

CURRICULUM
B.TECH. CIVIL ENGINEERING
(In Association with CADD CENTRE)
CHOICE BASED CREDIT SYSTEM

STUDENTS LEARNING OUTCOMES

The curriculum and syllabi of B.Tech.Civil Engineering Program (2017-18) conform to Outcome Based Education (OBE) for a flexible and structured Choice Based Credit system (CBCS). In general, **TEN STUDENT OUTCOMES** (a-j) have been identified and the curriculum and syllabi have been chosen in such a way that each of the modules meets one or more of these outcomes. Student outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviors that students acquire as they progress through the program. Further, each module in the program spells out clear instructional objectives which are mapped to the student outcomes.

The Student Outcomes are:

- (a) Ability to apply knowledge of Mathematics and science in Civil Engineering solutions.
- (b) Ability to understand the Engineering concepts and their applications using the acquired broad based knowledge.
- (c) Ability to design, set up and conduct relevant experiments as well as to analyze and interpret data.
- (d) Ability to use the techniques, skills, modern Engineering and software tools necessary for engineering practice.
- (e) Ability to identify, analyze and solve Engineering problems in multiple disciplines including Structure, Water resources, Geotechnology and Environmental engineering etc. and formulate design data.
- (f) Ability to design a system, component, or process to meet desired needs within realistic constraints such as health & safety, economic, aesthetic, environmental, social, ethical, reliability and sustainability.
- (g) Ability to function as Consultant in construction industry for the design of civil engineering structures and providing sustainable solutions to the Civil engineering problems.
- (h) An understanding of professional and ethical responsibility.
- (i) Ability to communicate effectively in diverse groups and exhibit leadership qualities.
- (j) To develop an understanding on global environment and its protection.

B. TECH. CIVIL ENGINEERING

SUMMARY OF PROGRAM CURRICULUM

Category		Sub-Category	Total Number of Credits (B.Tech)	Total Number of Credits (B.Tech-LEET)	Min Required Credits (B.Tech)	Min Required Credits (B.Tech-LEET)	Percentage of Total credits
G	General		52	0	48	0	26%
E	Engineering	Program Core (PC)	78	78	78	78	
		Program Elective (PE)	23	23	19	19	
		Generic Elective (GE)	8	8	4	4	
		Project (PD)	20	20	20	20	
Total Engineering			129	129	121	121	64%
M	Mangement		7	7	7	7	3%
P	Professional Enrichment	Ability Enhancement (AE)	8	8	7	7	
		Skill Enhancement (SE)	4	4	4	4	
		Creativity & Innovation (CI)	1	1	0	0	
		Co-Curricular Activity (CA)	1	1	0	0	
Total Professional Enrichment			14	14	11	11	7%
Overall Total			202	150*	187	139*	100%

Note:

Students are to earn at least 187/139*credits out of 202/150* credits to become eligible for the award of B.Tech degree.

* FOR LATERAL ENTRY

PROGRAM SCHEME

SEMESTER - I

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
ENGL0101	G		ENGLISH	3	0	0	3	25	75	100
MATH0101	G		APPLIED MATHEMATICS - I	3	1	0	3.5	50	100	150
CHEM0101	G		INDUSTRIAL CHEMISTRY	3	0	0	3	25	75	100
CHEM0102	G		INDUSTRIAL CHEMISTRY LAB	0	0	2	1	25	25	50
PHYS0101	G		APPLIED PHYSICS – I	3	1	0	3.5	50	100	150
PHYS0102	G		APPLIED PHYSICS – I LAB	0	0	2	1	25	25	50
ECEN1101	G		ELECTRICAL TECHNOLOGY	2	0	0	2	25	50	75
ECEN1102	G		ELECTRICAL TECHNOLOGY LAB	0	0	2	1	25	25	50
CSEN0101	G		FUNDAMENTALS OF COMPUTERS AND PROGRAMMING (WITH C)	4	0	0	4	50	100	150
CSEN0102	G		FUNDAMENTALS OF COMPUTERS AND PROGRAMMING (WITH C) LAB	0	0	2	1	25	25	50
	G		FOREIGN LANGUAGE PART-I #	2	0	0	2	25	50	75
TOTAL				20	2	8	25	350	650	1000

- L = Lecture**
T = Tutorial
P = Practical
C = Credit Point

FOREIGN LANGUAGE

One foreign language out of the following

MODULE CODE	MODULE NAME
LANF0101	French
LANG0102	German
LANS0103	Spanish

SEMESTER - II

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL1101	G		BUILDING CONSTRUCTION AND MATERIALS	3	0	0	3	25	75	100
PHYS0103	G		APPLIED PHYSICS-II	3	1	0	3.5	50	100	150
PHYS0104	G		APPLIED PHYSICS-II LAB	0	0	2	1	25	25	50
ECEN0104	G		BASICS OF ELECTRONICS	2	0	0	2	25	50	75
ECEN0105	G		BASICS OF ELECTRONICS LAB	0	0	2	1	25	25	50
MECH0102	G		BASICS OF MECHANICAL ENGINEERING	2	0	0	2	25	50	75
MECH0103	G		BASICS OF MECHANICAL ENGINEERING LAB	0	0	2	1	25	25	50
MECH1102	G		WORKSHOP TECHNOLOGY LAB	0	0	2	1	25	25	50
MATH0116	G		APPLIED MATHEMATICS-II	4	1	0	4.5	50	100	150
MATH0117	G		NUMERICAL METHODS	3	0	0	3	25	75	100
VALU0109	G		VALUE EDUCATION	2	0	0	2	25	50	75
CSEN1103	G		PC LAB	0	0	2	1	25	25	50
	G		FOREIGN LANGUAGE PART- II #	2	0	0	2	25	50	75
TOTAL				21	2	10	27	375	675	1050

