JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
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	HSC	English for Skill Enhancement	3	0	0	3
4	ESC	Electronic Devices and Circuits	3	0	0	3
5	CSC	Programming for Problem Solving	3	0	0	3
6	BSC	Engineering Chemistry Lab	0	0	2	1
7	CSC	Programming for Problem Solving 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		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	Advanced Engineering Physics	3	0	0	3
3	MEC	Computer Aided Engineering Graphics	2	0	2	3
4	ESC	Basic Electrical Engineering	3	0	0	3
5	ESC	Data Structures	3	0	0	3
6	BSC	Advanced Engineering Physics Lab	0	0	2	1
7	ESC	Data Structures Lab	0	0	2	1
8	CSC	Python Programming Lab	0	0	2	1
9	ESC	Basic Electrical Engineering Lab	0	0	2	1
10	HSC	IT Workshop	0	0	2	1
		Total Credits	**14**	**0**	**12**	**20**

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
		Innovation and Entrepreneurship	2	0	0	2
6		Object Oriented Programming through java Lab	0	0	2	1
7		Software Engineering Lab	0	0	2	1
8		Data Base Management Systems Lab	0	0	2	1
9	SDC	Skill Development Course – 1 Node Js/React JS/Django	0	0	2	1
10	MC	Environmental Science	1	0	0	1
		Total Credits	**18**	**0**	**08**	**22p**

II YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Computer oriented Statistical Methods Mathematical	3	0	0	3
2		Operating Systems	3	0	0	3
3		Algorithm design and 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
7		Computer Networks Lab	0	0	2	1
8		Machine Learning Lab	0	0	2	1
9	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	Credits
1		Automata Theory and Compiler Design	3	0	0	3
2		Artificial Intelligence	3	0	0	3
3		DevOps	3	0	0	3
4		Professional Elective-I	3	0	0	3
5		Open Elective-I	2	0	0	2
6		Compiler Design Lab	0	0	2	1
7		Artificial Intelligence with Python Lab	0	0	2	1
8		DevOps Lab	0	0	2	1
		Field-Based Project/Internship	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	1
		Total Credits	**15**	**0**	**12**	**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	0	0	3
3		Business Economics and Financial Analysis	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		Advanced Data Structures using Python Lab	0	0	2	1
	HSC	Advanced English Communication Skills Laboratory	0	0	2	1
9	SDC	Skill Development Course – 4 Prompt Engineering	0	0	2	1
10	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 Ethics will be conducted in the following week.

IV YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	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	4	2
		Total Credits	**17**	**0**	**08**	**21**

IV YEAR II SEMESTER

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	**6**	**0**	**28**	**20**

PROFESSIONAL ELECTIVES

Professional Elective - I

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

Professional Elective - II

1	Image Processing
2	Blockchain Technology
3	Software Project Management
4	Mining Massive Datasets
5	Full Stack Development
6	Generative AI

Professional Elective-III

1	Computer Vision
2	Scripting Languages
3	Vulnerability and Penetration Testing
4	Data Stream Mining
5	Cloud Computing
6	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
6	Cyber Forensics

Professional Elective-V

1	Social Media Mining
2	Nature Inspired Computing
3	Internet of Things
4	Game Theory
5	Mobile Application Development
6	Human Computer Interaction

Professional Elective-VI

1	High Performance Computing
2	Edge Computing
3	Graph Theory
4	Adhoc and Sensor Networks
5	Sustainable Engineering
6	Distributed Databases

OPEN ELECTIVES

Open Elective-I:

1	Operating Systems Fundamentals
2	Structured Query Language

Open Elective-II:

1	Introduction to Computer Networks
2	Fundamentals in Software Engineering

Open Elective-III:

1	Algorithms Design
2	Fundamentals of Cyber Security