MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

B.Tech - Electronics and Communication Engineering
Course Structure (R20)
Applicable From 2020-21 Admitted Batch
Structure Breakup

S. No	Category	Breakup of credits (Total 160 credits)
1	Humanities and Social Sciences including Management courses (HSMC)	10
2	Basic Sciences Courses (BS)	23
3	Engineering Sciences courses including Workshop, Drawing basics of electrical/mechanical/computer etc.(ES)	28
4	Professional Core courses (PC)	58
5	Professional Electives (PE)	18
6	Open Electives (OE)	9
7	Project work, Seminar and Internship in industry or elsewhere (PS)	14
8	Mandatory Courses	-
	TOTAL	**160**

I YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2010001	Engineering Mathematics-I	BS	3	1	0	4	30	70	100
2	2010006	Applied Physics	BS	3	1	0	4	30	70	100
3	2010501	Programming for Problem Solving	ES	3	1	0	4	30	70	100
4	2010071	Applied Physics Laboratory	BS	0	0	3	1.5	30	70	100
5	2010571	Programming for Problem Solving Laboratory	ES	0	0	3	1.5	30	70	100
6	2010371	Engineering Drawing Practice	ES	1	0	4	3	30	70	100
		Induction Programme	-	-	-	-	-	-	-	-
TOTAL				**10**	**3**	**10**	**18**	**180**	**420**	**600**

I YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2020002	Engineering Mathematics-II	BS	3	1	0	4	30	70	100
2	2020008	Engineering Chemistry	BS	3	1	0	4	30	70	100
3	2020009	Communicative English	HS	2	0	0	2	30	70	100
4	2020502	Data Structures	ES	3	0	0	3	30	70	100
5	2020073	Engineering Chemistry Laboratory	BS	0	0	3	1.5	30	70	100
6	2020074	Communicative English Language Laboratory	HS	0	0	2	1	30	70	100
7	2020572	Data Structures Laboratory	ES	0	0	2	1	30	70	100
8	2020372	Engineering Workshop	ES	1	0	3	2.5	30	70	100
9	2020321	Environmental Science	*MC-I	3	0	0	0	100	-	100
TOTAL				**15**	**2**	**10**	**19**	**340**	**560**	**900**

*MC- Satisfactory/Unsatisfactory

II YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2030003	Laplace Transforms, Series Solutions and Complex Variables	BS	3	1	0	4	30	70	100
2	2030411	Electronic Devices and Circuits	PC	3	1	0	4	30	70	100
3	2030201	Basic Electrical Engineering	PC	3	0	0	3	30	70	100
4	2030509	Java Programming	ES	2	0	0	2	30	70	100
5	2030412	Signals and Systems	PC	3	1	0	4	30	70	100
6	2030473	Electronic Devices and Circuits Laboratory	PC	0	0	3	1.5	30	70	100
7	2030271	Basic Electrical Engineering Laboratory	PC	0	0	2	1	30	70	100
8	2030570	Java Programming Laboratory	ES	0	0	2	1	30	70	100
9	2030023	Constitution of India	*MC-II	2	0	0	0	100	-	100
		TOTAL		14	3	7	20.5	340	560	900

II YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2040401	Analog and Pulse Circuits	PC	3	0	0	3	30	70	100
2	2040413	Analog and Digital Communication	PC	3	1	0	4	30	70	100
3	2040414	Digital System Design	PC	3	1	0	4	30	70	100
4	2040505	Python Programming	ES	2	0	0	2	30	70	100
5	2040415	Electromagnetic Theory and Transmission Lines	PC	3	0	0	3	30	70	100
6	2040471	Analog and Pulse Circuits Laboratory	PC	0	0	3	1.5	30	70	100
7	2040575	Python Programming Laboratory	ES	0	0	2	1	30	70	100
8	2040474	Basic Simulation & Digital System Design Laboratory	PC	0	0	3	1.5	30	70	100
9	2040022	Gender Sensitization	*MC-III	2	0	0	0	100	-	100
		TOTAL		16	2	8	20	340	560	900

Note: *Internship should be completed before the commencement of III Year B.Tech I Sem and evaluation is carried in III B.Tech – I Sem.*

*MC- Satisfactory/Unsatisfactory

III YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2050237	Control Systems	PC	2	1	0	3	30	70	100
2	2050416	Linear and Digital IC Applications	PC	3	1	0	4	30	70	100
3	2050010	Business Economics and Financial Analysis	HS	3	0	0	3	30	70	100
4	2050417	Probability Theory and Stochastic Processes	PC	3	0	0	3	30	70	100
5		Professional Elective – I	PE	3	0	0	3	30	70	100
6	2050503	Data Base Management Systems	ES	2	0	0	2	30	70	100
7	2050475	Analog and Digital Communications Lab	PC	0	0	3	1.5	30	70	100
8	2050573	Data Base Management Systems Laboratory	ES	0	0	2	1	30	70	100
9	2050075	Advanced English Language Communication Skills Laboratory	HS	0	0	2	1	30	70	100
10	2050480	*Internship	PS	0	0	2	1	30	70	100
11	2050024	Intellectual Property Rights	*MC-IV	2	0	0	0	100	-	100
		TOTAL		**18**	**2**	**9**	**22.5**	**400**	**700**	**1100**

III YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2060418	Digital Signal Processing	PC	3	1	0	4	30	70	100
2	2060403	Micro Processors and Micro Controllers	PC	3	0	0	3	30	70	100
3		Open Elective – I	OE	3	0	0	3	30	70	100
4		Professional Elective - II	PE	3	0	0	3	30	70	100
5	2060419	VLSI Design	PC	3	0	0	3	30	70	100
6	2060472	Micro Processors and Micro Controllers Lab	PC	0	0	2	1	30	70	100
7	2060476	Digital Signal Processing Laboratory	PC	0	0	3	1.5	30	70	100
8	2060477	Linear and Digital IC Applications Laboratory	PC	0	0	2	1	30	70	100
9	2060005	Professional Ethics	*MC-V	2	0	0	0	100	-	100
		TOTAL		**17**	**1**	**7**	**19.5**	**340**	**560**	**900**

Note: Industry Oriented *Mini Project* should be completed before the commencement of IV Year B.Tech I Sem and evaluation is carried in IV B.Tech – I Sem.

*MC- Satisfactory/Unsatisfactory

IV YEAR I SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1	2070011	Fundamentals of Management	HS	3	0	0	3	30	70	100
2	2070420	Antennas and Microwave Engineering	PC	3	1	0	4	30	70	100
3		Professional Elective – III	PE	3	0	0	3	30	70	100
4		Professional Elective – IV	PE	3	0	0	3	30	70	100
5		Open Elective - II	OE	3	0	0	3	30	70	100
6	2070478	ECAD & VLSI Design Laboratory	PC	0	0	3	1.5	30	70	100
7	2070479	Microwave Engineering Laboratory	PC	0	0		1	30	70	100
8	2070481	Industry Oriented Mini Project	PS	0	0	4	2	30	70	100
		TOTAL		15	1	10	20.5	240	560	800

IV YEAR II SEMESTER

S. No.	Course Code	Course Name	Course Area	Periods per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
1		Open Elective - III	OE	3	0	0	3	30	70	100
2		Professional Elective - V	PE	3	0	0	3	30	70	100
3		Professional Elective - VI	PE	3	0	0	3	30	70	100
4	2080482	Technical Seminar	PS	0	0	2	1	30	70	100
5	2080483	Major Project	PS	0	0	20	10	30	70	100
		TOTAL		9	0	22	20	150	350	500

Note: *Major Project should be completed before the commencement of IV Year B.Tech II Sem and evaluation is carried in IV B.Tech – II Sem.*

Professional Elective (PE) Courses

PE I - Professional Elective I

S. No.	Course Code	Course Title
1	2050441	Digital Design using Verilog
2	2050442	Electronic Measurements and Instrumentation
3	2050443	Spread Spectrum Communications
4	2050444	FPGA Programming

PE II - Professional Elective II

S. No.	Course Code	Course Title
1	2060445	Digital Image Processing
2	2060446	Cellular Mobile Communications
3	2066257	Artificial Neural Networks
4	2066665	R - Programming

PE III - Professional Elective III

S. No.	Course Code	Course Title
1	2070447	Wireless Communications and Networks
2	2070517	Internet of Things
3	2070448	Radar Systems
4	2070449	Satellite Communications

PE IV - Professional Elective IV

S. No.	Course Code	Course Title
1	2070450	Embedded System Design
2	2070547	Cryptography & Network Security
3	2070543	Artificial Intelligence
4	2070510	Operating System

PE V - Professional Elective V

S. No.	Course Code	Course Title
1	2080451	System Design using FPGAs
2	2080452	Optical Communications
3	2080518	Machine Learning
4	2080453	Introduction to Nano Technology

PE VI - Professional Elective VI

S. No.	Course Code	Course Title
1	2086210	Cyber Security
2	2080454	Analog CMOS IC Design
3	2080455	Global Navigation Satellite System
4	2080456	Computer Vision

Open Elective (OE) Courses

S. No	Open Elective	Course Code	Course Title
1	Open Elective - I	2060404	Electronic Communications & Applications
2	Open Elective – II	2060405	Introduction to VLSI & Embedded Systems
3	Open Elective - III	2060406	Global Navigation Satellite System & Applications

Note: Open Elective subject's syllabus is provided in a separate document. Student should take open electives from the list of offered by other departments/branches only.