BTECH CIVIL ENGINEERING

COURSE STRUCTURE

2026-27 ADMISSION BATCH

Approved in Academic Council held on 30 July 2025

B.TECH. CIVIL ENGINEERING PROGRAM OBJECTIVES

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals to develop the solution of complex engineering problems.

PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development.

PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required.

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions.

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems.

PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment.

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws.

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change.

B. TECH (CIVIL ENGINEERING) 1st SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	BSC	25B11MA113	Mathematics-1	3	1	0	4	4
2	BSC	25B11PH111	Physics-1	3	1	0	4	4
3	BSC	25B17PH171	Physics Lab-1	0	0	2	1	2
4	ESC	25B11CI112	Software development fundamentals - I	3	1	0	4	4
5	ESC	25B17CI172	Software development fundamentals Lab - I	0	0	2	1	2
6	ESC	25B11EC111	Basic Electronics	3	1	0	4	4
7	ESC	25B17EC171	Basic Electronics Lab	0	0	2	1	2
8	HSC	25B11HS111	English	1	0	2	2	3
9	ESC	25B17GE171	Workshop OR	0	0	3	1.5	3
		25B17GE172	Engineering Drawing & Design	0	0	3		
						Total	**22.5**	**28**

B. TECH (CIVIL ENGINEERING) 2nd SEMESTER								
S.No.		**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	BSC	25B11MA211	Mathematics-II	3	1	0	4	4
2	BSC	25B11PH211	Physics-II	3	1	0	4	4
3	BSC	25B17PH271	Physics Lab-II	0	0	2	1	2
4	ESC	25B11CI211	Software development fundamentals - II	3	1	0	4	4
5	ESC	25B17CI271	Software development fundamentals Lab - II	0	0	2	1	2
6	HSC	25B17HS271	Life Skill & Professional Communication Lab (Audit)	0	0	2	0	2
7	ESC	25B17GE171	Workshop OR	0	0	3	1.5	3
		25B17GE171	Engineering Drawing & Design	0	0	3		
8	HSC	25B11HS211	Universal Human Values (UHV)	2	1	0	3	3
						Total	**18.5**	**24**

B. TECH (CIVIL ENGINEERING) 3rd SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	HSC	25B11HS311	Economics	2	1	0	3	3
2	BSC	25B11CE314	Chemistry	3	0	0	3	3
3	BSC	25B17CE373	Chemistry Lab	0	0	2	1	2
4	PCC	25B11CE311	Engineering Mechanics	3	1	0	4	4
5	PCC	25B17CE375	Computer Aided Civil Engineering Drawing	0	0	2	1	2
6	PCC	25B17CE371	Engineering Mechanics Lab	0	0	2	1	2
7	PCC	25B11CE313	Fluid Mechanics	3	1	0	4	4
8	PCC	25B11CE312	Surveying	3	0	0	3	3
9	PCC	25B17CE373	Fluid Mechanics Lab	0	0	2	1	2
10	PCC	25B17CE372	Surveying Lab	0	0	2	1	2
11	PRC	25B19CE391	Summer Training I (4 weeks)	0	0	0	2	0
12	PCC	25B17CI379	Competitive Programming-I	0	0	2	1	2
						Total	**25**	**29**

B. TECH (CIVIL ENGINEERING) 4th SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	HSC		HSS Elective I	2	1	0	3	3
2	OMC	25B11GE411	Environmental studies	3	0	0	0	3
3	PCC	25B11CE414	Mechanics of Solids	3	1	0	4	4
4	PCC	25B11CE413	Civil Engineering Materials	3	0	0	3	3
5	PCC	25B11CE411	Geotechnical Engineering	3	0	0	3	3
6	PCC	25B11CE412	Highway Engineering	3	0	0	3	3
7	PCC	25B17CE472	Highway Engineering Lab	0	0	2	1	2
8	PCC	25B17CE473	Materials Lab	0	0	2	1	2
9	PCC	25B17CE471	Geotechnical Engineering lab	0	0	2	1	2
10	PEC		Discipline Elective I	3	0	0	3	3
						Total	**22**	**28**

B. TECH (CIVIL ENGINEERING) 5th SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	BSC		Science Elective	3	0	0	3	3
2	PCC		Structural Analysis	3	0	0	3	3
3	PCC		Environmental Engineering Lab	0	0	2	1	2
4	PCC		Water Supply Engineering	3	0	0	3	3
5	PCC		Design of Concrete Structure	3	1	0	4	4
6	PCC		Foundation Engineering	3	0	0	3	3
7	PEC		Discipline Elective II	3	0	0	3	3
8	PEC		Discipline Elective III	3	0	0	3	3
9	OMC		Indian Constitution & Traditional Knlowledge (Audit)	3	0	0	0	3
10	PRC		Summer Training II (6 Weeks)	0	0	0	2	0
11	HSC		Logical and Quantitative Techniques-I	2	0	0	2	2
						Total	**27**	**29**

