



**Jawaharlal Nehru Technological
University Anantapur College of Engineering
Pulivendula –516 390 (A.P) India**

**B.Tech. in Electronics and Communication Engineering
Course Structure and Syllabi
under R19 Regulations**

ELECTRONICS & COMMUNICATION ENGINEERING

S.No	Course Name	Category	L-T-P-C
1	Physical Activities -- Sports, Yoga and Meditation, Plantation	MC	0-0-6-0
2	Career Counseling	MC	2-0-2-0
3	Orientation to all branches -- career options, tools, etc.	MC	3-0-0-0
4	Orientation on admitted Branch -- corresponding labs, tools and platforms	EC	2-0-3-0
5	Proficiency Modules & Productivity Tools	ES	2-1-2-0
6	Assessment on basic aptitude and mathematical skills	MC	2-0-3-0
7	Remedial Training in Foundation Courses	MC	2-1-2-0
8	Human Values & Professional Ethics	MC	3-0-0-0
9	Communication Skills -- focus on Listening, Speaking, Reading, Writing skills	BS	2-1-2-0
10	Concepts of Programming	ES	2-0-2-0

B.Tech I Year I Semester

Semester - 1					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19ABS06	Linear Algebra and Calculus	BS	3-1-0	4
2	19ABS03	Chemistry	BS	3-0-0	3
3	19ACS01	Problem Solving & Programming	ES	3-1-0	4
4	19AHS01	Communicative English- I	HS	2-0-0	2
5	19AEC01	Electronics & Communication Engineering Workshop	PC	0-0-2	1
6	19ABS04	Chemistry Lab	BS	0-0-3	1.5
7	19ACS02	Problem Solving & Programming Lab	ES	0-0-3	1.5
8	19AHS02	Communicative English – I Lab	HS	0-0-2	1
Total					18

B.Tech I Year II Semester

Semester - 2					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AEC02	Network Theory	ES	3-0-0	3
2	19ABS07	Differential Equations and Vector Calculus	BS	3-1-0	4
3	19ABS09	Applied Physics	BS	3-0-0	3
4	19ACS05	Data Structures	ES	3-0-0	3
5	19AME02	Engineering Workshop	LC	0-0-3	1.5
6	19AME01	Engineering Graphics	ES	1-0-3	2.5
7	19AEC03	Network Theory Lab	ES	0-0-3	1.5
8	19ABS10	Applied Physics Lab	BS	0-0-3	1.5
9	19ACS06	Data Structures Lab	ES	0-0-3	1.5
Total					21.5


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B.Tech II Year I Semester

Semester - 3					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19ABS12	Complex Variables & Transforms	BS	3 - 0 - 0	3
2	19AEC04	Electronic Devices & Circuits	PC	3 - 0 - 0	3
3	19AEC06	Switching Theory & Logic Design	PC	3 - 0 - 0	3
4	19AEC07	Signals & Systems	PC	3 - 0 - 0	3
5	19AEE07	Control Systems	PC	3 - 0 - 0	3
6	19AEE05	Electrical Technology	ES	3 - 0 - 0	3
7	19AEC05	Electronic Devices & Circuits Lab	PC	0 - 0 - 3	1.5
8	19AEC08	Signals and Systems Lab	PC	0 - 0 - 2	1
9	19AEE06	Electrical Technology Lab	ES	0 - 0 - 2	1
10	19AHS04	Constitution of India	MC	3 - 0 - 0	0
Total					21.5

B.Tech II Year II Semester

Semester - 4					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AEC15	Probability Theory & Stochastic Processes	ES	3 - 0 - 0	3
2	19AEC16	Electronic Circuit Analysis and Design	PC	3 - 0 - 0	3
3	19AEC17	EM Waves and Transmission Lines	ES	3 - 0 - 0	3
4	19AEC18	Analog Communications	PC	3 - 0 - 0	3
5	19AEC20	Linear Integrated Circuits & Applications	PC	3 - 0 - 0	3
6	19AEC21	Digital Integrated Circuits & Applications	PC	3 - 0 - 0	3
7	19AEC23	Electronic Circuit Analysis and Design Lab	ES	0 - 0 - 3	1.5
8	19AEC19	Analog Communications Lab	PC	0 - 0 - 2	1
9	19AEC22	Integrated Circuits & Applications Lab	PC	0 - 0 - 2	1
10	19ABS14	Environmental Science	MC	3 - 0 - 0	0
11	19AHS03	Universal Human Values	MC	2 - 0 - 0	2
Total					23.5


