

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

## B.Tech. IT

### 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				
		<b>Total Credits</b>	<b>14</b>	<b>1</b>	<b>10</b>	<b>20</b>

### 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
		<b>Total Credits</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

### 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		JAVA Programming	3	0	0	3
3		Operating Systems	3	0	0	3
4		Computer Organization and Microprocessor	3	0	0	3
5		Introduction to IoT	3	0	0	3
6		Computational Mathematics Laboratory	0	0	2	1
7		JAVA Programming Laboratory	0	0	2	1
8		Operating Systems Laboratory	0	0	2	1
9		Internet of Things Laboratory	0	0	2	1

10	SDC	Data Visualization-R Programming/Power BI/ Tableau/Google Chart	0	0	2	1
		<b>Total Credits</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**II YEAR II SEMESTER (26 Hours)**

S. No.	Course Code	Course Title	L	T	P	Credits
1		Discrete Mathematics	3	0	0	3
2		Data Communications and Computer Networks	3	0	0	3
3		Database Management Systems	3	0	0	3
4		Web Programming	3	0	0	3
5		Formal Languages and Automata Theory	3	0	0	3
6		Innovation and Entrepreneurship	2	0	0	2
7		Computer Networks Laboratory	0	0	2	1
8		Database Management Systems Laboratory	0	0	2	1
9		Web Programming Laboratory	0	0	2	1
10	SDC	Node JS/ React JS/ Django, UI Design - Flutter	0	0	2	1
11	*MC	Indian Knowledge System	1	0	0	1
		<b>Total Credits</b>	<b>18</b>	<b>0</b>	<b>08</b>	<b>22</b>

**III YEAR I SEMESTER (27 Hours)**

S. No.	Course Code	Course Title	L	T	P	Credits
1		Software Engineering	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 Engineering Laboratory	0	0	2	1
7		Machine Learning Laboratory	0	0	2	1
8		Algorithm Design and Analysis Laboratory	0	0	2	1
9		Field Based Project/ Internship	0	0	4	2
10	SDC	Full Stack Development	0	0	2	1
11	MC*	Gender Sensitization*/ Human Values and Professional Ethics*	1	0	0	1
		<b>Total Credits</b>	<b>15</b>	<b>0</b>	<b>12</b>	<b>21</b>

**\*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		Compiler Design	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		Compiler Design Laboratory	0	0	2	1
7		Deep Learning Laboratory	0	0	2	1
8		Development Operations (DevOps) Laboratory	0	0	2	1
9	HSC	English for Employability Skills Lab	0	0	2	1
10	SDC	Big data-Spark	0	0	2	1
11	MC*	Environmental Science	1	0	0	1
		<b>Total Credits</b>	<b>15</b>	<b>0</b>	<b>10</b>	<b>20</b>

**IV YEAR I SEMESTER (25 Hours)**

S. No.	Course Code	Course Title	L	T	P	Credits
1		Information Security	3	0	0	3
2		Natural Language Processing	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		Information Security Laboratory	0	0	2	1
8		Natural Language Processing Laboratory	0	0	2	1
9		Industry Oriented Mini Project/ Summer Internship	0	0	4	2
		<b>Total Credits</b>	<b>17</b>	<b>0</b>	<b>8</b>	<b>21</b>

**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
		<b>Total Credits</b>	<b>6</b>	<b>0</b>	<b>28</b>	<b>20</b>

Professional Electives						
	PE1	PE2	PE3	PE4	PE5	PE6
<b>1</b>	Distributed systems	Cloud computing	Distributed database	Scalable architecture for Large Applications	High Performance Computing	Augmented Reality & Virtual Reality
<b>2</b>	Artificial Intelligence	Data analytics	Data mining	Data engineering with python	Reinforcement Learning	Generative AI
<b>3</b>	Number theory& Cryptography	Web security	Vulnerability assessments & Penetration Testing	Secure coding principles	Blockchain technology	Digital forensics
<b>4</b>	Optimization	Software	Software Project	Distributed Systems	Information	Storage Area

	Techniques	Testing Methodology	Management		Retrieval Systems	Networks
<b>5</b>	Mobile Application Development	Mobile Application Security	Mobile Computing	5G Technologies	Quantum Computing	Green Computing

**OPEN ELECTIVES****Open Elective-I:**

1	Java Programming
2	Mathematics for Machine Learning

**Open Elective-II:**

1	Full Stack development
2	Scripting Languages

**Open Elective-III:**

1	Big Data Technologies
2	Development and Operations (DevOps)