



# Curriculum and Syllabi

## M.E. MEDICAL ELECTRONICS

### SEMESTERS I to IV

### Regulations 2025

**Programme: M.E. MEDICAL ELECTRONICS**

**2025 Regulations**

**(2025-27 Batch Onwards)**

**Curriculum for Semesters I to IV**

**SEMESTER I**

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/ External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
<b>Theory Cum Practical Course</b>														
1	25MS101	Embedded Systems and Internet of Things for Medical Application	3	0	2	3	45	0	30	45	120	4	50/50	PCC
<b>Theory Courses</b>														
2	25FC101	Advanced Applied Mathematics	3	1	0	4	45	15	0	60	120	4	40/60	FC
3	25RM101	Research Methodology and IPR	2	0	0	2	30	0	0	30	60	2	40/60	RMC
4	25MS102	Advanced Biomedical and Equipment	3	0	0	3	45	0	0	45	90	3	40/60	PCC
5	25MS103	Telematics for Health	3	0	0	3	45	0	0	45	90	3	40/60	PCC
6	25MS104	Anatomy and Physiology of Human body	3	0	0	3	45	0	0	45	90	3	40/60	PCC
7		Audit Course I	2	0	0	0	30	0	0	0	30	0	100/0	AC*
<b>Practical Courses</b>														
8	25MS105	Biomedical Instrumentation Laboratory	0	0	4	0	0	0	60	0	60	2	60/40	PCC
9	25MS106	Bio Signal Processing Laboratory	0	0	4	0	0	0	60	0	60	2	60/40	PCC

\* Audit course is optional

**SEMESTER II**

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/ External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
<b>Theory Cum Practical Courses</b>														
1	25MS201	Embedded Systems in Medical Devices	3	0	2	3	45	0	30	45	120	4	50/50	PCC
2	25MS202	AI and Machine Learning	3	0	2	3	45	0	30	45	120	4	50/50	PCC
3	25MS203	Medical Electronics	3	0	2	3	45	0	30	45	120	4	50/50	PCC

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
		Device Design												
Theory Courses														
4	25MS204	Medical Imaging Systems and Radio Therapy	3	0	0	3	45	0	0	45	90	3	40/60	PCC
5		Professional Elective I	3	0	0	3	45	0	0	45	90	3	40/60	PEC
6		Professional Elective II	3	0	0	3	45	0	0	45	90	3	40/60	PEC
7		Audit Course II	2	0	0	0	30	0	0	0	30	0	100/0	AC*
Practical Courses														
8	25EEC202	Term Paper Writing and Seminar	0	0	2	0	0	0	30	0	30	1	100/0	EEC

\* Audit course is optional

### SEMESTER III

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1		Professional Elective III	3	0	0	3	45	0	0	45	90	3	40/60	PEC
2		Professional Elective IV	3	0	0	3	45	0	0	45	90	3	40/60	PEC
3		Open Elective	3	0	0	3	45	0	0	45	90	3	40/60	OEC
Practical Courses														
4	25MSP301	Project Work I	0	0	12	0	0	0	180	0	180	6	60/40	EEC
5	25EEC301	Hospital / Biomedical Industry Training	0	0	4	0	0	0	60	0	60	2	60/40	EEC

### SEMESTER IV

S No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Practical Course														
1	25MSP401	Project Work II	0	0	24	0	0	0	360	0	360	12	60/40	EEC

**TOTAL NO. OF CREDITS: 74**

## AUDIT COURSES

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1	25AC001	English for Research Paper Writing	2	0	0	0	30	0	0	0	30	0	100/0	AC
2	25AC002	Disaster Management	2	0	0	0	30	0	0	0	30	0	100/0	AC
3	25AC003	Constitution of India	2	0	0	0	30	0	0	0	30	0	100/0	AC
4	25AC004	நற்றமிழ் இலக்கியம்	2	0	0	0	30	0	0	0	30	0	100/0	AC

## PROFESSIONAL ELECTIVES

### PROFESSIONAL ELECTIVE I

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1	25PMS11	Nano Technology and its Applications	3	0	0	3	45	0	0	45	90	3	40/60	PEC
2	25PMS12	Advanced Characterization Techniques for Nanomaterials	3	0	0	3	45	0	0	45	90	3	40/60	PEC
3	25PMS13	Biometrics	3	0	0	3	45	0	0	45	90	3	40/60	PEC
4	25PMS14	Therapeutic Equipment	3	0	0	3	45	0	0	45	90	3	40/60	PEC
5	25PMS15	Medical Optics	3	0	0	3	45	0	0	45	90	3	40/60	PEC
6	25PMS16	Human Assist Devices	3	0	0	3	45	0	0	45	90	3	40/60	PEC

### PROFESSIONAL ELECTIVE II

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1	25PMS21	Healthcare Engineering	3	0	0	3	45	0	0	45	90	3	40/60	PEC
2	25PMS22	Brain Computer Interface	3	0	0	3	45	0	0	45	90	3	40/60	PEC
3	25PMS23	Genetic Algorithms and Fuzzy Logics	3	0	0	3	45	0	0	45	90	3	40/60	PEC
4	25PMS24	Medical Robotics	3	0	0	3	45	0	0	45	90	3	40/60	PEC
5	25PMS25	Big Data	3	0	0	3	45	0	0	45	90	3	40/60	PEC

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
		Mining and Analytics												
6	25PMS26	Tele Health Technology	3	0	0	3	45	0	0	45	90	3	40/60	PEC

