



**PERIYAR
MANIAMMAI**
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University)
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited
think • innovate • transform

Criterion 1 – Curricular Aspects

Key Indicator	1.2	Academic Flexibility
Metric	1.2.2	Percentage of Programmes in which Choice Based Credit System (CBCS)/elective course system has been implemented (Data for the latest completed academic year)

**DEPARTMENT OF ELECTRONICS AND COMMUNICATION
ENGINEERING**

**STRUCTURE OF THE PROGRAM CLEARLY INDICATING
COURSES, CREDITS/ELECTIVES**

Programmes

1. B.Tech Electronics and Communication Engineering – Full Time
2. M.Tech Wireless Communication – Full Time
3. M.Tech Wireless Communication – Part Time

1. Curriculum of B.Tech Electronics and Communication Engineering

Full Time

SEMESTER I

Course Code	Category	Name of the Course	Credits				Hours			
			L	T	P	C	L	T	P	Total
XMA101	BSC	Calculus and Linear Algebra	3	1	0	4	3	1	0	4
XCP102	ESC	Programming for Problem Solving	3	0	2	5	3	0	4	7
XGS103	HSMC	English	3	0	0	3	3	0	0	3
XAC104	BSC	Applied Chemistry for Engineers	3	1	1	5	3	1	2	6
XWP105	ESC	Workshop Practices	1	0	2	3	1	0	4	5
Total			13	2	5	20	13	2	10	25

Total Credits - 20

SEMESTER II

Course Code	Category	Name of the Course	Credits				Hours			
			L	T	P	C	L	T	P	Total
XMA201	BSC	Calculus, Ordinary Differential Equations and Complex Variable	3	1	0	4	3	1	0	4
XES202	UGC M	Environmental Sciences ^{*#}	0	0	0	0	3	0	0	3
XBE203	ESC	Electrical and Electronics Engineering Systems	3	1	1	5	3	1	2	6
XAP204	BSC	Applied Physics for Engineers	3	1	2	6	3	1	3	7
XEG205	ESC	Engineering Graphics	2	0	1	3	2	0	2	4
Total			11	3	4	18	14	3	7	24

Total Credits - 18

SEMESTER III

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XMA301	BSC	Transforms and Differential Equations Partial	3	1	0	4	3	1	0	4
XEC302	PC	Electronic Devices	3	0	0	3	3	0	0	3
XEC303	PC	Digital System Design	3	0	0	3	3	0	0	3
XEC304	PC	Signals and Systems	3	0	0	3	3	0	0	3
XUM305	HSMC	Entrepreneurship Development	2	0	0	2	2	0	0	2
XUM306	UGCM	Constitution of India ^{*#}	0	0	0	0	3	0	0	3
XEC307	PC	Network Theory	3	0	0	3	3	0	0	3
XEC308	PC	Electronics Devices and Networks Lab	0	0	1	1	0	0	2	2
XEC309	PC	Digital System Design Lab	0	0	1	1	0	0	2	2
XEC310	IPT	In Plant Training – 1	0	0	0	0	0	0	0	0
Total			17	1	2	20	20	1	4	25

Total Credits - 20

SEMESTER IV

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XMA401	BSC	Probability Theory and Stochastic Processes	3	1	0	4	3	1	0	4
XUM402	HSMC	Total Quality Management	2	0	0	2	2	0	0	2
XUM403	UGCM	Human ethics, values, rights and gender equality ^{*#}	0	0	0	0	3	0	0	3
XEC404	PC	Electro dynamics and Electromagnetic Waves	3	0	0	3	3	0	0	3
XEC405	PC	Transmission Lines and Waveguides	3	0	0	3	3	0	0	3
XEC406	PC	Analog Communication	3	0	0	3	3	0	0	3
XEC407	PC	Electronic Circuits	3	0	0	3	3	0	0	3
XEC408	PC	Microprocessors and Microcontrollers	3	0	0	3	3	0	0	3
XEC409	PC	Electronic Circuits Lab	0	0	1	1	0	0	2	2
XEC410	PC	Microprocessors and Microcontrollers Lab	0	0	1	1	0	0	2	2
Total			20	1	2	23	23	1	4	28

