



**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 Communications - FT

B.Tech ECE - Curriculum and Syllabus from I to VIII Semesters

Curriculum and Syllabus

Regulation 2021

Revision -1

SEMESTER I

S. No	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	C	L	T	P	Hours
1	XMA101	BSC	Calculus and Linear Algebra	3	1	0	4	3	1	0	4
2	XBE102	ESC	Electrical and Electronics Engineering Systems	3	1	0	4	3	1	0	4
3	XAP103	BSC	Applied Physics for Engineers	3	1	0	4	3	1	0	4
4	XEC104	EFC	Fundamentals of computers	3	0	0	3	3	0	0	3
5	XGS105	HSMC	Speech Communication	0	1	2	3	0	1	4	5
6	XUM106 *#	MC	Constitution of India	0	0	0	0	3	0	0	3
7	XBE107	ESC	Electrical and Electronics Engineering Systems Laboratory	0	0	1	1	0	0	2	2
8	XAP108	BSC	Applied Physics for Engineers Laboratory	0	0	1	1	0	0	2	2
Total				12	4	4	20	15	4	8	27

Total Credits – 20 Total Hours- 27

SEMESTER II

S. No	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	C	L	T	P	Hours
1	XMA201	BSC	Calculus, Ordinary Differential Equations and Complex Variable	3	1	0	4	3	1	0	4
2	XCP202	ESC	Programming for Problem Solving	3	0	0	3	3	0	0	3
3	XAC203	BSC	Applied Chemistry for Engineers	3	1	0	4	3	1	0	4
4	XGS204	HSMC	Technical Communication	2	0	0	2	2	0	0	2
5	XWP205	ESC	Workshop Practices	1	0	2	3	1	0	4	5
6	XEM206	ESC	Engineering Mechanics	3	0	0	3	3	0	0	3
7	XCP207	ESC	Programming for Problem Solving Laboratory	0	0	1	1	0	0	2	2
8	XAC208	BSC	Applied Chemistry for Engineers Laboratory	0	0	1	1	0	0	2	2
Total				15	2	4	21	15	2	8	25

Total Credits – 21 Total Hours- 25

SEMESTER III

S. No	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	C	L	T	P	Hours
1	XMA301	BSC	Transforms and Partial Differential Equations	3	0	0	3	3	0	0	3
2	XEC302	PCC	Electronic devices	3	0	0	3	3	0	0	3
3	XEC303	PCC	Digital System Design	3	0	0	3	3	0	0	3
4	XEC304	PCC	Network Theory	3	1	0	4	3	1	0	4
5	XEC305	PCC	Electromagnetic Theory and Transmission Lines	3	1	0	4	3	1	0	4
6	XUM306	HSMC	Entrepreneurship Development	2	0	0	2	2	0	0	SS - 1 3
7	XUM307	MC (HSMC)	Universal Human Values 2: Understanding Harmony	2	1	0	3	2	1	0	3
8	XEC308	PCC	Electronic Devices and Networks Laboratory	0	0	1	1	0	0	2	2
9	XEC309	PCC	Digital System Design Laboratory	0	0	1	1	0	0	2	2
10	XEC310	PROJ	In-plant Training - I	-	-	1	1	-	-	-	-
Total				19	3	3	25	19	3	4	27

Total Credits -25 Total Hours- 27

SEMESTER IV

S. No.	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	Total	L	T	P	Hours
1.	XEC401	BSC	Probability Theory and Stochastic Processes	3	0	0	3	3	0	0	3
2.	XEC402	PCC	Electronic Circuits	3	1	0	4	3	1	0	4
3.	XEC403	PCC	Signals and Systems	3	1	0	4	3	1	0	4
4.	XEC404	PCC	Analog Integrated Circuits	3	1	0	4	3	1	0	4
5.	XUM009	HSMC	Economics for Engineers	3	0	0	3	3	0	0	3
6	XUM003 *#	MC	Disaster Management	0	0	0	0	3	0	0	3
7	XEC407	PCC	Electronic Circuits Laboratory	0	0	1	1	0	0	2	2
8	XEC408	PCC	Analog Integrated Circuits Laboratory	0	0	1	1	0	0	2	2
9	XEC409	PCC	Signals and Systems Laboratory	0	0	1	1	0	0	2	2
Total				15	3	3	21	18	3	6	27