B. TECH (CIVIL ENGINEERING) 6th SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	PCC		Design of Steel Structure	3	0	0	3	3
2	PCC		Sewage Treatment And Disposal	3	0	0	3	3
3	PCC		Water Resources Engineering	3	1	0	4	4
4	PEC		Discipline Elective IV	3	0	0	3	3
5	PEC		Discipline Elective V	3	0	0	3	3
6	OEC		Open Elective I	3	0	0	3	3
7	Value Added		Selected Value added course (Audit)	2	0	0	0	2
8	HSC		Soft Skills for Employability	0	0	2	1	2
9	PRC		Minor Project	0	0	4	2	4
10	HSC		Logical and Quantitative Techniques-II	2	0	0	2	2
						Total	**24**	**29**

B. TECH (Civil ENGINEERING) 7th SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	PEC		Discipline Elective VI	3	0	0	3	3
2	OEC		Open Elective II	3	0	0	3	3
3	PRC		Major Project I	0	0	8	4	8
			Summer Training III (6 Weeks)	0	0	0	4	0
						Total	**14**	**14**
B. TECH (CIVIL ENGINEERING) 8th SEMESTER								
S. No.	**Category Code**	**Subject Code**	**Name of the Subjects**	**Course Hours**			**Credits**	**Total Hours**
				L	**T**	**P**		
1	PEC		Discipline Elective VII	3	0	0	3	3
2	OEC		Open Elective III	3	0	0	3	3
3	PRC		Major Project II	0	0	16	8	16
						Total	**14**	**22**

Total Program Credits: 22.5+18.5+25+22+27+24+14+14 = 167

List of Discipline Electives

B. TECH (CIVIL ENGINEERING)

ELECTIVE-I (4th Sem)

S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective	25B11CE415	Computer Aided Planning & Costing	3	0	0	3	3
2	Professional Elective		Building Drawing	3	0	0	3	3
3	Professional Elective		Geoinformatics	3	0	0	3	3
						Total	3	3

ELECTIVE-II (5th Sem)

S.No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Traffic Engineering	3	0	0	3	3
2	Professional Elective		Transportation Engineering	3	0	0	3	3
3	Professional Elective		Highway Construction Management & Maintenance	3	0	0	3	3
						Total	3	3

ELECTIVE-III (5th Sem)

S.No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Construction Technology and Management	3	0	0	3	3
2	Professional Elective		Geosynthetic	3	0	0	3	3
3	Professional Elective		Air & Noise Pollution & Control	3	0	0	3	3

4	Professional Elective		Modelling Simulation and Computer Application	3	0	0	3	3
						Total	3	3

ELECTIVE-IV (6th Sem)

S. No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Advanced Concrete Technology	3	0	0	3	3
2	Professional Elective		Open Channel Flow and Hydraulic Machines	3	0	0	3	3
3	Professional Elective		Underground Technology	3	0	0	3	3
4	Professional Elective		Industrial Waste Treatment	3	0	0	3	3
						Total	3	3

ELECTIVE-V (6th Sem)

S.No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Advanced Structural analysis	3	0	0	3	3
2	Professional Elective		Pavement Analysis and Design	3	0	0	3	3
3	Professional Elective		Soild Waste Management	3	0	0	3	3
4	Professional Elective		Construction Management Computation	3	0	0	3	3
						Total	3	3

ELECTIVE-VI (7th Sem)

S.No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Earthquake Engineering	3	0	0	3	3

2	Professional Elective		Design of Prestressed Concrete Structures	3	0	0	3	3
3	Professional Elective		Dam and Reservoir Design	3	0	0	3	3
4	Professional Elective		Advanced Highway Material and construction	3	0	0	3	3
						Total	3	3

ELECTIVE-VII (8th Sem)

S.No.	Category Code	Subject Code	Name of the Subjects	Course Hours			Credits	Total Hours
				L	T	P		
1	Professional Elective		Advanced Foundation Engineering	3	0	0	3	3
2	Professional Elective		Advanced Reinforced Concrete Design	3	0	0	3	3
3	Professional Elective		Environmental Management and Impact Assessment	3	0	0	3	3
4	Professional Elective		Hydropower Engineering	3	0	0	3	3
						Total	3	3