Total Credits –23

SEMESTER V

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XEC501	PC	Analog Integrated Circuits	3	0	0	3	3	0	0	3
XEC502	PC	Digital Communication	3	0	0	3	3	0	0	3
XEC503	ESC	Computer Architecture and Organisation	3	0	0	3	3	0	0	3
XEC504	PC	Digital Signal Processing	3	0	0	3	3	0	0	3
XEC505	PE	Professional Elective-1*	3	0	0	3	3	0	0	3
XOE506	OE	Open Elective - 1**	3	0	0	3	3	0	0	3
XGS507	HSM	Effective Technical Communication	0	0	1	1	0	0	2	2
XEC508	PC	Analog Integrated Circuits Lab	0	0	1	1	0	0	2	2
XEC509	PC	Analog and Digital Communication Lab	0	0	1	1	0	0	2	2
XEC510	PC	Digital Signal Processing Lab	0	0	1	1	0	0	2	2
XEC511	IPT	In Plant Training – 2	0	0	0	0	0	0	0	0
XECM01	Minor	PCB Design through ULTIBOARD*#	0	0	0	0	0	0	2	2
Total			18	0	4	22	18	0	10	28

Total Credits - 22

SEMESTER VI

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XUM601	HSM	Economics for Engineers	2	0	0	2	2	0	0	2
XEC602	PC	Control Systems	3	0	0	3	3	0	0	3
XEC603	PC	Antennas and Wave Propagation	3	0	0	3	3	0	0	3
XEC604	PE	Professional Elective-2*	3	0	0	3	3	0	0	3
XOE605	OE	Open Elective - 2**	3	0	0	3	3	0	0	3
XUM606	UGC	Disaster Management	0	0	0	0	3	0	0	3
XEC607	PC	VLSI Design and Embedded Systems	3	0	0	3	3	0	0	3
XEC608	PC	VLSI Design and Embedded Systems Lab	0	0	1	1	0	0	2	2
XEC609	PC	Mini Project	0	0	2	2	0	0	4	4
XECM02	Minor	PLC and Sensorics*#	0	0	0	0	0	0	2	2
Total			17	0	3	20	20	0	8	28

Total Credits

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XUM701	UGC	Cyber Security ^{*#}	0	0	0	0	3	0	0	3
XEC702	PC	Microwave Engineering and Fiber Optic Communication	3	0	0	3	3	0	0	3
XEC703	PE	Professional Elective-3*	3	0	0	3	3	0	0	3
XEC704	PE	Professional Elective-4*	3	0	0	3	3	0	0	3
XOE705	OE	Open Elective-3**	3	0	0	3	3	0	0	3
XEC706	PC	Microwave Engineering and Fiber Optic Communication Lab	0	0	1	1	0	0	2	2
XEC707	Project	Project Work Phase - I	0	0	8	4	0	0	10	10
XEC708	IPT	In Plant Training – 3	0	0	4	2	0	0	0	0
XECM03	Minor	MATLAB for Wireless Communication ^{*#}	0	0	0	0	0	0	2	2
		Total	12	0	13	19	15	0	14	29

SEMESTER VII

Total Credits - 19

SEMESTER VIII

Course Code	Category	Course Name	Credits				Hours			
			L	T	P	C	L	T	P	Total
XEC801	PE	Professional Elective-5*	3	0	0	3	3	0	0	3
XOE802	OE	Open Elective - 4**	3	0	0	3	3	0	0	3
XOE803	OE	Open Elective - 5**	3	0	0	3	3	0	0	3
XEC804	Project	Project Work Phase – II	0	0	12	6	0	0	16	16
		Total	9	0	12	15	9	0	16	25

Total Credits - 15

* Professional Elective

** Open Elective

*# Non-credit Course

Grant Total Credits: 157

In Plant Training of 30 days in the vacation periods is mandatory to complete the graduation.

