JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
University Constituent Engineering Colleges
B.Tech. in COMPUTER SCIENCE AND ENGINEERING
Course Structure & Syllabus (R25 Regulations)
Applicable from AY 2025-2026 Batch

I Year I Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Matrices and Calculus	3	1	0	4
2	BSC	Engineering Chemistry	3	0	0	3
3	ESC	Basic Electrical Engineering	3	0	0	3
4	CSC	Programming for Problem Solving	3	0	0	3
5	ESC	Electronic Devices and Circuits	3	0	0	3
6	BSC	Engineering Chemistry Lab	0	0	2	1
7	ESC	Basic Electrical Engineering Lab	0	0	2	1
8	CSC	Programming for Problem Solving Lab	0	0	2	1
9	HSC	IT Workshop	0	0	2	1
10		Induction Program				
		Total Credits	**15**	**1**	**8**	**20**

I Year II Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Ordinary Differential Equations and Vector Calculus	3	0	0	3
2	BSC	Applied Physics	3	0	0	3
3	MEC	Computer Aided Engineering Graphics	2	0	2	3
4	ESC	Data Structures	3	0	0	3
5	HSC	English for Skill Enhancement	3	0	0	3
6	BSC	Applied Physics Lab	0	0	2	1
7	ESC	Data Structures Lab	0	0	2	1
8	HSC	English Language and Communication Skills Lab	0	0	2	1
9	MEC	Engineering Workshop	0	0	2	1
10	CSC	Python Programming Lab	0	1	2	2
		Total Credits	**14**	**1**	**12**	**21**

II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1		Discrete Mathematics	3	0	0	3
2		Computer Organization and Architecture	3	0	0	3
3		Object Oriented Programming through Java	3	0	0	3
4		Software Engineering	3	0	0	3
5		Data Base Management Systems	3	0	0	3
6		Innovation and Entrepreneurship	2	0	0	2
7		Object Oriented Programming through Java Lab	0	0	2	1
8		Software Engineering Lab	0	0	2	1
9		Data Base Management Systems Lab	0	0	2	1
10	SDC	Skill Development Course – 1 (NodeJS/ReactJS/Django)	0	0	2	1
11	MC	Environmental Science	1	0	0	0
		Total Credits	**18**	**0**	**08**	**21**

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Computer Oriented Statistical Methods	3	0	0	3
2		Operating Systems	3	0	0	3
3		Business Economics and Financial Analysis	3	0	0	3
4		Computer Networks	3	0	0	3
5		Machine Learning	3	0	0	3
6		Computational Mathematics Lab	0	0	2	1
7		Operating Systems Lab	0	0	2	1
8		Computer Networks Lab	0	0	2	1
9		Machine Learning Lab	0	0	2	1
10	SDC	Skill Development Course – 2(Data Visualization- R/ Python/ Power BI)	0	0	2	1
		Total Credits	**15**	**0**	**10**	**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.

III YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	F	Credits
1		Formal Languages and Automata Theory	3	0	0		3
2		Artificial Intelligence	3	0	0		3
3		Design and Analysis of Algorithms	3	1	0		4
4		Professional Elective-I	3	0	0		3
5		Open Elective-I	2	0	0		2
6		Artificial Intelligence with Python Lab	0	0	2		1
7		Advanced Data Structures Lab	0	0	2		1
8		Prompt Engineering	0	0	2		1
9		Field-Based Project/Internship	0	0	0	4	2
10	SDC	Skill Development Course – 3(UI Design –Flutter/ Android Studio)	0	0	2		1
11	MC	Indian Knowledge System	1	0	0		0
		Total Credits	**15**	1	**8**	**4**	**21**

III YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1		Cryptography and Networks Security	3	0	0	3
2		Deep Learning	3	1	0	4
3		Compiler Design	3	0	0	3
4		Professional Elective-II	3	0	0	3
5		Open Elective – II	2	0	0	2
6		Cryptography and Networks Security Lab	0	0	2	1
7		Deep Learning Lab	0	0	2	1
8		Compiler Design Lab	0	0	2	1
9	HSC	English for Employability Skills Laboratory	0	0	2	1
10	SDC	Skill Development Course – 4 (DevOps)	0	0	2	1
11	MC	Gender Sensitization Lab*/ Human Values and Professional Ethics*	1	0	0	0
		Total Credits	**15**	**1**	**10**	**20**

***Note:** Students who wish to exit after III 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.

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	F	Credits
1		Natural Language Processing	3	0	0		3
2		Cyber Security	3	0	0		3
3		Fundamentals of Management	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		Natural Language Processing Lab	0	0	2		1
8		Cyber Security Lab	0	0	2		1
9		Industry Oriented Mini Project/ Summer Internship	0	0	0	4	2
		Total Credits	**17**	**0**	**4**	**4**	**21**

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	F	Credits
1		Professional Elective – V	3	0	0		3
2		Professional Elective – VI	3	0	0		3
3		Project Work	0	0	0	28	14
		Total Credits	**6**	**0**	**0**	**28**	**20**

PROFESSIONAL ELECTIVES

Professional Elective - I

1	Computer Graphics
2	Introduction to Data Science
3	Software Testing Methodologies
4	Data Mining
5	Distributed Systems

Professional Elective - II

1	Blockchain Technology
2	Software Project Management
3	Mining Massive Datasets
4	Scripting Languages
5	Generative AI

Professional Elective-III

1	Computer Vision
2	Full Stack Development
3	Data Stream Mining
4	Cloud Computing
5	Information Retrieval Systems

Professional Elective-IV

1	Augmented Reality & Virtual Reality
2	Agile Methodology
3	Big Data Technologies
4	Quantum Computing
5	Robotic Process Automation

Professional Elective-V

1	Social Media Mining
2	Nature Inspired Computing
3	Internet of Things
4	Mobile Application Development
5	UI/UX Design

Professional Elective-VI

1	High Performance Computing
2	Edge Computing
3	Ad hoc and Sensor Networks
4	Sustainable Engineering
5	Distributed Databases

OPEN ELECTIVES

Open Elective-I:

1	Operating Systems Principles
2	Structured Query Language - SQL

Open Elective-II:

1	Core Java Programming
2	Software Testing Techniques

Open Elective-III:

1	MERN Stack Development
2	Fundamentals of Cyber Security