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B.Tech III Year I Semester

Semester - 5					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AHS12	English Language Skills	HS	2 - 0 - 0	2
2	19AEC51	Antennas & Wave Propagation	PC	3 - 0 - 0	3
3	19AEC52	Digital Communications	PC	3 - 0 - 0	3
4	19AEC53	Computer Architecture and Organization	PC	3 - 1 - 0	4
5	19AEC54	Professional Elective – I	PE	3 - 0 - 0	3
	19AEC54a	Information Theory & Coding			
	19AEC54b	Industrial Electronics			
	19AEC54c	Artificial Intelligence & Neural Networks			
6	19AEC55	Open Elective - I (Inter disciplinary)- ANNEXURE-I	OE	3 - 0 - 0	3
7	19AHS13	English Language Skills Lab	HS	0 - 0 - 3	1.5
8	19AEC56	Digital Communications Lab	PC	0 - 0 - 2	1
9	19AEC59	Socially Relevant Projects (30 hours/sem)	PR	-----	1
10	19AHS17	Research Methodology	MC	3 - 0 - 0	0
Total :					21.5

B.Tech III Year II Semester

Semester - 6					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AEC61	Microprocessors & Microcontrollers	PC	3 - 0 - 0	3
2	19AEC62	Digital Signal Processing	PC	3 - 0 - 0	3
3	19AEC63	Microwave Engineering	PC	3 - 0 - 0	3
4	19AEC64	Professional Elective – II	PE	3 - 0 - 0	3
	19AEC64a	Optical Communications			
	19AEC64b	Cellular & Mobile Communications			
	19AEC64c	Machine Learning Techniques			
5	19AEC65	Open Elective -II(Inter disciplinary)-ANNEXURE-II	OE	3 - 0 - 0	3
6	19AHS14	Humanities Elective - I	HS	3 - 0 - 0	3
	19AHS14a	MEFA			
	19AHS14b	Entrepreneurship & Innovation Management			
7	19AEC66	Microprocessors & Microcontrollers Lab	PC	0 - 0 - 3	1.5
8	19AEC67	Digital Signal Processing Lab	PC	0 - 0 - 2	1
9	19AEC69	Microwave Engineering Lab	PC	0 - 0 - 2	1
10	19AHS16	Organizational Behavior	MC	3 - 0 - 0	0
11	Industrial Training/ Internship/Research projects in National Laboratories / Academic Institutions*		PR	4 Weeks Summer Internship	
Total					21.5


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B.Tech IV Year I Semester

Semester - 7					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AEC71	VLSI Design	PC	3 - 0 - 0	3
2	19AEC72	Electronic Measurements & Instrumentation	PC	3 - 0 - 0	3
3	19AEC74	Professional Elective –III	PE	3 - 0 - 0	3
	19AEC74a	Radar Systems			
	19AEC74b	RF Circuit design			
	19AEC74c	Bio- Medical Instrumentation			
4	19AEC76	Professional Elective- IV	PE	3 - 0 - 0	3
	19AEC76a	Satellite Communications			
	19AEC76b	Digital Image Processing			
	19AEC76c	DSP Processors& Architectures			
5	19AEC75	Open Elective -III - ANNEXURE-III	OE	2 - 0 - 0	2
6	19AHS15	Humanities Elective- II	HS	3 - 0 - 0	3
	19AHS15a	Management Science			
	19AHS15b	Business Environment			
7	19AEC77	VLSI Design Lab	PC	0 - 0 - 3	1.5
8	19AEC78	Industrial Training/ Internship/ Research Projects in National Laboratories/Academic Institutions	PR	-----	2
9	19AEC79	Project Stage – I	PR	-----	2
Total					22.5

