

S.A. ENGINEERING COLLEGE, CHENNAI-77

(Autonomous – Institute Level Research Centre, Affiliated to Anna University)

REGULATIONS 2024

CHOICE BASED CREDIT SYSTEM

B.E. MECHANICAL ENGINEERING

CURRICULUM FOR I TO VIII SEMESTERS

SEMESTER 1

SL. NO.	COURSE CODE	COURSE TITLE	CATEGOR Y	PERIODS PER WEEK			TOTAL CONTAC T PERIODS	CREDITS
				L	T	P		
THEORY								
1	TA3101	Heritage of Tamils	HSMC	1	0	0	1	1
2	HS3101	Professional English – I	HSMC	3	0	0	3	3
3	MA3101	Matrices and Calculus	BSC	3	1	0	4	4
4	PH3101	Engineering Physics	BSC	3	0	0	3	3
5	CY3101	Chemistry For Engineers	BSC	3	0	0	3	3
6	CS3101	Programming for problem solving using C	BSC	3	0	0	3	3
7	ME3101	Engineering Graphics	ESC	2	0	2	4	3
PRACTICAL								
8	CS3102	Programming for problem solving using C Laboratory	PCC	0	0	3	3	1.5
9	BS3101	Physics and Chemistry Laboratory	BSC	0	0	3	3	1.5
TOTAL				18	1	8	27	23

SEMESTER 2

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	TA3201	Tamils and Technology	HSMC	1	0	0	1	1
2	HS3201	Professional English – II	HSMC	3	0	0	3	3
3	MA3201	Complex Variables and Transforms	BSC	3	1	0	4	4
4	PH3202	Materials Science	BSC	3	0	0	3	3
5	EE3203	Basic Electrical and Electronics Engineering	ESC	3	0	0	3	3
6	ME3201	Engineering Mechanics	ESC	3	0	0	3	3
PRACTICAL								
7	GE3201	Engineering Practices Laboratory	ESC	0	0	3	3	1.5
8	EE3204	Basic Electrical and Electronics Engineering Laboratory	ESC	0	0	3	3	1.5
MANDATORY COURSE								
1	CY3201	Environmental Science and Sustainability	MC	2	0	0	2	1
TOTAL				18	1	6	25	21

SEMESTER 3

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	MA3302	Transforms and Partial Differential Equations	BSC	3	1	0	4	4
2	ME3301	Engineering Thermodynamics	PCC	3	0	0	3	3
3	ME3302	Fluid Mechanics and Machinery	ESC	3	0	0	3	3
4	ME3303	Engineering Materials and Metallurgy	PCC	3	0	0	3	3
5	ME3304	Manufacturing Technology	PCC	3	0	0	3	3
6	ME3305	Hydraulics and Pneumatics	PCC	3	0	0	3	3
PRACTICAL								
6	ME3306	Computer Aided Machine Drawing	ESC	0	0	3	3	1.5
7	ME3307	Manufacturing Technology Laboratory	PCC	0	0	3	3	1.5
EMPLOYABILITY ENHANCEMENT COURSES								
8	ME33VAC	Value added Course-I	EEC	0	0	3	3	0
9	ME33PT	Aptitude Skills-I	EEC	0	0	3	3	0
TOTAL				18	1	12	31	22

SEMESTER 4

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	MA3402	Statistics and Numerical Methods	BSC	3	1	0	4	4
2	ME3401	Theory of Machines - I	PCC	3	0	0	3	3
3	ME3402	Manufacturing Processes	PCC	3	0	0	3	3
4	ME3403	Strength of Materials for Mechanical Engineers	PCC	3	0	0	3	3
5	HS3401	Universal Human Values - II: Understanding Harmony and Ethical Human Conduct	HSMC	2	0	1	3	3
THEORY CUM LAB INTEGRATED								
6	ME3404	Thermal Engineering (Lab Integrated)	PCC	3	0	2	5	4
PRACTICAL								
7	ME3405	Strength of Materials and Fluid Machinery Laboratory	PCC	0	0	3	3	1.5
EMPLOYABILITY ENHANCEMENT COURSES								
8	HS3404	Corporate Communication and English Language Enhancement Laboratory	EEC	0	0	3	3	1.5
9	ME34VAC	Value added Course-II	EEC	0	0	3	3	0
10	ME34PT	Aptitude Skills-II	EEC	0	0	3	3	0
TOTAL				17	1	15	33	23