Total Credits – 21 Total Hours- 27

SEMESTER V

S. No.	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	Total	L	T	P	Hours
1	XEC501	PCC	Microprocessors and Microcontrollers	3	0	0	3	3	0	0	3
2	XEC502	PCC	Digital Signal Processing	3	0	0	3	3	0	0	3
3	XEC503	PCC	Antennas and Wave Propagation	3	1	0	4	3	1	0	4
4	XEC504	PCC	Communication Theory	3	1	0	4	3	1	0	4
5	PEC-I*	PEC	Professional Elective-1	3	0	0	3	3	0	0	3
6	OE I**	OE	Open Elective-1	3	0	0	3	3	0	0	3
7	XEC507	PCC	Microprocessors and Microcontrollers Laboratory	0	0	1	1	0	0	2	2
8	XEC508	PCC	Digital Signal Processing Laboratory	0	0	1	1	0	0	2	2
9	XEC509	PROJ	In-plant Training - II	-	-	1	1	-	-	-	-
			Total	18	2	3	23	18	2	4	24

Total Credits – 23 Total Hours- 24

SEMESTER VI

S. No.	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	Total	L	T	P	Hours
1	XEC601	PCC	Digital Communication	3	0	0	3	3	0	0	3
2	XEC602	PCC	Microwave Engineering and Fiber Optic Communication	3	0	0	3	3	0	0	3
3	PEC-II*	PEC	Professional Elective-2	3	0	0	3	3	0	0	3
4	OE II**	OE	Open Elective-2	3	0	0	3	3	0	0	3
5	XGS605	HSMC	Professional Skills	1	0	2	3	1	0	4	5
6	XUM005 *#	MC	Cyber Security	0	0	0	0	3	0	0	3
7	XEC607	PCC	Analog and Digital Communication Laboratory	0	0	1	1	0	0	2	2
8	XEC608	PCC	Microwave Engineering and Fiber Optic Communication Laboratory	0	0	1	1	0	0	2	2
			Total	13	0	4	17	16	0	8	24

Total Credits – 17 Total Hours- 24

SEMESTER VII

S. No.	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	Total	L	T	P	Hours
1	XEC701	PCC	VLSI Design and Embedded Systems	3	0	0	3	3	0	0	3
2	XEC702	PCC	Modern Control Systems	3	0	0	3	3	0	0	3
3	PEC-III*	PEC	Professional Elective-3	3	0	0	3	3	0	0	3
4	OE III**	OE	Open Elective-3	3	0	0	3	3	0	0	3
5	XUM008#	MC	Environmental Sciences	0	0	0	0	3	0	0	3
6	XEC706	PCC	VLSI Design and Embedded Systems Laboratory	0	0	1	1	0	0	2	2
7	XEC707	PCC	Modern Control Systems Laboratory	0	0	1	1	0	0	2	2
8	XEC708	PROJ	Project Work (Phase-I)	0	0	2	2	0	0	4	4
9	XEC709	PROJ	In-plant Training - III	-	-	2	2	-	-	-	-
			Total	12	0	6	18	15	0	8	23

Total Credits - 18 Total Hours- 23

SEMESTER VIII

S. No.	Course Code	Category	Name of the Course	Credits				Hours			
				L	T	P	Total	L	T	P	Hours
1	PEC-IV*	PEC	Professional Elective-4	3	0	0	3	3	0	0	3
3	OE IV**	OE	Open Elective -4	3	0	0	3	3	0	0	3
4	OE V**	OE	Open Elective-5	3	0	0	3	3	0	0	3
5	XEC804	PROJ	Project Work (Phase-II)	0	0	9	9	0	0	18	18
			Total	9	0	9	18	9	0	18	27

Total Credits - 18 Total Hours- 27

* Professional Elective

** Open Elective

*# Non-credit Course

Grant Total Credits: 163

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

LIST OF ELECTIVES

Program Elective PE	Course Code.	Name of the Course	L	T	P	C
PE1 505*	XEC505A	Computer Organization and Architecture	3	0	0	3
	XEC505B	Introduction to Artificial Intelligence	3	0	0	3
	XEC505C	Radio Frequency Electronics	3	0	0	3
	XEC505D	Radar Technologies	3	0	0	3
PE2 603*	XEC603A	Introduction to Data Structure	3	0	0	3
	XEC603B	Applied Machine Learning	3	0	0	3
	XEC603C	Wireless Communications	3	0	0	3
	XEC603D	Avionics Systems	3	0	0	3
PE3 703*	XEC703A	Introduction to Operating Systems	3	0	0	3
	XEC703B	Artificial Intelligence for Robotics	3	0	0	3
	XEC703C	Wireless Networks	3	0	0	3
	XEC703D	Satellite Communication	3	0	0	3
PE4 801*	XEC801A	Fundamentals of Kotlin Programming	3	0	0	3
	XEC801B	Internet of Things	3	0	0	3
	XEC801C	Fundamentals of 5G Technology	3	0	0	3
	XEC801D	Remote Sensing	3	0	0	3