### PROFESSIONAL ELECTIVE III

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1	25PMS31	Healthcare, Hospital, and Equipment Management	3	0	0	3	45	0	0	45	90	3	40/60	PEC
2	25PMS32	Ultrasound in Medicines	3	0	0	3	45	0	0	45	90	3	40/60	PEC
3	25PMS33	Bioethics and Standards	3	0	0	3	45	0	0	45	90	3	40/60	PEC
4	25PMS34	Medical Device Standards and Regulation	3	0	0	3	45	0	0	45	90	3	40/60	PEC
5	25PMS35	Tissue Engineering and Immuno Engineering	3	0	0	3	45	0	0	45	90	3	40/60	PEC
6	25PMS36	Medical Equipment	3	0	0	3	45	0	0	45	90	3	40/60	PEC

### PROFESSIONAL ELECTIVE IV

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
Theory Courses														
1	25PMS41	Biomems and Artificial Organs	3	0	0	3	45	0	0	45	90	3	40/60	PEC
2	25PMS42	Physiological Modeling	3	0	0	3	45	0	0	45	90	3	40/60	PEC
3	25PMS43	Pattern Recognition Techniques and Applications	3	0	0	3	45	0	0	45	90	3	40/60	PEC
4	25PMS44	Mixed Reality	3	0	0	3	45	0	0	45	90	3	40/60	PEC
5	25PMS45	3D Printing in Medicines	3	0	0	3	45	0	0	45	90	3	40/60	PEC
6	25PMS46	Biomedical Measurements and Instrumentation	3	0	0	3	45	0	0	45	90	3	40/60	PEC

## OPEN ELECTIVES

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/ External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
<b>Theory Courses</b>														
1	25OME51	Industrial Safety	3	0	0	3	45	0	0	45	90	3	40/60	OEC
2	25OBA51	Business analytics	3	0	0	3	45	0	0	45	90	3	40/60	OEC
3	25OEC51	IoT for Smart Applications	3	0	0	3	45	0	0	45	90	3	40/60	OEC
4	25OME52	Bio Energy from Waste	3	0	0	3	45	0	0	45	90	3	40/60	OEC
5	25OEC52	Smart City Technologies	3	0	0	3	45	0	0	45	90	3	40/60	OEC
6	25OEC53	Space Time Wireless Communication	3	0	0	3	45	0	0	45	90	3	40/60	OEC
7	25OEC54	Quantum Communication	3	0	0	3	45	0	0	45	90	3	40/60	OEC
8	25OEC55	Radar Signal Processing	3	0	0	3	45	0	0	45	90	3	40/60	OEC
9	25OME53	Additive Manufacturing	3	0	0	3	45	0	0	45	90	3	40/60	OEC
10	25OME54	Electric Vehicle Technology	3	0	0	3	45	0	0	45	90	3	40/60	OEC
11	25OEC56	Millimeter wave Communication	3	0	0	3	45	0	0	45	90	3	40/60	OEC
12	25OEC57	IoT Protocols	3	0	0	3	45	0	0	45	90	3	40/60	OEC
13	25OEC58	Speech and Audio Signal Processing	3	0	0	3	45	0	0	45	90	3	40/60	OEC
14	25OEC59	Network Management System	3	0	0	3	45	0	0	45	90	3	40/60	OEC
15	25OEC60	Global Positioning System	3	0	0	3	45	0	0	45	90	3	40/60	OEC
16	25OEC61	5G Mobile Communication Technology	3	0	0	3	45	0	0	45	90	3	40/60	OEC
17	25OCS51	Data Compression Techniques	3	0	0	3	45	0	0	45	90	3	40/60	OEC
18	25OME55	Renewable Energy Technology	3	0	0	3	45	0	0	45	90	3	40/60	OEC
19	25OEC62	Smart Grid	3	0	0	3	45	0	0	45	90	3	40/60	OEC
20	25OBM51	Security Practices	3	0	0	3	45	0	0	45	90	3	40/60	OEC
21	25OCS52	Cloud Computing Technologies	3	0	0	3	45	0	0	45	90	3	40/60	OEC
22	25OCA51	Design Thinking	3	0	0	3	45	0	0	45	90	3	40/60	OEC
23	25OCS53	Principles of Multimedia	3	0	0	3	45	0	0	45	90	3	40/60	OEC
24	25OHS51	Environmental Sustainability	3	0	0	3	45	0	0	45	90	3	40/60	OEC
25	25OME56	Textile Reinforced	3	0	0	3	45	0	0	45	90	3	40/60	OEC

S. No.	Course Code	Course Title	Hours per week				Hours per sem				Total no. of Hours per semester	Credits	Internal/ External Marks	Course Category
			L	T	P	SL	L	T	P	SL				
		<b>Composites</b>												
26	25OME57	<b>Nanocomposite Materials</b>	3	0	0	3	45	0	0	45	90	3	40/60	OEC
27	25OBA52	<b>IPR, Biosafety and Entrepreneurship</b>	3	0	0	3	45	0	0	45	90	3	40/60	OEC

### SUMMARY

S.No.	COURSE CATEGORY	CREDITS AS PER SEMESTER				TOTAL CREDITS
		I	II	III	IV	
1	FC	4				4
2	PCC	17	15			32
3	PEC		6	6		12
4	RMC	2				2
5	OEC			3		3
6	EEC		1	8	12	21
7	AC	✓	✓			
TOTAL CREDITS		23	22	17	12	74