L = Lecture
T = Tutorial
P = Practical
C = Credit Point

FOREIGN LANGUAGE
One foreign language out of the following

MODULE CODE	MODULE NAME
LANF0104	French
LANG0105	German
LANS0106	Spanish

SEMESTER - III

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL2101	E	PC	STRUCTURAL ANALYSIS-I	3	0	0	3	25	75	100
CIVL2102	E	PC	STRUCTURAL ANALYSIS LAB	0	0	2	1	25	25	50
CIVL2103	E	PC	ENGINEERING GEOLOGY	3	0	0	3	25	75	100
CIVL2104	E	PC	ENGINEERING HYDROLOGY	3	0	0	3	25	75	100
CIVL2105	E	PC	CONSTRUCTION AND CONCRETE TECHNOLOGY	3	0	0	3	25	75	100
CIVL2106	E	PC	CONCRETE TECHNOLOGY LAB	0	0	2	1	25	25	50
CIVL2107	E	PC	ENGINEERING GRAPHICS/ AUTOCAD	0	0	4	2	50	50	100
MGMT0101	M		MANAGEMENT & PROFESSIONAL LEADERSHIP	3	0	0	3	25	75	100
VALU0119	P	AE	APTITUDE I	2	0	0	2	25	50	75
VALU0123	P	SE	PROFESSIONAL COMMUNICATION - I	2	0	0	2	25	50	75
ENGL0109	P	AE	ACADEMIC WRITING	0	0	2	1	25	25	50
	P	AE	YOGA/NCC/NSS*	0	0	2	1	25	25	50
	E	PE	ELECTIVE-I**	3	0	0	3	25	75	100
TOTAL				22	0	12	28	350	700	1050

L = Lecture

T = Tutorial

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C = Credit Point

ELECTIVES

MODULE CODE	ELECTIVE-I**
CIVL2208	EARTHQUAKE ENGINEERING
CIVL2209	GREEN BUILDINGS
CIVL2210	ENVIRONMENT POLLUTION AND DISASTER CONTROL

MODULE CODE	MODULE*
VALU0118	YOGA
VALU0121	NCC
VALU0122	NSS

SEMESTER - IV

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL2111	E	PC	STRUCTURAL ANALYSIS-II	3	1	0	3.5	50	100	150
CIVL2112	E	PC	SURVEYING	3	1	0	3.5	50	100	150
CIVL2113	E	PC	SURVEYING LAB	0	0	2	1	25	25	50
CIVL2114	E	PC	DESIGN OF STEEL STRUCTURES	3	1	0	3.5	50	100	150
CIVL2115	E	PC	REVIT ARCHITECTURE	0	0	4	2	50	50	100
CIVL2116	E	PC	SOIL MECHANICS	3	1	0	3.5	50	100	150
CIVL2117	E	PC	SOIL MECHANICS LAB	0	0	2	1	25	25	50
CIVL2118	E	PC	FLUID MECHANICS-I	3	0	0	3	25	75	100
CIVL2119	E	PC	FLUID MECHANICS LAB	0	0	2	1	25	25	50
	E	PE	ELECTIVE-II*	3	0	0	3	25	75	100
	E	PE	ELECTIVE- III**	3	0	0	3	25	75	100
TOTAL				21	4	10	28	400	750	1150

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ELECTIVES

MODULE CODE	ELECTIVE-II*
CIVL2220	BUILDING AND TOWN PLANNING
CIVL2221	ENVIRONMENTAL ENGINEERING
	ELECTIVE - III**
CIVL2222	BRIDGE ENGINEERING
CIVL2223	NOISE POLLUTION AND ITS CONTROL