LIST OF ELECTIVES

Program Elective PE	CODE NO.	COURSE TITLE	L	T	P	C
PE1	XEC505A	Medical Electronics	3	0	0	3
505*	XEC505B	Communication Networks	3	0	0	3
	XEC505C	Nano Technology and Applications	3	0	0	3
PE2	XEC604A	Switching Theory	3	0	0	3
604*	XEC604B	CMOS Analog IC Design	3	0	0	3
	XEC604C	Statistical Theory of Communication	3	0	0	3
PE3	XEC702A	Fundamentals of Data structures in C	3	0	0	3
702*	XEC702B	Robotics and Automation	3	0	0	3
	XEC702C	Internet of things	3	0	0	3
PE4	XEC703A	Wireless Communications	3	0	0	3
703*	XEC703B	Wireless Networks	3	0	0	3
	XEC703C	Ad hoc and Wireless Sensor Networks	3	0	0	3
PE5	XEC801A	Principles of Speech Processing	3	0	0	3
801*	XEC801B	Multimedia Compression and Communication	3	0	0	3
	XEC801C	Digital Image Processing	3	0	0	3

LIST OF OPEN ELECTIVES

CODE NO.	COURSE TITLE	L	T	P	C
THEORY					
XECO1	Industrial Electronics	3	0	0	3
XECO2	Entertainment Electronics and Management	3	0	0	3

XECO E3	Communication Systems	3	0	0	3
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2. Curriculum of M.Tech Wireless Communication – Full time.

SEMESTER I

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	YWC101	ModernDigitalCommunication	3	0	3	3	3
PCC	YWC102	WirelessCommunication	3	0	0	3	3
PCC	YWC103	Wireless Networks	3	0	0	3	3
PEC	YWC104*	Elective I	3	0	0	3	3
PEC	YWC105*	Elective-II	3	0	0	3	3
PCC-L	YWC106	Digital Communication Lab	0	0	1	1	2
PCC-L	YWC 107	Wireless Networks Lab	0	0	1	1	2
MC	108	Research Methodology and IPR	2	0	0	0	2
MC - Audit	109	English for Research Paper Writing	2	0	0	0	2

Total Hours:23

Total Credits: 17

SEMESTER II

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	YWC201	MultiCarrierCommunication	3	0	0	3	3
PCC	YWC202	MicrowavePassive and Active Systems	3	0	0	3	3
PCC	YWC203	AdvancedRadiationSystems	3	0	0	3	3
PEC	YWC204*	Elective-III	3	0	0	3	3
PEC	YWC205*	Elective IV	3	0	0	3	3

PCC-L	YWC206	Radio Frequency Systems lab	0	0	1	1	2
PCC-L	YWC207	MiniProject	0	0	1	2	4
MC- Audit	208	Constitution of India	2	0	0	0	2

Total Hours: 21

Total Credits: 18

SEMESTER III

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	YWC301	Dissertation Phase – I	0	0	10	10	20
PEC	YWC302	Elective –V	0	0	0	3	3
OEC	Open Elective	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects	3	0	0	3	3

Total Hours: 26

Total Credits: 16

SEMESTER IV

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	YWC401	Dissertation Phase – II	0	0	16	16	32

Total Hours: 32

Total Credits: 16

Overall Credits:68

Legend

PCC – Professional Core Course

PEC- Professional Elective Course

OEC – Open Elective Course

PCC-L – Professional Core Course - Lab

LIST OF ELECTIVES

Sl.No	CodeNo	CourseTitle	L	T	P	C
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ELECTIVE-I						
1	YWC106A	Radar communication	3	0	0	3
2	YWC106B	Mobile Satellite Communication	3	0	0	3
3	YWC106C	Advanced Digital Signal Processing	3	0	0	3
4	YWC106D	Free space optics	3	0	0	3
ELECTIVE-II						
1	YWC205A	Mathematics for Communication Systems	3	0	0	3
2	YWC205B	RF MEMS	3	0	0	3
3	YWC205C	Antenna Systems for Wireless Applications	3	0	0	3
4	YWC205D	Detection and Estimation Theory	3	0	0	3
ELECTIVE-III						
1	YWC206A	Wireless Network Security	3	0	0	3
2	YWC206B	Adhoc Networks	3	0	0	3
3	YWC 206C	High Performance Computing Networks	3	0	0	3
4	YWC206D	Internet of Things	3	0	0	3
ELECTIVE-IV						
1	YWC207A	Soft Computing	3	0	0	3
2	YWC207B	Multimedia Compression Techniques	3	0	0	3
3	YWC 207C	Software Defined Radio	3	0	0	3
4	YWC207D	Fundamentals of 5G Mobile and Wireless Technology	3	0	0	3
ELECTIVE-V						
1	YWC2302A	Quality of Service in Wireless Communication	3	0	0	3
2	YWC302B	Telecom Network Planning and Management	3	0	0	3
3	YWC 302C	Regulation and Policy in the Telecommunications Industry	3	0	0	3

