MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

B.Tech - Electronics and Communication Engineering

Course Structure (MLRS-R24)

Applicable From 2024-25 Admitted Batch

Structure Breakup

S.No	Category	Breakup of credits(Total160credits)
1	Humanities and Social Sciences(HSMC),including Management.	7
2	Basic Science Courses (BSC) including Mathematics, Physics and Chemistry	20
3	Engineering Science Courses (ESC), including Workshop, Graphics, Basics o f Electrical / Electronics/Mechanical/ Computer Engineering.	23
4	Professional Core Courses (PCC), relevant to the chosen specialization /branch.	60
5	Professional Elective Courses(PEC),relevant to the chosen specialization/ branch.	18
6	Open Elective Courses (OEC), from other technical and / or emerging areas.	9
7	Experiential Learning/ Skill Development Courses (SDC) / Field Based Project/ Internship/ Projec t work(PROJ)/ Seminar	23
8	Mandatory Courses(MC) /Value Added Courses(VAC)	Non-Credit
TOTAL		**160**

IYEARISEMESTER(ISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Courses								
1	2410001	Matrices and Calculus	BS	3	1	0	4	40	60	100
2	2410008	Applied Physics	BS	3	0	0	3	40	60	100
3	2410501	Problem Solvig using C and C++	ES	3	0	0	3	40	60	100
4	2410010	English for Skill Enhancement	HSMC	3	0	0	3	40	60	100
		Laboratory Courses								
1	2410372	Engineering Workshop	ES	0	1	4	3	40	60	100
2	2410071	Applied Physics Laboratory	BS	0	0	2	1	40	60	100
3	2410571	Problem Solvig using C and C++ Laboratory	ES	0	0	2	1	40	60	100
4	2410073	English Language and Communications Skills Laboratory	HSMC	0	0	2	1	40	60	100
		Skill Development Course								
1	2410596	Web Application development	SDC	0	0	2	1	40	60	100
		Mandatory Course								
1		Foreign Language*	MC	0	0	0	0	-	-	-
		Induction Program	-	-	-	-	-	-	-	-
Total Credits				**12**	**2**	**12**	**20**	**360**	**540**	**900**

*Students can choose any one of the foreign languages from the given list:

1. **24X0FL1**: French
2. **24X0FL2:** German
3. **24X0FL3:** Spanish
4. **24X0FL4:** Korean

IYEARIISEMESTER(IISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2420002	Differential Equations and Vector Calculus	BS	3	1	0	4	40	60	100
2	2420009	Engineering Chemistry	BS	3	0	0	3	40	60	100
3	2420221	Electrical Engineering	PC	3	0	0	3	40	60	100
4	2420502	Essentials of Problem Solving using Python	ES	3	0	0	3	40	60	100
		Laboratory Course								
1	2420371	Computer Aided Engineering Graphics	ES	1	0	4	3	40	60	100
2	2420072	Engineering Chemistry Laboratory	BS	0	0	2	1	40	60	100
3	2420276	Electrical Engineering Laboratory	PC	0	0	2	1	40	60	100
4	2420572	Essentials of Problem Solving using Python Laboratory	ES	0	0	2	1	40	60	100
		Skill Development Course								
1	2420027	Public Speaking Skills	SDC	0	0	2	1	40	60	100
		Mandatory Course								
1	2420026	Yoga &Inner Engineering	MC	0	0	0	0	-	-	-
		Total Credits		13	1	12	20	360	540	900

II YEARISEMESTER(IIISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2430003	Numerical Methods and Complex Variables	BS	3	1	0	4	40	60	100
2	2430421	Electronic Devices and Circuits	PC	2	0	0	2	40	60	100
3	2430422	Digital System Design	PC	2	0	0	2	40	60	100
4	2430423	Signals and Systems	PC	2	1	0	3	40	60	100
5	2430507	Data Structures	ES	3	0	0	3	40	60	100
6	243ExL1	Design and Innovation	EL	0	0	2	1	40	60	100
		Laboratory Course								
1	2430471	Electronic Devices and Circuits Laboratory	PC	0	0	2	1	40	60	100
2	2430472	Basic Simulation and Digital System Design Laboratory	PC	0	0	2	1	40	60	100
3	2430575	Data Structures Laboratory using Python	ES	0	0	2	1	40	60	100
		Skill Development Course								
1	2430455	PCB Fabrication	SDC	0	0	2	1	40	60	100
		Project								
1	2430491	Internship-1*	PS	0	0	2	1	100	-	100
		Mandatory Courses								
1		Indian Knowledge Systems**	MC	0	0	0	0	-	-	-
Total Credits				12	2	12	20	500	600	1100

*Students must complete internship-1 during 1-2 semester break (minimum 2 weeks)

**The students can choose any one of the following IKS Courses:

1. 24XIKS1: Indian Science, Engineering and Technology
2. 24XIKS2: Fundamentals and Applications of Vedic Mathematics
3. 24XIKS3: Indian Health, wellness, and Psychology-including Ayurveda
4. 24XIKS4: Indian Town Planning and Architecture

