

BTECH CIVIL ENGINEERING COURSE STRUCTURE

EFFECTIVE 2024-25 ADMISSION BATCH

B.TECH. CIVIL ENGINEERING PROGRAM OBJECTIVES

PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to 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. (WK1 to WK4)

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. (WK5)

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. (WK8).

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. (WK2 and WK6)

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. (WK1, WK5, and WK7).

PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

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. (WK8)

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, SOLAN
COURSE CURRICULUM OF CIVIL DEPARTMENT- 165 CREDITS (JULY 2024 ONWARDS)

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	HSC	21B11HS111	ENGLISH	2	0	0	2	2
2	HSC	21B17HS171	ENGLISH LAB	0	0	2	1	2
3	BSC	24B11MA111	ENGINEERING MATHEMATICS-I	3	1	0	4	4
4	BSC	18B11PH111	ENGINEERING PHYSICS-I	3	1	0	4	4
5	BSC	18B17PH171	ENGINEERING PHYSICS LAB-I	0	0	2	1	2
6	ESC	24B11CI111	PROBLEM SOLVING AND PROGRAMMING	3	0	0	3	3
7	ESC	24B17CI171	PROBLEM SOLVING AND PROGRAMMING LAB	0	0	2	1	2
8	ESC	18B17GE171	WORKSHOP PRACTICES OR	0	0	3	1.5	3
		18B17GE173	ENGINEERING GRAPHICS	0	0	3		
9	PR	24B19CE191	PROJECT -I	0	0	2	1	2
10	OMC	18B17GE172	MANDATORY INDUCTION PROGRAM (INCLUDING UHV - I)	TWO WEEKS			0	
				TOTAL			18.5	24

B. TECH (CIVIL ENGINEERING) 2ND SEMESTER

S.N O.		SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	HSC	23B11HS211	UHV - II: UNDERSTANDING HARMONY	2	1	0	3	3
2	OMC	23B11HS212	PROFESSIONAL COMMUNICATION PRACTICE (AUDIT)	0	1	0	0	1
3	BSC	24B11MA211	ENGINEERING MATHEMATICS -II	3	1	0	4	4
4	BSC	18B11PH211	ENGINEERING PHYSICS-II	3	0	0	3	3
5	BSC	18B17PH271	ENGINEERING PHYSICS LAB - II	0	0	2	1	2
6	ESC	24B11EC211	BASIC ELECTRICAL ENGINEERING	3	1	0	4	4
7	ESC	24B17EC271	BASIC ELECTRICAL ENGINEERING LAB	0	0	2	1	2

8	ESC	18B17GE173	ENGINEERING GRAPHICS OR	0	0	3	1.5	3
		18B17GE171	WORKSHOP PRACTICES	0	0	3		
9	ESC	24B11CI211	DATA STRUCTURES AND ALGORITHMS	3	0	0	3	3
10	ESC	18B17CI271	DATA STRUCTURES AND ALGORITHMS LAB	0	0	4	2	4
11	PR	24B19CE291	PROJECT II	0	0	2	1	2
				TOTAL			23.5	31

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	25B17CE374	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
				TOTAL			24	27

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	MNC		INDIAN CONSTITUTION & TRADITIONAL KNOWLEDGE (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

COURSE CATEGORY-WISE CREDIT BREAKUP

HUMANITIES & SOCIAL SCIENCES	HSC	17
BASIC SCIENCE	BSC	24

ENGINEERING SCIENCE	ESC	17
PROFESSIONAL CORE	PCC	55
DISCIPLINE ELECTIVE	PEC	21
OPEN ELECTIVE	OEC	9
PROJECT	PR	14
MANDATORY COURSE	OMC	0
SUMMER TRAINING	STR	8
TOTAL		165

LIST OF DISCIPLINE ELECTIVES (JULY 2024 ONWARDS)

ELECTIVE-I (IV SEM)

S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC	25B11CE415	COMPUTER AIDED PLANNING & COSTING	3	0	0	3	3
2	PEC		BUILDING DRAWING	3	0	0	3	3
3	PEC		GEOINFORMATICS	3	0	0	3	3

ELECTIVE-II (SEM V)

S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		TRAFFIC ENGINEERING	3	0	0	3	3
2	PEC		TRANSPORTATION ENGINEERING	3	0	0	3	3
3	PEC		HIGHWAY CONSTRUCTION MANAGEMENT & MAINTENANCE	3	0	0	3	3

ELECTIVE-III (SEM V)

S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		CONSTRUCTION TECHNOLOGY AND MANAGEMENT	3	0	0	3	3
2	PEC		GEOSYNTHETIC	3	0	0	3	3
3	PEC		AIR & NOISE POLLUTION & CONTROL	3	0	0	3	3
4	PEC		MODELLING SIMULATION AND COMPUTER APPLICATION	3	0	0	3	3

ELECTIVE-IV (SEM VI)

S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		ADVANCED CONCRETE TECHNOLOGY	3	0	0	3	3
2	PEC		OPEN CHANNEL FLOW AND HYDRAULIC MACHINE	3	0	0	3	3
3	PEC		UNDERGROUND TECHNOLOGY	3	0	0	3	3
4	PEC		INDUSTRIAL WASTE TREATMENT	3	0	0	3	3
ELECTIVE-V (SEM VI)								
S.N O.	CATEGORY CODE	NAME OF THE SUBJECTS	COURSE HOURS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		ADVANCED STRUCTURAL ANALYSIS	3	0	0	3	3
2	PEC		PAVEMENT ANALYSIS AND DESIGN	3	0	0	3	3
3	PEC		SOLID WASTE MANAGEMENT	3	0	0	3	3
4	PEC		CONSTRUCTION MANAGEMENT COMPUTATION	3	0	0	3	3
ELECTIVE-VI (SEM VII)								
S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		EARTHQUAKE ENGINEERING	3	0	0	3	3
2	PEC		DESIGN OF PRESTRESSED CONCRETE STRUCTURES	3	0	0	3	3
3	PEC		DAM AND RESERVOIR DESIGN	3	0	0	3	3
4	PEC		ADVANCED HIGHWAY MATERIAL AND CONSTRUCTION	3	0	0	3	3
ELECTIVE-VII (SEM VIII)								
S. NO.	CATEGORY CODE	SUBJECT CODE	NAME OF THE SUBJECTS	COURSE HOURS			CREDITS	TOTAL HOURS
				L	T	P		
1	PEC		ADVANCED FOUNDATION ENGINEERING	3	0	0	3	3
2	PEC		ADVANCED REINFORCED CONCRETE DESIGN	3	0	0	3	3
3	PEC		ENVIRONMENTAL MANAGEMENT AND IMPACT ASSESSMENT	3	0	0	3	3
4	PEC		HYDROPOWER ENGINEERING	3	0	0	3	3