LIST OF OPEN ELECTIVES

Open Elective OE	Course code.	Name of the Course	L	T	P	C
OE**	XECO1E1	Display Systems	3	0	0	3
OE**	XECO1E2	Human Assist Devices	3	0	0	3

B.Tech (Hons.) Electronics and Communication Engineering with Specialization in Robotics and Industrial Automation

SPECIALIZATION COURSE

a) Robotics and Industrial Automation

S.No	Course Code	Semester	Name of the Course	Credit				Hours			
				L	T	P	C	L	T	P	H
1	XECHR1	III	Service Robotics with Drives and Sensors	1	0	2	3	1	0	4	5
2	XECHR2	IV	Industrial Robotics and Automation	1	0	2	3	1	0	4	5
3	XECHR3	V	Fundamentals of ROS and Embedded in Robotics	1	0	2	3	1	0	4	5
4	XECHR4	V	Artificial Intelligence and Computer Vision for Robotics	1	0	2	3	1	0	4	5
5	XECHR5	VI	Deep Learning for Robotics	1	0	2	3	1	0	4	5
6	XECHR6	VII	Mini Project	0	0	5	5	0	0	5	5
Total				5	0	15	20	5	0	20	35

B.Tech (Hons.) Electronics and Communication Engineering with Specialization in Artificial Intelligence and Machine Learning

Artificial Intelligence and Machine Learning

S. No	Course Code	Semester	Course Title	Credit				Hours			
				L	T	P	C	L	T	P	H
1	XCSHA1	III	Introduction to Artificial Intelligence	1	0	2	3	5	0	2	5
2	XCSHA2	IV	Image Processing and Vision Techniques	1	0	2	3	5	0	2	5
3	XCSHA3	V	Introduction to Machine Learning	1	0	2	3	5	0	2	5
4	XCSHA4	VI	Deep Learning for Robotics	1	0	2	3	5	0	2	5
5	XCSHA5	VI	Internet of Things	1	0	2	3	5	0	2	5
6	XCSHA6	VII	Mini Project	0	0	5	5	10	0	5	10
Total				5	0	15	20	35	0	15	35

**M.TECH. – WIRELESS COMMUNICATIONS- REGULATIONS 2022-
(TWO YEAR FULLTIME) – CURRICULUM
SEMESTER I**

	CODE NO.	COURSE TITLE	L	T	P	C	H
PCC	YWC101	Fundamentals of wireless communication	3	0	0	3	3
PCC	YWC102	Advanced Digital Communication	3	1	0	4	4
PCC	YWC103	Advanced Technologies in 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	2	2	4
AICTE Mandatory Course	YRM107	Research Methodology and IPR	2	0	0	2	2
AICTE - Audit	YEGOE1	English for Research Paper Writing	2	0	0	0	2
PCC-L	YWC 109	Wireless Networks Lab	0	0	2	2	4

Total Hours:23

Total Credits: 22

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	2	2	4
Proj	YWC207	MiniProject	0	0	2	2	4
AICTE - Audit	YPSOE1	Constitution of India	2	0	0	0	2

Total Hours: 21

Total Credits: 19

SEMESTER III

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

Total Hours: 32

Total Credits: 16

LIST OF ELECTIVES

Sl.No	CodeNo	CourseTitle	L	T	P	C
ELECTIVE-I						
1	YWC104A	Modern Radar communication	3	0	0	3
2	YWC104B	Mobile Satellite Communication	3	0	0	3
3	YWC104C	Advanced Digital Signal Processing	3	0	0	3
4	YWC104D	Free space optics	3	0	0	3
ELECTIVE-II						
1	YWC105A	Mathematics for Communication Systems	3	0	0	3
2	YWC105B	RF MEMS	3	0	0	3
3	YWC105C	Antenna Systems for Wireless Applications	3	0	0	3
4	YWC105D	Detection and Estimation Theory	3	0	0	3
ELECTIVE-III						
1	YWC204A	Wireless Network Security	3	0	0	3
2	YWC204B	MIMO Communication	3	0	0	3
3	YWC 204C	High Performance Wireless Networks	3	0	0	3
4	YWC204D	Internet of Things	3	0	0	3
ELECTIVE-IV						
1	YWC205A	Soft Computing	3	0	0	3
2	YWC205B	Millimeter Wave Wireless Communications	3	0	0	3
3	YWC 205C	Software Defined Radio	3	0	0	3
4	YWC205D	Fundamentals of 5G Mobile and Wireless Technology	3	0	0	3
ELECTIVE-V						
1	YWC302A	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