JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in Electronics and Communication Engineering
COURSE STRUCTURE & SYLLABUS (R25 Regulations)
Applicable from AY 2025-26 Batch

I Year I Semester (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Matrices and Calculus	3	1	0	4
2	BSC	Physics	3	0	0	3
3	CSC	C Programming	3	0	0	3
4	MEC	Computer Aided Engineering Graphics	2	0	2	3
5	ESC	Basic Electrical Engineering	2	0	0	2
6	HSC	English for Skill Enhancement/	3	0	0	3
7	BSC	Physics Laboratory	0	0	2	1
8	CSC	C Programming Laboratory		0	2	1
9	HSC	English Language and Communication Skills Laboratory	0	0	2	1
10		Induction Program				
		Total Credits	**16**	**01**	**08**	**21**

I Year II Semester (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Ordinary Differential Equations and Vector Calculus	3	0	0	3
2	BSC	Chemistry	3	0	0	3
3	CSC	Python Programming	3	0	0	3
4	ESC	Data Structures	3	0	0	3
5		Network Analysis and Synthesis	3	0	0	3
6	MEC	Engineering Workshop	0	0	2	1
7	BSC	Chemistry Laboratory	0	0	2	1
8	CSC	Python Programming Laboratory/ Applied Python Programming Laboratory	0	0	2	1
9	ESC	Data Structures Lab	0	0	2	1
10	ESC	Basic Electrical Engineering Laboratory	0	0	2	1
		Total Credits	**15**	**0**	**10**	**20**

II YEAR I SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Probability Theory and Stochastic Processes	3	0	0	3
2		Signals and Systems	3	0	0	3
3		Electronic Devices and Circuits	3	0	0	3
4		Digital Logic Design	3	0	0	3
5		Control Systems	2	0	0	2
6		Innovation and Entrepreneurship	2	0	0	2
7		Modelling and Simulation Lab	0	0	2	1
8		Electronic Devices and Circuits Lab	0	0	2	1
9		Digital Logic Design Lab	0	0	2	1
10	SDC	Skill Development Course-1 Linux and Shell Scripting	0	0	2	1
11	MC	Environmental Science	1	0	0	1
		Total Credits	**17**	**0**	**08**	**21**

II YEAR II SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	**Mathematics – III**	3	0	0	3
2		Electromagnetic Fields and Transmission Lines	3	0	0	3
3		Analog and Digital Communications	3	0	0	3
4		Electronic Circuit Analysis	3	0	0	3
5		Linear and Digital IC Applications	3	0	0	3
6		**Mathematics – III Lab**	0	0	2	1
7		Analog and Digital Communications Laboratory	0	0	2	1
8		Electronic Circuit Analysis Laboratory	0	0	2	1
9		Linear and Digital IC Applications Laboratory	0	0	2	1
10	SDC	Skill Development Course – 2 Web and Mobile Applications	0	0	2	1
		Total Credits	**15**	**0**	**10**	**20**

III YEAR I SEMESTER (27 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Digital Signal Processing	3	0	0	3
2		RISC and Microcontroller architectures	3	0	0	3
3		CMOS VLSI Design	3	0	0	3
4		Professional Elective-I	3	0	0	3
5		Open Elective-I	2	0	0	2
6		RISC and Microcontroller Interfacing Laboratory	0	0	2	1
7		CMOS VLSI Design Laboratory	0	0	2	1
8		Digital Signal Processing Laboratory	0	0	2	1
9		Real Time Project (RTP)	0	0	4	2
10	SDC	Skill Development Course – 3: FPGA based System Design	0	0	2	1
11	MC	Indian Knowledge System	1	0	0	1
		Total Credits	**15**	**0**	**12**	**21**

III YEAR II SEMESTER (25 Hours)

S.No	Course Code	Course Title	L	T	P	Credits
1		Antenna Design and Wave Propagation	3	0	0	3
2		IoT Architectures and Protocols	3	0	0	3
3		Fundamentals of Management for Engineers/ Business Economics and Financial Analysis/ Organisational Behaviour	3	0	0	3
4		Professional Elective-II	3	0	0	3
5		Open Elective – II	2	0	0	2
6		Advanced Communications Lab	0	0	2	1
7		IoT Architectures and Protocols Laboratory	0	0	2	1
8		VLSI Design Verification Laboratory	0	0	2	1
9	HSC	Advanced English Communication Skills Laboratory	0	0	2	1
10	SDC	Skill Development Course – 45G Practical Lab/Robotic Lab/Drone Lab	0	0	2	1
11	MC	Gender Sensitization Lab*/ Human Values and Professional Ethics*	1	0	0	1
		Total Credits	**15**	**0**	**10**	**20**

***Note: For the courses Gender Sensitization Lab and Human Values and Professional Ethics-** one hour of instruction will be conducted on alternate weeks. For example, if a one-hour class for Gender Sensitization Lab is conducted this week, then a one-hour class for Human Values and Professional Ethicswill be conducted in the following week.

IV YEAR I SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Microwave and Optical Communications	3	0	0	3
2		Embedded System Design	3	0	0	3
3		Fundamentals of Management for Engineers/ Business Economics and Financial Analysis/ Organisational Behaviour	3	0	0	3
4		Professional Elective-III	3	0	0	3
5		Professional Elective – IV	3	0	0	3
6		Open Elective – III	2	0	0	2
7		Microwave and Optical Communications Laboratory	0	0	2	1
8		Embedded System DesignLab	0	0	2	1
9		Industry Oriented Mini Project/ Summer Internship	0	0	4	2
		Total Credits	**17**	**0**	**08**	**21**

IV YEAR II SEMESTER (34 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Professional Elective – V	3	0	0	3
2		Professional Elective – VI	3	0	0	3
3		Project Work	0	0	28	14
		Total Credits	**06**	**0**	**28**	**20**

***Note:** Students who wish to exit after II Year II Semester has to register for this optional course and acquire the credits allotted by doing 6 weeks Work-based Vocational Course/ Internship or Apprenticeship. Please refer R25 Academic Regulations for more information.

Professional Elective - I

1	Sustainability for Electronics
2	CMOS Fabrication and Technology
3	Data Communications and Computer Networks
4	Computer Organization and Operating Systems

Professional Elective - II

1	5G Communications
2	Electronic Measurements and Instrumentation
3	Low Power VLSI Design
4	Image and Video Processing

Professional Elective-III

1	Biomedical Signal and Image Processing
2	Wireless Communication Networks
3	Design for Testability

4	Unmanned Aerial Vehicles and Satellite Imaging

Professional Elective-IV

1	Artificial Neural Networks and Deep Learning
2	Satellite Communications
3	Analog and Mixed Signal IC Design
4	Biomedical Instrumentation

Professional Elective-V

1	AI for Signal and Image Processing
2	Radar Systems
3	Intelligent e - Computer Aided Design
4	Network Security and Cryptography

Professional Elective-VI

1	DSP Processors and Architectures
2	Quantum Technologies
3	RF Circuit Design
4	Model Based System Engineering

OPEN ELECTIVES

Open Elective-I:

1	Principles of Communication
2	Fundamentals of Cyber Physical Systems

Open Elective-II:

1	Fundamentals of Image Processing
2	Automotive Electronics

Open Elective-III:

1	Introduction to wireless Communications
2	Electronics for Health Care