II YEARIISEMESTER(IVSEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours perweek			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2440424	Electronic Circuits	PC	3	0	0	3	40	60	100
2	2440425	Probability Theory and Stochastic Processes	ES	3	0	0	3	40	60	100
3	2440426	Analog and Digital Communications	PC	2	1	0	3	40	60	100
4	2440226	Control Systems	PC	2	1	0	3	40	60	100
5	2440511	OOPS through JAVA	PC	3	0	0	3	40	60	100
6	244ExL2	Prototype/ Model development and Entrepreneurship	EL	0	0	2	1	40	60	100
		Laboratory Course								
1	2440473	Electronic Circuits Laboratory	PC	0	0	2	1	40	60	100
2	2440474	Analog and Digital Communications Laboratory	PC	0	0	2	1	40	60	100
3	2440592	OOPS through JAVA Laboratory	ES	0	0	2	1	40	60	100
		Skill Development Course								
1	2440574	Data visualization-Power Bi	SDC	0	0	2	1	40	60	100
		Mandatory Course								
1	2440021	Environmental Science	MC	0	0	0	0	-	-	-
		Total Credits		13	2	10	20	400	600	1000

ExL: Experiential Learning

III YEARISEMESTER(VSEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2450427	Electromagnetic Theory and Transmission Lines	PC	3	1	0	4	40	60	100
2	2450428	Microprocessors and Microcontrollers	PC	3	0	0	3	40	60	100
3	2450429	Integrated Circuits Applications	PC	3	0	0	3	40	60	100
4		Professional Elective – I	PE	3	0	0	3	40	60	100
5		Open Elective – I	OE	3	0	0	3	40	60	100
		Laboratory Course								
1	2450475	Microprocessors and Microcontrollers Laboratory	PC	0	0	2	1	40	60	100
2	2450476	Integrated Circuits Applications Laboratory	PC	0	0	2	1	40	60	100
3	2456675	Advanced Computer Laboratory	ES	0	0	2	1	40	60	100
		Project								
1	2450492	Field Based Project*	PS	0	0	2	1	100	-	100
		Mandatory Course								
1	2450022	Gender Sensitization	MC	0	0	0	0	-	-	-
Total Credits				15	1	8	20	420	480	900

*Students must complete Field Based Project during 2-2 semester break (minimum 2 weeks)

IIIYEARIISEMESTER(VISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2460430	Antennas and Wave Propagation	PC	3	1	0	4	40	60	100
2	2460431	Digital Signal Processing	PC	3	1	0	4	40	60	100
3	2460432	Digital CMOS IC Design	PC	3	0	0	3	40	60	100
4		Professional Elective - II	PE	3	0	0	3	40	60	100
5		Open Elective – II	OE	3	0	0	3	40	60	100
		Laboratory Course								
1	2460477	Digital Signal Processing Laboratory	PC	0	0	2	1	40	60	100
2	2460478	Digital CMOS IC Design Laboratory	PC	0	0	2	1	40	60	100
3	2460479	Internet of Things Laboratory	PC	0	0	2	1	40	60	100
		Mandatory Course								
1	2460025	Human Values and Professional Ethics	MC	0	0	0	0	-	-	-
Total Credits				15	2	6	20	320	480	800

IVYEARISEMESTER(VIISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIA)	External (SEE)	Total
		Theory Course								
1	2470433	Microwave and Optical Communications	PC	3	0	0	3	40	60	100
2	2470434	Analog CMOS IC Design	PC	2	0	0	2	40	60	100
3		Professional Elective – III	PE	3	0	0	3	40	60	100
4		Professional Elective - IV	PE	3	0	0	3	40	60	100
5		Open Elective – III	OE	3	0	0	3	40	60	100
		Laboratory Course								
1	2470480	Analog CMOS IC Design Laboratory	PC	0	0	2	1	40	60	100
2	2470481	Microwave and Optical Communications Laboratory	PC	0	0	2	1	40	60	100
		Project								
1	2470493	Project Stage - I	PS	0	0	6	3	100	-	100
2	2470494	Internship-2*	PS	0	0	2	1	100	-	100
		Mandatory Course								
1	2470023	Constitution of India	MC	0	0	0	0	-	-	-
		Total Credits		14	0	12	20	480	420	900

*Students must complete internship-2 during 3-2 semester break (minimum 2 weeks)

IVYEARIISEMESTER(VIIISEMESTER)

S. No.	Course Code	Course Name	Course Area	Hours per week			Credits	Scheme of Examination Maximum Marks		
				L	T	P		Internal (CIE)	External (SEE)	Total
		Theory Course								
1	2480010	Business Economics and Financial Analysis	HSMC	3	0	0	3	40	60	100
2		Professional Elective- V	PE	3	0	0	3	40	60	100
3		Professional Elective-VI	PE	3	0	0	3	40	60	100
		Project								
1	2480495	Technical Seminar	PS	0	0	4	2	100	-	100
2	2480496	Project Stage-II	PS	0	0	18	9	40	60	100
Total Credits				**9**	**0**	**22**	**20**	**260**	**240**	**500**

List of Open Electives Applicable For 2024-25 Admitted Batch

Branch	Open Elective-I (OE–I)	Open Elective-II (OE– II)	Open Elective-III (OE– III)
Electronics and Communication Engineering	2450407: IOT and its Applications 2450408: Principles of Signals and Systems	2460409: Fundamentals of Embedded Systems 2460410: Introduction to Nano Technology	2470411: Principles of Communication Systems 2480412: Basic VLSI Design

*Note: **Students should take Open Electives from the list of Open Electives offered by other Departments/Branches only.**