3. Curriculum of M.Tech Wireless Communication Programme

PART TIME

SEMESTER I

	CODE NO.	COURSE TITLE	L	T	P	C	H
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PCC	QWC101	ModernDigitalCommunication	3	0	3	3	3
PCC	QWC102	WirelessCommunication	3	0	0	3	3
PEC	QWC103*	Elective I	3	0	0	3	3
PCC-L	QWC104	Digital Communication Lab	0	0	1	1	2
MC - Audit	105	Research Methodology and IPR	2	0	0	0	2

Total Hours:13

Total Credits: 10

SEMESTER II

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	QWC201	Wireless Networks	3	0	0	3	3
PEC	QWC202*	Elective-II	3	0	0	3	3
PCC-L	QWC 203	Wireless Networks Lab	0	0	1	1	2
MC - Audit	204	English for Research Paper Writing	2	0	0	0	2

Total Hours:10

Total Credits: 7

SEMESTER III

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	QWC301	MultiCarrierCommunication	3	0	0	3	3
PCC	QWC302	MicrowavePassive and Active Systems	3	0	0	3	3
PCC	QWC303	AdvancedRadiationSystems	3	0	0	3	3
PCC-L	QWC304	Radio Frequency Systems lab	0	0	1	1	2

Total Hours: 11

Total Credits: 10

SEMESTER IV

	CODE NO.	COURSE TITLE	L	T	P	C	H
PEC	QWC401*	Elective-III	3	0	0	3	3
PEC	QWC402*	Elective IV	3	0	0	3	3
PCC-L	QWC403	MiniProject	0	0	1	2	4
MC- Audit	404	Constitution of India	2	0	0	0	2

Total Hours: 12

Total Credits: 8

SEMESTER V

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	QWC501	Dissertation Phase – I	0	0	10	10	20
PEC	QWC502	Elective –V	0	0	0	3	3
OEC	Open Elective	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects	3	0	0	3	3

Total Hours: 26

Total Credits: 16

SEMESTER VI

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	QWC601	Dissertation Phase – II	0	0	16	16	32

Total Hours: 32

Total Credits: 16

Overall Credits:67

Legend

PCC – Professional Core Course

PEC- Professional Elective Course

OEC – Open Elective Course

PCC-L – Professional Core Course - Lab

LIST OF ELECTIVES

Sl.No	CodeNo	CourseTitle	L	T	P	C
ELECTIVE-I						
1	QWC103A	Radar communication	3	0	0	3
2	QWC103B	Mobile Satellite Communication	3	0	0	3
3	QWC103C	Advanced Digital Signal Processing	3	0	0	3
4	QWC103D	Free space optics	3	0	0	3
ELECTIVE-II						
1	QWC202A	Mathematics for Communication Systems	3	0	0	3
2	QWC202B	RF MEMS	3	0	0	3
3	QWC202C	Antenna Systems for Wireless Applications	3	0	0	3
4	QWC202D	Detection and Estimation Theory	3	0	0	3
ELECTIVE-III						
1	QWC401A	Wireless Network Security	3	0	0	3
2	QWC401B	Adhoc Networks	3	0	0	3
3	QWC 401C	High Performance Computing Networks	3	0	0	3
4	QWC401D	Internet of Things	3	0	0	3
ELECTIVE-IV						
1	QWC402A	Soft Computing	3	0	0	3
2	QWC402B	Multimedia Compression Techniques	3	0	0	3
3	QWC 402C	Software Defined Radio	3	0	0	3
4	QWC402D	Fundamentals of 5G Mobile and Wireless Technology	3	0	0	3
ELECTIVE-V						
1	QWC502A	Quality of Service in Wireless Communication	3	0	0	3
2	QWC502B	Telecom Network Planning and Management	3	0	0	3
3	QWC502C	Regulation and Policy in the Telecommunications Industry	3	0	0	3