Cutting Laboratory	PC	0	0	2	1
9	422MEP09	Math Solver*	EEC	0	0	2	1
Total Mandatory Credits				17	1	10	22

* Credit mentioned will be Over and Above the total credit required for the award of the degree.

Sl No.	V Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	522MET01	Metrology and Instrumentation	PC	3	0	0	3
2	522MET02	Heat and Mass Transfer	PC	3	0	0	3
3	522MEI03	Dynamics of Machinery	PC	3	0	2	4
4	522MET04	Design of Machine Elements	PE	3	0	0	3
5	522MEEXX	Professional Elective I	PE	3	0	0	3
6	522XXOXX	Open Elective I	OE	3	0	0	3
7	522MEM0X	Mandatory Course I*	MC	1	0	0	1
PRACTICALS							
8	522MEP07	Heat Transfer Laboratory	PC	0	0	2	1
9	522MEP08	Metrology and Instrumentation Laboratory (Signed MoU with Industry)	EEC	0	0	2	1
10	522MEP09	Internship	EEC	0	0	0	2
Total Mandatory Credits				19	0	6	21

Sl No.	VI Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	622MET01	Applied Hydraulics and Pneumatics	PC	3	0	0	3
2	622MET02	Hybrid and Electric Vehicle	PC	3	0	0	3
3	622MEI03	Finite Element Analysis	PC	3	0	2	4
4	622MEEXX	Professional Elective II	PE	3	0	0	3
5	622MEEXX	Professional Elective III	PE	3	0	0	3
6	622XXOXX	Open Elective II	OE	3	0	0	3
7	622MEM0X	Mandatory Course II*	MC	1	0	0	1
PRACTICALS							
8	622MEP07	E-Vehicles Laboratory	PC	0	0	2	1
9	622MEP08	Design and Fabrication Project (Signed MoU with Industry)	EEC	0	0	4	2
Total Mandatory Credits				19	0	8	22

* Credit mentioned for Mandatory Course I and II will be Over and Above the total credit required for the award of the degree.

Sl No.	VII Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	722MET01	Mechatronics and IOT	PC	3	0	0	3
2	722MEI02	CAD/CAM/CIM	PC	3	0	2	4
3	722MET03	Advanced IC Engines	PC	3	0	0	3
4	722MEEXX	Professional Elective IV	PE	3	0	0	3
5	722MEEXX	Professional Elective V	PE	3	0	0	3
6	722MEEXX	Professional Elective VI	PE	3	0	0	3
PRACTICALS							
7	722MEP07	Mechatronics Laboratory	PC	0	0	2	1
8	722MEP08	Advanced IC Engines Laboratory	PC	0	0	2	1
9	722MEP09	Internship	EEC	0	0	0	2
Total Mandatory Credits				18	0	6	23

Sl No.	VIII Semester		Category	Hours/Week			
	Course Code	Course Title		L	T	P	C
THEORY							
1	822MEEXX	Professional Elective VII	PE	3	0	0	3
2	822MEEXX	Professional Elective VIII	PE	3	0	0	3
PRACTICALS							
3	822MEP01	Project Work	EEC	0	0	18	9
Total Mandatory Credits				6	0	18	15

**COURSES WHICH CAN BE CHOSEN DURING SEMESTER V
(Mandatory Courses I)**

Course Code	Course Name	Category	L	T	P	C
522MEM01	Introduction to Women and Gender Studies	MC	1	0	0	1
522MEM02	Elements of Literature	MC	1	0	0	1
522MEM03	Film Appreciation	MC	1	0	0	1
522MEM04	Disaster Management	MC	1	0	0	1

**COURSES WHICH CAN BE CHOSEN DURING SEMESTER VI
(Mandatory Courses II)**

Course Code	Course Name	Category	L	T	P	C
622MEM01	Well Being with Traditional Practices (Yoga, Ayurveda and Siddha)	MC	1	0	0	1
622MEM02	History of Science and Technology in India	MC	1	0	0	1
622MEM03	Political And Economic Thought for a Humane Society	MC	1	0	0	1
622MEM04	State, Nation Building and Politics in India	MC	1	0	0	1
622MEM05	Industrial Safety	MC	1	0	0	1

PROFESSIONAL ELECTIVE COURSES: VERTICALS

VERTICAL 1	VERTICAL 2	VERTICAL 3	VERTICAL 4	VERTICAL 5
FUTURE MOBILITY SYSTEMS	CLEAN AND GREEN ENERGY TECHNOLOGIES	ROBOTICS AND AUTOMATION	DIGITAL AND GREEN MANUFACTURING	MECHANICS OF MATERIALS
Automotive Materials, Components, Design and Testing	Energy Storage Devices	Sensors and Instrumentation	Green Manufacturing Design and Practices	Theory of Elasticity and Plasticity
CAE and CFD approach in Future Mobility	Renewable Energy Technologies	Electrical Drives and Actuator	Process Planning and Cost Estimation	Design of Jigs and Fixtures
Vehicle Maintenance	Machine Learning for Intelligent System in Heat transfer	Robotic Process and Industrial Automation	Composite Materials	Design of Transmission Systems
Conventional and Futuristic Vehicle Technology	Energy Conservation in Industries	Design for Manufacturing	Micro and Precision Manufacturing	Modeling and Simulation in Materials Engineering
Batteries and Management System	Equipment for Pollution Control	Industry 4.0	Lean Manufacturing	Experimental Stress Analysis
Renewable Powered Off Highway Vehicles and Emission Control Technology	Bioenergy Conversion Technologies	Artificial Intelligence for Manufacturing	Green Supply Chain Management	Fracture Mechanics and Failure Analysis
Fuel Cell Technologies	Energy Efficient Buildings	Operational Management	Product Life Cycle Management	Creep and Fatigue Behaviour of Materials

