
Civil Engineering

B. Tech Curriculum

July 2020 Onwards

Semester I				
ID	Course	Credit	Segment	Type
MA1110	Calculus I	1	xx	BS
MA1220	Calculus II- Multivariable Calculus	1	xx	BS
EP1108	Modern Physics	2	xx	BS
CY1017	Environmental Chemistry-I	2	14	BS
ID1063	Introduction to Programming	3	16	BE
ID1171	Fabrication Lab-I	2	16	BE
ID1041	Engineering Drawing (3 hours Class)	2	16	DC
LA1760	English Communication	2	xx	SS
		15		
	Basic Science	6		
	Basic Engg	5		
	Dept. Core	2		
	Soft Skills	2		

Semester II				
ID	Course	Credit	Segment	Type
MA1140	Elementary Linear Algebra	1	12	BS
MA1150	Differential Equations	1	34	BS
CY1031	Chemistry Lab	2	14	BS
IDXXXX	Thermodynamics	3	16	BE
EEXXXX	Basics of Electrical Engineering	3	16	BE
ID1054	Digital Fabrication	2	16	BE
MEXXXX	Engineering Mechanics	3	16	BE
CE1100	Construction Materials	3	16	DC
LAXXXX	Personality Development	1	XX	SS
		19		
	Basic Science	4		
	Basic Engg	11		
	Dept. Core	3		
	Soft Skills	1		

Semester III				
ID	Course	Credit	Segment	Type
MA2110	Introduction to Probability	1	12	BS
MA2120	Transform Techniques	1	34	BS
EP1118	Maths for Physics	2		BS
CE2400	Fluid Mechanics	2	14	DC
CE2110	Mechanics of Solids and Structures	3	16	DC
CE2510	Environmental Systems Engineering I	3	16	DC
CE2101	Construction Materials Lab	2	16	DC
CE2920	Surveying (Theory+Lab)	3	16	DC
LAXXXX	Liberal/Creative Arts	2		
		19		
		Basic Science	4	
		Dept. Core	13	
		LA/CA	2	

Semester IV				
ID	Course	Credit	Segment	Type
MA2140	Introduction to Statistics	1	12	BS
MA2130	Complex Variables	1	12	BS
BO1010	Introduction to Life Sciences	1	34	BS
CE2111	Structural Mechanics Lab	2	46	DC
CE2100	Structural Analysis	3	16	DC
CE2300	Geotechnical Engineering	3	16	DC
CE2301	Geotechnical Engineering Lab	2	16	DC
CE2520	Environmental Systems Engineering II	3	16	DC
CE2410	Hydraulic Engineering	3	16	DC
		19		
		Basic Science	3	
		Dept. Core	16	

Semester V				
ID	Course	Credit	Segment	Type
CE3312	Foundation Engineering	3	16	DC
CE3102	Reinforced Concrete Design	3	16	DC
CE3400	Engineering Hydrology	2	14	DC
CE3401	Hydraulic Engineering Lab	1	56	DC
CE3840	Traffic Engineering and Planning	2	14	DC
CE3841	Traffic Engineering Lab	2	36	DC
CE3511	Environmental Engineering lab	2	36	DC
CE3411	Fluid Mechanics Lab	1	14	DC
CE3142	Structural Steel Design	3	16	DC
		19		
	Dept. Core	19		

Semester VI				
ID	Course	Credit	Segment	Type
CEXXXX/CE3003/CE3025	Dept. Electives/Internship*/Projects	6	16	DE
XXXXXX	Free Electives	6	16	FE
CE3820	Highway Design and Materials	2	14	DC
CE3821	Highway Materials Lab	1	56	DC
LAXXXX	Liberal/Creative Arts	2	XX	LA
AIXXXX	Introduction to AI	1	XX	BE
		18		
	*CGPA > 8.0 for opting internship.			
	Dept. Elective	6		
	Dept. Core	3		
	Free Electives	6		
	BE	1		
	LA/CA	2		