SEMESTER V

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL3101	E	PC	FLUID MECHANICS-II	3	0	0	3	25	75	100
CIVL3102	E	PC	WATER SUPPLY ENGINEERING	3	0	0	3	25	75	100
CIVL3103	E	PC	WATER QUALITY LAB	0	0	2	1	25	25	50
CIVL3104	E	PC	DESIGN OF CONCRETE STRUCTURES	3	1	0	3.5	50	100	150
CIVL3105	E	PC	TRANSPORTATION ENGINEERING	3	1	0	3.5	50	100	150
CIVL3106	E	PC	TRANSPORTATION ENGINEERING LAB	0	0	2	1	25	25	50
CIVL3107	E	PD	SURVEY CAMP(TO BE UNDERGONE AFTER IV SEMESTER)	0	0	0	1	50	0	50
CIVL3108	E	PD	SPECIALIZED MINOR PROJECT (GROUP) STAAD PRO	0	0	4	2	50	50	100
VALU0136	P	AE	APTITUDE II	2	0	0	2	25	50	75
VALU0140	P	SE	PROFESSIONAL COMMUNICATION - II	2	0	0	2	25	50	75
	E	PE	ELECTIVE-IV*	3	0	0	3	25	75	100
	E	PE	ELECTIVE-V**	3	0	0	3	25	75	100
TOTAL				22	2	8	28	400	700	1100

L = Lecture

T = Tutorial

P = Practical

C = Credit Point

ELECTIVES

ELECTIVES - IV*	
CIVL3209	GEOMATICS ENGINEERING
CIVL3210	CONSTRUCTION PLANNING & MANAGEMENT
ELECTIVE - V**	
CIVL3211	DESIGN OF INDUSTRIAL STRUCTURES
CIVL3212	TALL BUILDINGS

SEMESTER VI

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL3113	E	PC	IRRIGATION ENGINEERING	3	1	0	3.5	50	100	150
CIVL3114	E	PC	RAILWAY & AIRPORT ENGINEERING	4	0	0	4	50	100	150
CIVL3115	E	PC	QUANTITY SURVEYING AND COST ESTIMATION	3	0	0	3	25	75	100
CIVL3116	E	PC	GEOTECHNICAL ENGINEERING	3	1	0	3.5	50	100	150
CIVL3117	E	PC	RCC LAB	0	0	2	1	25	25	50
CIVL3118	E	PD	SPECIALIZED MINOR PROJECT (INDIVIDUAL) BUILDING ESTIMATION COSTING-AUTODESK + 3D PRINTING	0	0	8	4	100	100	200
CIVL3119	P	CI	CREATIVITY AND INNOVATION	0	0	2	1	50	0	50
	E	PE	ELECTIVE-VI*	4	0	0	4	50	100	150
	E	GE	ELECTIVE-A ^φ	4	0	0	4	50	100	150
TOTAL CREDIT				21	2	12	28	450	700	1150

L = Lecture

T = Tutorial

P = Practical

C = Credit Point

ELECTIVES

MODULE CODE	ELECTIVE-VI*
CIVL3220	DESIGN OF REINFORCED CONCRETE STRUCTURES
CIVL3221	GROUND IMPROVEMENT TECHNIQUES

MODULE CODE	GENERIC ELECTIVES-A ^φ
SAPM0321	SAP (MM) ^ψ
SAPS0322	SAP (SD) ^ψ
SAPF0323	SAP (FI) ^ψ
ONE / TWO MOOCS MODULE	

^φAdditional fee, if any, shall be borne by the students.

SEMESTER VII

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
CIVL4101	E	PC	WASTE WATER ENGINEERING	3	1	0	3.5	50	100	150
CIVL4102	E	PC	HYDRAULICS AND HYDRAULIC STRUCTURES	3	1	0	3.5	50	100	150
CIVL4103	E	PC	QUANTITY TAKE OFF+ 3D PRINTING	0	0	2	1	25	25	50
CIVL4104	E	PC	PPM-MSP OR MX ROAD	0	0	4	2	50	50	100
CIVL4105	E	PD	SPECIALIZED MAJOR PROJECT (GROUP) ^{##}	0	0	8	4	100	100	200
CIVL4106			INDUSTRIAL TRAINING II (TO BE UNDERGONE AFTER VI SEMESTER)	0	0	0	1	50	0	50
	E	PE	ELECTIVE-VII*	4	0	0	4	50	100	150
	E	GE	ELECTIVE-B**	4	0	0	4	50	100	150
CLUB0101	P	CA	CO-CURRICULAR ACTIVITY				1	25	0	25
TOTAL				14	2	14	24	450	575	1025

L = Lecture

ELECTIVES

T = Tutorial

P = Practical

C = Credit Point

MODULE CODE	ELECTIVE-VII *
CIVL4207	TRAFFIC ANALYSIS
CIVL4208	REPAIR AND REHABILITATION OF STRUCTURES

** To be chosen from Generic Electives offered by Departments other than the parent Department.

^{##} Only advisory support shall be provided by the faculty.

SEMESTER VIII

MODULE CODE	CATEGORY	SUB-CATEGORY	MODULE	L	T	P	C	Internal Marks	External Marks	Total
ENVS0101	P	AE	ENVIRONMENTAL SCIENCES	2	0	0	2	25	50	75
MGMT0103	M		ENTREPRENEURSHIP	4	0	0	4	50	100	150
CIVL4109	E	PD	SPECIALIZED MAJOR PROJECT (INDIVIDUAL) ^{##}	0	0	16	8	200	200	400
TOTAL				6	0	16	14	275	350	625

L = Lecture

T = Tutorial

P = Practical

C = Credit Point

^{##} Only advisory support shall be provided by the faculty.