

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech. in Civil 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	Advanced Engineering Physics	3	0	0	3
3	CSC	C Programming and Data Structures/ Programming for Problem Solving	3	0	0	3
4	MEC	Computer Aided Engineering Graphics	2	0	2	3
	MEC	Engineering Workshop	0	0	2	1
5	HSC	English for Skill Enhancement	3	0	0	3
6	BSC	Advanced Engineering Physics Laboratory	0	0	2	1
7	CSC	C Programming and Data Structures Laboratory/ Programming for Problem Solving Laboratory	0	0	2	1
8	HSC	English Language and Communication Skills Laboratory	0	0	2	1
9	MC	Induction Program				
		Total Credits	14	01	10	20

I Year II Semester (26 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	Applied Chemistry	3	0	0	3
3	CSC	Python Programming	3	0	0	3
4	ESC	Basic Electrical and Electronics Engineering	3	0	0	3
5	DC	Building Planning and Construction	3	0	0	3
6	DC	Engineering Mechanics	3	0	0	3
7	BSC	Chemistry Laboratory for Engineers	0	0	2	1
8	CSC	Python Programming Laboratory	0	0	2	1
9	ESC	Basic Electrical Engineering Laboratory	0	0	2	1
10	MC	NSS and Yoga			2	
		Total Credits	18	0	08	21

II YEAR I SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC	Probability and Statistics	3	0	0	3
2	DC	Building Materials and Concrete Technology	3	0	0	3
3	DC	Strength of Materials	3	0	0	3
4	DC	Surveying and Geomatics	3	0	0	3
5	DC	Fluid Mechanics	3	0	0	3
6	BSC	Computational Mathematics Laboratory	0	0	2	1
7	DC Lab	Material Testing Laboratory	0	0	2	1
8	DC Lab	Strength of Materials Laboratory	0	0	2	1
9	DC Lab	Surveying & Geomatics Laboratory	0	0	2	1
10	SDC	Design Thinking and Tinkering Laboratory	0	0	2	1

		Total Credits	15	0	10	20
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II YEAR II SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	DC	Structural Mechanics	3	0	0	3
2	DC	Water Resources and Irrigation Engineering	3	0	0	3
3	DC	Hydraulics & Hydraulic Machinery	3	0	0	3
4	DC	Theory of Structures	3	0	0	3
5	DC	Engineering Geology	2	0	0	2
	DC	Innovation and Entrepreneurship	2	0	0	2
6	DC Lab	Engineering Geology Laboratory	0	0	2	1
7	DC Lab	Hydraulics & Hydraulic Machinery Laboratory	0	0	2	1
8	DC Lab	Computer Aided Building Drafting Laboratory	0	0	2	1
9	SDC	Digital Surveying Laboratory	0	0	2	1
10	MC	Indian Knowledge System	1	0	0	1
		Total Credits	17	0	08	21

III YEAR I SEMESTER (25 Hours)

S. No.	Course Code	Course Title	L	T	P	Credits
1	DC	Environmental Engineering	3	0	0	3
2	DC	Design of Reinforced Concrete Members	3	0	0	3
3	DC	Transportation Engineering	3	0	0	3
4	PE	Professional Elective-I	3	0	0	3
5	OE	Open Elective-I	2	0	0	2
6	DC Lab	Environmental Engineering Laboratory	0	0	2	1
7	DC Lab	Computer Aided Design Laboratory	0	0	2	1
8	DC Lab	Highway Materials Laboratory	0	0	2	1
9	DCP	Field Based Project/ Internship	0	0	4	2
10	SDC	Building Information Modelling Laboratory	0	0	2	1
11	MC	Gender Sensitization Lab*/ Human Values and Professional Ethics*	1	0	0	1
		Total Credits	15	0	10	21

***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 Constitution of India will be conducted in the following week.

III YEAR II SEMESTER (25 Hours)

S. No	Course Code	Course Title	L	T	P	Credits
1	DC	Geotechnical Engineering	3	0	0	3
2	DC	Design of Steel Structures	3	0	0	3
3	MS	Business Economics and Financial Analysis	3	0	0	3
4	PS	Professional Elective-II	3	0	0	3
5	OE	Open Elective – II	2	0	0	2
6	DC Lab	Geotechnical Engineering Laboratory	0	0	2	1
7	DC Lab	GIS Laboratory	0	0	2	1
8	DC Lab	Civil Engineering Software Laboratory	0	0	2	1

9	HSC	Advanced English Communication Skills Laboratory	0	0	2	1
10	SDC	Project Management Software Laboratory	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	DC	Estimation Quantity Surveying & Valuation	3	0	0	3
2	DC	Foundation Engineering	3	0	0	3
3	MS	Fundamentals of Management	3	0	0	3
4	PE	Professional Elective-III	3	0	0	3
5	PE	Professional Elective – IV	3	0	0	3
6	OE	Open Elective – III	2	0	0	2
7	DC Lab	Quantity Surveying Laboratory	0	0	2	1
8	DC Lab	Computational Laboratory / IOT Laboratory	0	0	2	1
9	DCP	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	PE	Professional Elective – V	3	0	0	3
2	PE	Professional Elective – VI	3	0	0	3
3	DCP	Project Work	0	0	28	14
		Total Credits	6	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	Structural Analysis
2	Fuzzy Logic and ANN Applications in Civil Engineering
3	Remote Sensing & GIS
4	Green Building Technologies
5	Advanced Construction Technology

Professional Elective – II

1	Prestressed Concrete
2	AI Applications in Civil Engineering
3	Hydraulic Structures
4	Industrial Waste Water Treatment
5	Railways, Airports & Water ways

Professional Elective-III

1	Smart Cities
2	Machine Learning and Data Analytics in Civil Engineering
3	Air pollution & Control

4	Ground water Hydrology
5	Pre Engineered Buildings

Professional Elective-IV

1	Solid & Hazardous Waste Management
2	IoT Applications in Civil Engineering
3	Intelligent Transportation Systems
4	Structural Dynamics & Earth Quake Engineering
5	Construction Planning & Management

Professional Elective-V

1	Pavement Analysis & Design
2	Computer Vision and Digital Image Processing in Civil Engineering
3	Urban Hydrology & Hydraulics
4	Ground Improvement Techniques
5	Finite Element Methods

Professional Elective-VI

1	Structural Health Monitoring & Retrofitting of Structures
2	Quantum Computing Applications in Civil Engineering
3	Sustainable Engineering Technologies
4	Climate Change Adaptation & Mitigation
5	EIA & Life Cycle Analysis

OPEN ELECTIVES**Open Elective-I:**

1	Disaster Management
2	Low Cost Materials and Green Buildings

Open Elective-II:

1	Building Science and Technology
2	Environmental Impact Assessment

Open Elective-III:

1	Road Safety Engineering
2	Building Services Engineering