

B. Tech. Degree

IN

ELECTRONICS AND COMMUNICATION ENGINEERING



SYLLABUS

FOR

CREDIT BASED CURRICULUM

(2014-2018)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY

TIRUCHIRAPPALLI – 620 015

TAMIL NADU, INDIA

CURRICULUM

The total minimum credits required for completing the B. Tech. Programme in Electronics and Communication Engineering is 185 (45+140)

SEMESTER III

CODE	COURSE OF STUDY	L	T	P	C
MA207	Real Analysis and Partial Differential Equations	3	1	0	4
EC201	Signals and Systems	3	1	0	4
EC203	Network Analysis and Synthesis	3	0	0	3
EC205	Electrodynamics and Electromagnetic Waves	3	1	0	4
EC207	Semiconductor Physics and Devices	3	0	0	3
EC209	Digital Circuits and Systems	3	0	0	3
EC211	Devices and Networks Laboratory	0	0	3	2
EC213	Digital Electronics Laboratory	0	0	3	2
TOTAL		18	3	6	25

SEMESTER IV

CODE	COURSE OF STUDY	L	T	P	C
MA206	Probability theory and Random Processes	3	1	0	4
EC202	Digital Signal Processing	3	1	0	4
IC218	Control Systems	3	0	0	3
EC204	Transmission Lines and Waveguides	3	0	0	3
EC206	Electronic Circuits	3	0	0	3
EC208	Microprocessors and Micro controllers	3	0	0	3
EC210	Electronic Circuits Laboratory	0	0	3	2
EC212	Microprocessor and Microcontroller Laboratory	0	0	3	2
TOTAL		18	2	6	24

SEMESTER V

CODE	COURSE OF STUDY	L	T	P	C
EC301	Statistical Theory of Communication	3	1	0	4
EC303	Digital Signal Processors and Applications	3	0	0	3
EC305	Analog Communication	3	0	0	3
EC307	Antennas and propagation	3	0	0	3
EC309	Analog Integrated Circuits	3	0	0	3
	ELECTIVE 1	3	0	0	3
EC313	Analog Integrated Circuits Laboratory	0	0	3	2
EC315	Digital Signal Processing Laboratory	0	0	3	2
TOTAL		18	1	6	23

SEMESTER VI

CODE	COURSE OF STUDY	L	T	P	C
EC302	Digital Communication	3	0	0	3
EC304	Networks and Protocols	3	0	0	3
EC306	Microwave Components and Circuits	3	0	0	3
EC308	VLSI Systems	3	0	0	3
	ELECTIVE 2	3	0	0	3
	ELECTIVE 3	3	0	0	3
EC312	Communication Engineering Laboratory	0	0	3	2
EC314	VLSI and Embedded System Design Laboratory	0	0	3	2
	INDUSTRIAL LECTURES				1
	INTERNSHIP/INDUSTRIAL TRAINING/ACADEMIC ATTACHMENT # (2 to 3 months duration during summer vacation)				2
TOTAL		18	1	6	25

To be evaluated at the beginning of VII semester by assessing the report and conducting seminar presentations.

SEMESTER VII

CODE	COURSE OF STUDY	L	T	P	C
HM401	Industrial Economics	3	0	0	3
EC401	Wireless Communication	3	0	0	3
EC403	Fiber Optic Communication	3	0	0	3
EC405	Microwave Electronics	3	0	0	3
	ELECTIVE 4	3	0	0	3
	ELECTIVE 5*	3	0	0	3
EC407	Fiber Optic Communication Laboratory	0	0	3	2
EC409	Microwave Laboratory	0	0	3	2
EC447	COMPREHENSIVE EXAMINATION	0	0	0	3
TOTAL		18	0	6	25

SEMESTER VIII

CODE	COURSE OF STUDY	L	T	P	C
MB790	Management Concepts and Practices	3	0	0	3
	ELECTIVE 6	3	0	0	3
	ELECTIVE 7*	3	0	0	3
	ELECTIVE 8*	3	0	0	3
EC498	PROJECT WORK	0	0	12	6
TOTAL		12	0	12	18

* GLOBAL ELECTIVES ALSO

LIST OF ELECTIVES

GROUP 1(COMMUNICATION AND SIGNAL PROCESSING STREAM)

1. EC001 Principles of Radar
2. EC002 Satellite Communication
3. EC003 Cognitive Radio
4. EC004 Multimedia Communication Technology
5. EC005 Communication Switching Systems
6. EC006 Broadband Access Technologies
7. EC007 Digital Speech Processing
8. EC008 Image Processing
9. EC009 Pattern Recognition
10. EC010 Signal Processing for Wireless Communication
11. EC011 Data structures and algorithms

GROUP 2 (MICROWAVE ENGINEERING STREAM)

1. EC021 Microwave Integrated Circuit Design
2. EC022 RF MEMS Circuit Design

GROUP 3 (VLSI CIRCUITS AND EMBEDDED SYSTEMS STREAM)

1. EC041 Computer Architecture and Organization
2. EC042 Embedded Systems
3. EC043 ARM System Architecture
4. EC044 Operating Systems
5. EC045 Display Systems
6. EC046 Electronic Packaging

LIST OF ADVANCED LEVEL COURSES FOR B. Tech. HONOURS

i. For the students with consistent academic record of GPA ≥ 8.5 from I to IV semesters, and applied for B. Tech Honors.

ii. Can opt to study any 3 of the listed advanced level courses from V semester)

1. EC090 Adhoc Wireless Networks
2. EC091 Wireless Sensor Networks
3. EC092 Detection and Estimation
4. EC093 Statistical Signal Processing
5. EC094 RF circuits
6. EC095 Numerical Techniques for MIC
7. EC096 Applied Photonics
8. EC097 Advanced Radiation Systems
9. EC098 Bio MEMS
10. EC099 Analog IC Design
11. EC100 VLSI System Testing
12. EC101 Electronic Design Automation Tools
13. EC102 Design of ASICs
14. EC103 Digital System Design
15. EC104 Digital Signal Processing structures for VLSI
16. EC105 Low Power VLSI circuits
17. EC106 VLSI Digital Signal Processing Systems
18. EC107 Asynchronous System Design
19. EC108 Physical Design Automation
20. EC109 Mixed - Signal Circuit Design
21. EC110 Digital signal processing for medical imaging

COURSES OFFERED TO OTHER DEPARTMENTS

DEPT.	CODE	COURSE OF STUDY	L	T	P	C
CSE	EC214	Basics of Communication	3	0	0	3
ICE	EC317	Principles of Communication Systems	3	0	0	3
EEE	EC319	Communication Systems	3	0	0	3
MET	EC215	Applied Electronics	2	0	2	3
MECH	EC217	Applied Electronic Engineering	2	0	2	3
CHE	EC219	Digital Electronics	3	0	0	3
ICE	EC356	VLSI Systems	3	0	0	3