SEMESTER 5

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	ME3501	Design of Machine Elements	PCC	3	0	0	3	3
2		Professional Elective I	PEC	3	0	0	3	3
3		Professional Elective II	PEC	3	0	0	3	3
4		Open Elective I	OEC	3	0	0	3	3
THEORY CUM LAB INTEGRATED								
5	ME3508	Theory of Machines – II (Lab Integrated)	PCC	3	0	2	5	4
6	ME3509	Metrology and Measurements (Lab Integrated)	PCC	3	0	2	5	4
PRACTICAL								
7	ME3512	CAD/CAM Laboratory	PCC	0	0	3	3	1.5
EMPLOYABILITY ENHANCEMENT COURSES								
8	ME35VAC	Value added Course-III	EEC	0	0	3	3	0
9	ME35PT	Aptitude Skills-III	EEC	0	0	3	3	0
TOTAL				18	0	15	33	21.5

*Two weeks Summer Internship carries one credit and it will be done during IV semester summer vacation and same will be evaluated in V semester.

SEMESTER 6

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	ME3601	Design of Transmission Systems	PCC	3	0	0	3	3
2	ME3602	Automobile Engineering	PCC	3	0	0	3	3
3		Professional Elective III	PEC	3	0	0	3	3
4		Professional Elective IV	PEC	3	0	0	3	3
5		Open Elective – II	OEC	3	0	0	3	3
THEORY CUM LAB INTEGRATED								
6	ME3613	Heat and Mass Transfer (Lab Integrated)	PCC	3	0	2	5	4
PRACTICAL								
7	ME3614	Design and Fabrication Project	EEC	0	0	3	3	1.5
8	HS3606	Professional and Career Advancement Laboratory	HSMC	0	0	3	3	1.5
EMPLOYABILITY ENHANCEMENT COURSES								
9	ME36VAC	Value Added Course - IV	EEC	0	0	3	3	0
10	ME36PT	Aptitude Skills-IV	EEC	0	0	3	3	0
11	ME36SLC	Self-Learning Course (MOOC Courses)	EEC	0	0	0	0	1*
TOTAL				18	0	14	32	23

SEMESTER 7

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1	ME3701	Finite Element Analysis	PCC	3	0	0	3	4
2	ME3702	Hybrid and Electric Vehicle Technology	PCC	3	0	0	3	3
3	ME3703	Modern Robotics	PCC	3	0	0	3	3
4	ME3704	Mechatronics	PCC	3	0	0	3	3
5		Professional Elective V	PEC	3	0	0	3	3
6		Professional Elective VI	PEC	3	0	0	3	3
PRACTICAL								
7	ME3715	Computer Aided Analysis and Simulation Laboratory	PCC	0	0	3	3	1.5
8	ME3716	Industrial Robotics and 3D Printing Laboratory	PCC	0	0	4	4	2
9	ME3717	Project Work – Phase I	EEC	0	0	4	4	2
10	ME3718	Summer Internship*	EEC	0	0	0	4	2
AUDIT COURSE								
11		Indian Constitution	AC	1	0	0	1	0
EMPLOYABILITY ENHANCEMENT COURSES								
12	ME37VAC	Value Added Course - V	EEC	0	0	3	3	0
13	ME37PT	Aptitude Skills-V	EEC	0	0	3	3	0
TOTAL				19	0	15	38	26.5

SEMESTER 8

SL. NO	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
PRACTICAL								
1	ME3801	Project Work – Phase II	EEC	0	0	20	20	8
TOTAL				0	0	20	20	8