B.Tech IV Year II Semester

Semester - 8 (Theory - 2, Lab - 0)					
S.No	Course No	Course Name	Category	L-T-P	Credits
1	19AEC81	Professional Elective - V (MOOC)	PE	3 - 0 - 0	3
2	19AEC82	Open Elective- IV (MOOC)	OE	3 - 0 - 0	3
3	19AEC89	Project Stage – II	PR	-----	6
Total					12


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ANNEXURE – I

Open Elective I (Interdisciplinary)

Branch	Subject Code	Subject
Humanities	19AHS10	Campus Recruitment Training & Soft Skills
Mathematics	19ABS20	Mathematical Modeling
	19ABS21	Fuzzy Set Theory, Arithmetic and Logic
	19ABS22	Number Theory
Physics	19ABS31	Sensors and Actuators for Engineering Applications
	19ABS32	Physics of Electronic Materials
Chemistry	19ABS41	Chemistry of Energy Materials
	19ABS42	Advanced Polymers and Their Applications
	19ABS43	Marine Chemistry
CIVIL	19ACE55a	Air Pollution and Control
	19ACE55b	Green Buildings
	19ACE55c	Basics of Civil Engineering Materials and Construction Practice
EEE	19AEE55a	Basics of Non-Conventional Energy Sources
	19AEE55b	Electrical Measurements & Sensors
	19AEE55c	Electric Vehicle Engineering
ME	19AME55a	Introduction to Hybrid and Electric Vehicles
	19AME55b	Rapid Prototyping
	19AME55c	Design for Manufacturing and Assembly
	19AME55d	Power Plant Operation and Control
	19AME55e	Smart Materials
	19AME55f	Supply Chain Management
CSE	19ACS55a	Object Oriented Programming Concepts Through Java
	19ACS55b	Introduction to Internet Of Things
	19ACS55c	Introduction to Operating Systems


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ANNEXURE – II

Open Elective II (Interdisciplinary)

Branch	Subject Code	Subject Name
Humanities	19AHS11	Competitive & Spoken English
Mathematics	19ABS23	Integral Transforms And ITS Applications
	19ABS24	Numerical Analysis
	19ABS25	Optimization Techniques
Physics	19ABS33	Functional Nanomaterials For Engineers
	19ABS34	Materials Characterization Techniques
Chemistry	19ABS44	Green Chemistry and Catalysis for Sustainable Environment
	19ABS45	Chemistry of Nanomaterials and Applications
	19ABS46	Environmental Management and Audit
CIVIL	19ACE65a	Remote Sensing and GIS
	19ACE65b	Environmental Impact Assessment
	19ACE65c	Disaster Management and Mitigation
EEE	19AEE65a	Energy Conservation and Management
	19AEE65b	PLC & ITS Applications
	19AEE65c	System Reliability Concepts
ME	19AME65a	Automobile Electronics, Sensors & Drives
	19AME65b	Programming of Robots and Control
	19AME65c	Sensors in Intelligent Manufacturing
	19AME65d	Non-Conventional Sources of Energy
	19AME65e	NEMS & MEMS
	19AME65f	Optimization Techniques Through MAT lab
CSE	19ACS65a	Introduction to Machine Learning
	19ACS65b	Introduction to Computer Networks
	19ACS65c	Web Design and Management

ANNEXURE – III Open Elective III

Branch	Subject Code	Subject Name
CIVIL	19ACE75a	Architecture and town planning
	19ACE75b	Experimental stress analysis
	19ACE75c	Finite element methods
EEE	19AEE75a	Electrical engineering materials
	19AEE75b	Digital signal processors and applications
	19AEE75c	IOT applications in electrical engineering
ME	19AME75a	Special types of vehicles
	19AME75b	Six sigma and lean manufacturing
	19AME75c	Reverse engineering
	19AME75d	Energy auditing
	19AME75e	Introduction to composite materials
	19AME75f	Customer relationship management
ECE	19AEC75a	Embedded systems & IOT
	19AEC75b	Electronic instrumentation
	19AEC75c	Basics of VLSI design
CSE	19ACS75a	Mobile application development
	19ACS75b	Real time operating systems and applications
	19ACS75c	Fundamentals of block chain and applications


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