DMI COLLEGE OF ENGINEERING

(An Autonomous Institution)

Palanchur – Nazarethpet P.O., Chennai – 600 123

M.E. COMMUNICATION SYSTEMS

CHOICE BASED CREDIT SYSTEM

PG - CURRICULUM AND SYLLABI

R - 2024

I. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. CORE COMPETENCY WITH EMPLOYABILITY SKILLS: Building on fundamental knowledge, to analyze, design and implement electronic circuits and systems in Electronics and Communication Engineering by applying knowledge of mathematics and science or in closely related fields with employability skills.

2. PROMOTE HIGHER EDUCATION AND RESEARCH AND DEVELOPMENT: To develop the ability to demonstrate technical competence and innovation that initiates interest for higher studies and research.

3. INCULCATING ENTREPRENEUR SKILLS: To motivate the students to become Entrepreneurs in multidisciplinary domain by adapting to the latest trends in technology catering the social needs.

4. ETHICAL PROFESSIONALISM: To develop the graduates to attain professional excellence with ethical attitude, communication skills, team work and develop solutions to the problems and exercise their capabilities.

II. PROGRAM OUTCOMES (POs)

1. An ability to independently carry out research/investigation and development work to solve practical problems
2. An ability to write and present a substantial technical report/document
3. Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program
4. Design and analyze RF, Signal processing, Networking, Adaptive and modern communication systems
5. Develop the knowledge in 5G communication techniques, mm wave communication, smart antennas , Massive MIMO and Wireless sensor networks
6. Apply various software tools and cutting edge engineering hardware to provide solutions for complex communication engineering problems

M.E. COMMUNICATION SYSTEMS

CHOICE BASED CREDIT SYSTEM

I TO IV SEMESTERS CURRICULA AND SYLLABI

SEMESTER I

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	MA1105	Linear Algebra, Probability and Queueing Theory	FC	3	1	0	4	**4**
2.	RM1101	Research Methodology and IPR	RMC	2	0	0	2	**2**
3.	CU1101	Statistical Signal Processing	PCC	3	0	0	3	**3**
4.	CU1102	Modern Digital Communication Systems	PCC	3	0	0	3	**3**
5.	CU1103	Advanced Wireless Communication	PCC	3	0	0	3	**3**
6.	CU1104	Radiating Systems	PCC	3	0	0	3	**3**
7.		Audit Course – I*	AC	2	0	0	2	**0**
PRACTICALS								
8.	CU1105	Digital Communication Systems Laboratory	PCC	0	0	3	3	**1.5**
9.	CU1106	Advanced Digital Signal Processing Laboratory	PCC	0	0	3	3	**1.5**
		TOTAL		**19**	**1**	**6**	**26**	**21**

*Audit course is optional

SEMESTER II

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	CU1151	RF System Design	PCC	3	0	0	3	**3**
2.	CU1152	Microwave Integrated Circuits	PCC	3	0	2	5	**4**
3.	CU1153	Advanced Wireless Networks	PCC	3	0	0	3	**3**
4.	CP1151	Machine Learning	PCC	3	0	2	5	**4**
5.		Professional Elective I	PEC	3	0	0	3	**3**
6.		Professional Elective II	PEC	3	0	0	3	**3**
7.		Audit Course – II*	AC	2	0	0	2	**0**
PRACTICALS								
8.	CU1154	Wireless Communication Laboratory	PCC	0	0	4	4	**2**
9.	CU1155	Term Paper Writing and seminar	EEC	0	0	2	2	**1**
		TOTAL		**20**	**0**	**10**	**30**	**23**

*Audit course is optional

SEMESTER III

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	CU1201	Optical Communication and Networking	PCC	3	0	0	3	**3**
2.		Professional Elective III	PEC	3	0	0	3	**3**
3.		Professional Elective IV	PEC	3	0	2	5	**4**
4.		Open Elective	OEC	3	0	0	3	**3**
PRACTICALS								
5.	CU1202	Project Work I	EEC	0	0	12	12	**6**
		TOTAL		**12**	**0**	**14**	**26**	**19**

SEMESTER IV

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
PRACTICALS								
1.	CU1251	Project Work II	EEC	0	0	24	24	**12**
		TOTAL		**0**	**0**	**24**	**24**	**12**

TOTAL NO. OF CREDITS: 75

PROFESSIONAL ELECTIVES

SEMESTER II, ELECTIVE I

S. NO	COURSE CODE	COURSE TITLE	CATE - GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	CU1911	Electromagnetic Interference and Compatibility	PEC	3	0	0	3	**3**
2.	CU1912	Advanced Satellite Communication and Navigation Systems	PEC	3	0	0	3	**3**
3.	CU1913	High Speed Switching and Networking	PEC	3	0	0	3	**3**
4.	CU1914	Signal Integrity for High Speed Design	PEC	3	0	0	3	**3**
5.	CU1915	Wavelets and Subband Coding	PEC	3	0	0	3	**3**

SEMESTER II, ELECTIVE II

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	CU1921	Multimedia Compression Techniques	PEC	3	0	0	3	**3**
2.	CU1922	Cognitive Radio Networks	PEC	3	0	0	3	**3**
3.	CU1923	Speech Processing	PEC	3	0	0	3	**3**
4.	CU1924	mm Wave Communication	PEC	3	0	0	3	**3**
5.	CU1925	Analog and Mixed Signal VLSI Design	PEC	3	0	0	3	**3**