Registration of Professional Elective Courses from Verticals:

Professional Elective Courses will be registered in Semester V, VI, VII and VIII. These courses are listed in groups called verticals that represent a particular area of specialization / diversified group. Students are permitted to choose all the Professional Electives from a particular vertical or from different verticals. Further, only one Professional Elective course shall be chosen in a semester horizontally (row-wise). However, two courses are permitted from the same row, provided one course is enrolled in semester V and another in semester VI.

PROFESSIONAL ELECTIVE COURSES: VERTICALS**VERTICAL 1: FUTURE MOBILITY SYSTEMS**

Sl. No.	Course Code	Course Name	Category	L	T	P	C
1	X22MEE01	Automotive Materials, Components, Design and Testing	PE	3	0	0	3
2	X22MEE02	CAE and CFD approach in Future Mobility	PE	3	0	0	3
3	X22MEE03	Vehicle Maintenance	PE	3	0	0	3
4	X22MEE04	Conventional and Futuristic Vehicle Technology	PE	3	0	0	3
5	X22MEE05	Batteries and Management System	PE	3	0	0	3
6	X22MEE06	Renewable Powered Off Highway Vehicles and Emission Control Technology	PE	3	0	0	3
7	X22MEE07	Fuel Cell Technologies	PE	3	0	0	3

VERTICAL 2: CLEAN AND GREEN ENERGY TECHNOLOGIES

Sl. No.	Course Code	Course Name	Category	L	T	P	C
1	X22MEE08	Energy Storage Devices	PE	3	0	0	3
2	X22MEE09	Renewable Energy Technologies	PE	3	0	0	3
3	X22MEE10	Machine Learning for Intelligent System in Heat transfer	PE	3	0	0	3
4	X22MEE11	Energy Conservation in Industries	PE	3	0	0	3
5	X22MEE12	Equipment for Pollution Control	PE	3	0	0	3
6	X22MEE13	Bioenergy Conversion Technologies	PE	3	0	0	3
7	X22MEE14	Energy Efficient Buildings	PE	3	0	0	3

VERTICAL 3: ROBOTICS AND AUTOMATION

Sl. No.	Course Code	Course Name	Category	L	T	P	C
1	X22MEE15	Sensors and Instrumentation	PE	3	0	0	3
2	X22MEE16	Electrical Drives and Actuator	PE	3	0	0	3
3	X22MEE17	Robotic Process and Industrial Automation	PE	3	0	0	3
4	X22MEE18	Design for Manufacturing	PE	3	0	0	3
5	X22MEE19	Industry 4.0	PE	3	0	0	3
6	X22MEE20	Artificial Intelligence for Manufacturing	PE	3	0	0	3
7	X22MEE21	Operational Management	PE	3	0	0	3

VERTICAL 4: DIGITAL AND GREEN MANUFACTURING

Sl. No.	Course Code	Course Name	Category	L	T	P	C
1	X22MEE22	Green Manufacturing Design and Practices	PE	3	0	0	3
2	X22MEE23	Process Planning and Cost Estimation	PE	3	0	0	3
3	X22MEE24	Composite Materials	PE	3	0	0	3
4	X22MEE25	Micro and Precision Manufacturing	PE	3	0	0	3
5	X22MEE26	Lean Manufacturing	PE	3	0	0	3
6	X22MEE27	Green Supply Chain Management	PE	3	0	0	3
7	X22MEE28	Product Life Cycle Management	PE	3	0	0	3

VERTICAL 5: MECHANICS OF MATERIALS

Sl. No.	Course Code	Course Name	Category	L	T	P	C
1	X22MEE29	Theory of Elasticity and Plasticity	PE	3	0	0	3
2	X22MEE30	Design of Jigs and Fixtures	PE	3	0	0	3
3	X22MEE31	Design of Transmission Systems	PE	3	0	0	3
4	X22MEE32	Modeling and Simulation in Materials Engineering	PE	3	0	0	3
5	X22MEE33	Experimental Stress Analysis	PE	3	0	0	3
6	X22MEE34	Fracture Mechanics and Failure Analysis	PE	3	0	0	3
7	X22MEE35	Creep and Fatigue Behaviour of Materials	PE	3	0	0	3

B.E. Mechanical Engineering Regulation 2022

Minimum number of Credits to be earned

Semester	I	II	III	IV	V	VI	VII	VIII	TOTAL
Credits	20	19	22	22	21	22	23	15	164

BOS Chairman

Principal