TOTAL CREDITS: 168

OPEN ELECTIVE COURSES

OPEN ELECTIVE I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	OME3501	Automotive Technology	OEC	3	0	0	3	3
2	OME3502	Robotics	OEC	3	0	0	3	3
3	OME3503	3D Printing & Technology	OEC	3	0	0	3	3

OPEN ELECTIVE II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	OME3601	Product Design and development	OEC	3	0	0	3	3
2	OME3602	Industry 4.0	OEC	3	0	0	3	3
3	OME3603	Conventional and Futuristic Vehicle Technology	OEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 5

PROFESSIONAL ELECTIVE I

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3502	Computer Aided Design and Manufacturing	PEC	3	0	0	3	3
2	ME3503	Digital Manufacturing and IoT	PEC	3	0	0	3	3
3	ME3504	Renewable Energy Sources	PEC	3	0	0	3	3
4	ME3505	Gas Dynamics and Jet Propulsion	PEC	3	0	0	3	3
5	ME3506	Fundamentals for AI for Mechanical Engineers	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 5

PROFESSIONAL ELECTIVE II

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3507	Operations Research	PEC	3	0	0	3	3
2	ME3508	Refrigeration and Air Conditioning	PEC	3	0	0	3	3
3	ME3509	Introduction to Data Science for Mechanical Engineers	PEC	3	0	0	3	3
4	ME3510	Industrial safety	PEC	3	0	0	3	3
5	ME3511	Fuel Cells	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 6

PROFESSIONAL ELECTIVE III

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3603	Industrial Robotics	PEC	3	0	0	3	3
2	ME3604	Smart & Green Manufacturing	PEC	3	0	0	3	3
3	ME3605	Drone Technologies	PEC	3	0	0	3	3
4	ME3606	Industrial Layout Design and Safety	PEC	3	0	0	3	3
5	ME3607	Non-traditional Machining Processes	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 6

PROFESSIONAL ELECTIVE IV

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3608	Process Planning and Cost Estimation	PEC	3	0	0	3	3
2	ME3609	Total Quality Management	PEC	3	0	0	3	3
3	ME3610	Machine Learning and Data Analytics	PEC	3	0	0	3	3
4	ME3611	Energy Storage Devices	PEC	3	0	0	3	3
5	ME3612	Vehicle Maintenance and Safety	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 7

PROFESSIONAL ELECTIVE V

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3705	Statistical Quality Control	PEC	3	0	0	3	3
2	ME3706	Industrial Management	PEC	3	0	0	3	3
3	ME3707	Engineering Economics and Cost Analysis	PEC	3	0	0	3	3
4	ME3708	Advanced Vehicle Engineering	PEC	3	0	0	3	3
5	ME3709	Failure Analysis and NDT Techniques	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES - SEM 7

PROFESSIONAL ELECTIVE VI

SL. NO.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIOD	CREDITS
				L	T	P		
1	ME3710	Product Life Cycle Management	PEC	3	0	0	3	3
2	ME3711	Lean Manufacturing	PEC	3	0	0	3	3
3	ME3712	Additive Manufacturing	PEC	3	0	0	3	3
4	ME3713	Composite Materials and Mechanics	PEC	3	0	0	3	3
5	ME3714	Power Plant Engineering	PEC	3	0	0	3	3

SUMMARY

B.E. MECHANICAL ENGINEERING (R2024)

S. No	Subject Area	Credits per Semester								Total Credits
		I	II	III	IV	V	VI	VII	VIII	
1	HSMC	4	4		3		1.5			12.5
2	BSC	14.5	7	4	4					29.5
3	ESC	3		4.5						7.5
4	PCC	1.5	9	13.5	14.5	12.5	10	16.5		77.5
5	PEC					6	6	6		18
6	OEC					3	3			6
7	EEC				1.5		2.5	4	8	16
8	Non-Credit /(Mandatory)		1					√		1
Total		23	21	22	23	21.5	23	26.5	8	168