SEMESTER III, ELECTIVE III

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	CU1931	Ultra Wide Band Communications	PEC	3	0	0	3	**3**
2.	CU1932	VLSI for Wireless Communication	PEC	3	0	0	3	**3**
3.	CU1933	MEMS and NEMS	PEC	3	0	0	3	**3**
4.	CU1934	Advanced Antenna Design	PEC	3	0	0	3	**3**
5.	CU1935	Software Defined Radios	PEC	3	0	0	3	**3**

SEMESTER III, ELECTIVE IV

S. NO	COURSE CODE	COURSE TITLE	CATE-GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	CU1941	Image Processing and Video Analytics	PEC	3	0	2	5	**4**
2.	CU1942	Radar Signal Processing	PEC	3	0	2	5	**4**
3.	CU1943	Telecommunication System Modeling and Simulation	PEC	3	0	2	5	**4**
4.	CU1944	Signal Detection and Estimation	PEC	3	0	2	5	**4**
5.	CU1945	Real Time Embedded Systems	PEC	3	0	2	5	**4**

AUDIT COURSES (AC)

Registration for any of these courses is optional to students

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS
			L	T	P	
1.	AX1091	English for Research Paper Writing	2	0	0	0
2.	AX1092	Disaster Management	2	0	0	0
3.	AX1093	Constitution of India	2	0	0	0
4.	AX1094	நற்றமிழ் இலக்கியம்	2	0	0	0

LIST OF OPEN ELECTIVES FOR PG PROGRAMMES

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS
			L	T	P	
1.	CU1701	Integrated water resources Management	3	0	0	3
2.	CU1702	Water Sanitation and Health	3	0	0	3
3.	CU1703	Principles of Sustainable Development	3	0	0	3
4.	CU1704	Environmental Impact Assessment	3	0	0	3
5.	CU1705	Blockchain Technologies	3	0	0	3
6.	CU1706	Deep Learning	3	0	0	3
7.	CU1707	Vibration and Noise Control Strategies	3	0	0	3
8.	CU1708	Energy Conservation and Managementin Domestic Sectors	3	0	0	3
9.	CU1709	Additive Manufacturing	3	0	0	3
10.	CU1710	Electric Vehicle Technology	3	0	0	3
11.	CU1711	New Product Development	3	0	0	3
12.	CU1712	Sustainable Management	3	0	0	3
13.	CU1713	Micro and Small Business Management	3	0	0	3
14.	CU1714	Intellectual Property Rights	3	0	0	3
15.	CU1715	Ethical Management	3	0	0	3
16.	CU1716	IoT for Smart Systems	3	0	0	3
17.	CU1717	Machine Learning and Deep Learning	3	0	0	3
18.	CU1718	Renewable Energy Technology	3	0	0	3
19.	CU1719	Smart Grid	3	0	0	3
20.	CU1720	Security Practices	3	0	0	3
21.	CU1721	Cloud Computing Technologies	3	0	0	3
22.	CU1722	Design Thinking	3	0	0	3
23.	CU1723	Principles of Multimedia	3	0	0	3
24.	CU1724	Environmental Sustainability	3	0	0	3
25.	CU1725	Textile Reinforced Composites	3	0	0	3

26.	CU1726	Nanocomposite Materials	3	0	0	**3**
27.	CU1727	IPR, Biosafety and Entrepreneurship	3	0	0	**3**

FOUNDATION COURSES (FC)

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1.	MA1105	Linear Algebra, Probabilityand Queueing Theory	3	1	0	4	**I**

PROFESSIONAL CORE COURSES (PCC)

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1.	CU1101	Statistical Signal Processing	3	0	0	3	**I**
2.	CU1102	Modern Digital Communication Systems	3	0	0	3	**I**
3.	CU1103	Advanced Wireless Communication	3	0	0	3	**I**
4.	CU1104	Radiating Systems	3	0	0	3	**I**
5.	CU1105	Digital Communication Systems Laboratory	0	0	3	1.5	**I**
6.	CU1106	Advanced Digital Signal Processing Laboratory	0	0	3	1.5	**I**
7.	CU1151	RF System Design	3	0	0	3	**II**
8.	CU1152	Microwave Integrated Circuits	3	0	2	4	**II**
9.	CU1153	Advanced Wireless Networks	3	0	0	3	**II**
10.	CS1151	Machine Learning	3	0	2	4	**II**
11.	CU1154	Wireless Communication Laboratory	0	0	4	2	**II**
12.	CU1201	Optical Communication and Networking	3	0	0	3	**II I**

RESEARCH METHODOLOGY AND IPR COURSES (RMC)

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1	RM1101	Research Methodology and IPR	2	0	0	2	**1**

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S. NO	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			CREDITS	SEMESTER
			Lecture	Tutorial	Practical		
1.	CU1155	Term Paper Writing and Seminar	0	0	2	1	II
2.	CU1202	Project Work I	0	0	12	6	III
3.	CU1251	Project Work II	0	0	24	12	IV

SUMMARY

Sl. No.	NAME OF THE PROGRAMME: M.E. COMMUNICATION SYSTEMS					
	SUBJECT AREA	CREDITS PER SEMESTER				CREDITS TOTAL
		I	II	III	IV	
1.	FC	04	00	00	00	04
2.	PCC	15	16	03	00	34
3.	PEC	00	06	07	00	13
4.	RMC	02	00	00	00	02
5.	OEC	00	00	03	00	03
6.	EEC	00	01	06	12	19
7.	Non Credit/Audit Course	✓	✓	00	00	
	TOTAL CREDIT	21	23	19	12	75