JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
COURSE STRUCTURE & SYLLABUS (R25 Regulations)
Applicable from AY 2025-26 Batch

B.Tech. CE (Software Engineering)

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	Advanced Engineering Physics	3	0	0	3
3	MEC	Engineering Graphics and Computer Aided Drafting	2	0	2	3
4		Basic Electrical Engineering	3	0	0	3
5	CSC	Programming for Problem Solving	3	0	0	3
6	BSC	Advanced Engineering Physics Lab	0	0	2	1
7	CSC	Programming for Problem Solving Lab	0	0	2	1
8		Python Programming Lab	0	0	2	1
9	HSC	Basic Electrical Engineering Lab	0	0	2	1
10		Induction Program				
		Total Credits	**14**	**1**	**10**	**20**

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	Engineering Chemistry	3	0	0	3
3	HSC	English for Skill Enhancement	3	0	0	3
4		Electronic Devices and Circuits	3	0	0	3
5		Data Structures	3	0	0	3
6	BSC	Engineering Chemistry Lab	0	0	2	1
7		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		IT Workshop	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	BSC	Mathematical and Statistical Foundation	3	0	0	3
2		Computer Organization	3	0	0	3
3		Database Management Systems	3	0	0	3
4		JAVA Programming	3	0	0	3
5		Software Engineering	3	0	0	3
6		Computational Mathematics Laboratory	0	0	2	1
7		Database Management Systems Laboratory	0	0	2	1
8		JAVA Programming Laboratory	0	0	2	1
9		Software Engineering Laboratory	0	0	2	1
10	SDC	Data Visualization-R Programming/Power BI/ Tableau/Google Chart	0	0	2	1
		Total Credits	**15**	**0**	**10**	**20**

II YEAR II SEMESTER (26 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Discrete Mathematics	3	0	0	3
2		Operating Systems	3	0	0	3
3		Automata Theory and Compiler Design	3	0	0	3
4		Software Requirements and Estimation	3	0	0	3
5		Web Technologies	3	0	0	3
6		Innovation and Entrepreneurship	2	0	0	2
7		Linux Programming Laboratory	0	0	2	1
8		Operating Systems Laboratory	0	0	2	1
9		Web Technologies Laboratory	0	0	2	1
10	SDC	Node JS/ React JS/ Django	0	0	2	1
11	MC	Indian Knowledge System	1	0	0	1
		Total Credits	**18**	**0**	**08**	**22**

III YEAR I SEMESTER (27 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Software Testing Methodologies	3	0	0	3
2		Machine Learning	3	0	0	3
3		Algorithm Design and Analysis	3	0	0	3
4		Professional Elective-I	3	0	0	3
5		Open Elective-I	2	0	0	2
6		Software Testing Methodologies Laboratory	0	0	2	1
7		Machine Learning Laboratory	0	0	2	1
8		Algorithms Design and Analysis Laboratory	0	0	2	1
9		Field Based Project/ Internship	0	0	4	2
10	SDC	UI design- Flutter	0	0	2	1
11	MC*	Gender Sensitization*/ Human Values and Professional Ethics*	1	0	0	1
		Total Credits	**15**	**0**	**12**	**21**

Note: For the courses Gender Sensitization 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 is conducted this week, then a one-hour class for Human Values and Professional Ethics* will be conducted in the following week.

III YEAR II SEMESTER (25 Hours)

S. No	Course Code	Course Title	L	T	P	Credits
1		Software Architecture and Design Patterns	3	0	0	3
2		Computer Networks	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		Software Architecture and Design Patterns Laboratory	0	0	2	1
7		Computer Networks Laboratory	0	0	2	1
8		DevOps Laboratory	0	0	2	1
9	HSC	English for Employability Skills Laboratory	0	0	2	1
10	SDC	Big data-Spark	0	0	2	1

11	MC	Environmental Science	1	0	0	1
		Total Credits	**15**	**0**	**10**	**20**

IV YEAR I SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1		Agile Software Development	3	0	0	3
2		Deep Learning	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		Agile Software Development Laboratory	0	0	2	1
8		Deep Learning Laboratory	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
4		Project Work	0	0	28	14
		Total Credits	**6**	**0**	**28**	**20**

Professional Electives

	Professional Elective - I	Professional Elective - II	Professional Elective-III	Professional Elective-IV	Professional Elective-V	Professional Elective-VI
1	Artificial Intelligence	Data Science for Engineers	Image Processing	Data Analytics	Natural Language Processing	Generative AI
2	Data Warehousing and Business Intelligence	Information Retrieval Systems	Privacy Preserving in Data Mining	Information Storage Management	Mining Massive Datasets	Exploratory Data Analysis
3	Data Communications	Web Security	Cryptography and Network Security	Cyber Security	Quantum Computing	Blockchain Technology
4	Scripting Languages	Internet of Things	Cloud Computing	Mobile Application Development	Parallel and Distributed Computing	Green Computing
5	Object Oriented Analysis & Design	Software Design Methodologies	Software Project Management	Software Quality Assurance	Software Metrics	Commercial Off The Shelf Software (CoTS)

OPEN ELECTIVES

Open Elective-I:

1	Software Engineering
2	Mathematics for Machine Learning

Open Elective-II:

1	Software Testing Methodologies
2	Software Project Management

Open Elective-III:

1	Agile Software Development
2	Software Quality Assurance