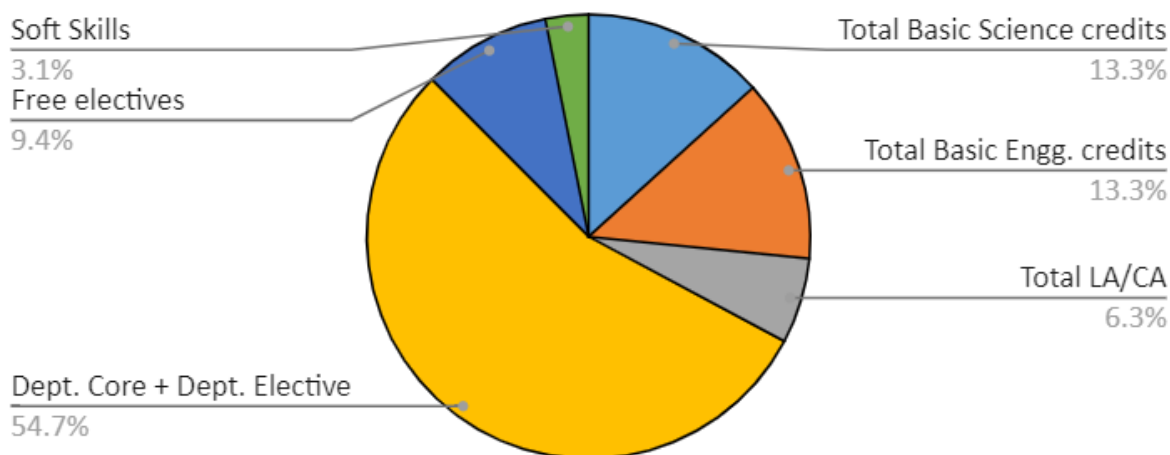
Semester VII				
ID	Course	Credit	Segment	Type
CEXXXX/ CE4025\$	Dept. elective/Project	3	16	DE
CE4400	Water Resources Engineering	2	16	DC
CE4900	Construction Management	2	16	DC
LAXXXX	Liberal/Creative Arts	2	XX	LA
		9		
	Dept. Elective	3		
	Dept. Core	4		
	LA/CA	2		

Semester VIII				
ID	Course	Credit	Segment	Type
XXXXXX	Free Electives	6	XX	FE
CE3830	Railway and Airport Engineering	1	56	DC
LAXXXX	Introduction to Entrepreneurship	1	XX	SS
LAXXXX	Liberal/Creative Arts	2	XX	LA
		10		
	Dept. Core	1		
	Free electives	6		
	Soft Skills	1		
	LA/CA	2		

Summary

Type	Credits	Permissible Limits as per guidelines
Total Basic Science credits	17	14-16 Credits (11-12%)
Total Basic Engg. credits	17	14-16 Credits (11- 12%)
Total LA/CA	8	9-10 Credits (7-8%)
Dept. Core + Dept. Elective	70	70-77 Credits (55-60%)
Free electives	12	12-13 Credits (9-10%)
Soft Skills	4	4 Credits
Total Credits	128	Total credits 125-130.
% of 3 credit courses including free electives	51%	

Summary



\$Guidelines for taking Departmental Electives/Projects

- a) Total credits for **Departmental** Electives/Projects should be minimum **9 credits**
- b) Core electives can be 1, 2, or 3 credit courses
- c) If a project is to be taken, it should be of 3 credits.
- d) If one is fulfilling total of nine credits by taking Project of three credits and Core electives of six credits, three credits of core electives are to be taken from Basket 1 and remaining credits of core electives are to be taken from Basket 2.
- e) If one is fulfilling total of nine credits by taking only Core electives, at least six credits of Core electives are to be taken from Basket 1.

Guidelines for taking LA/CA Courses

- a) Not more than 4 credits of CA courses.
- b) Not more than 6 credits of LA courses

Basket 1 (Departmental Electives):

Course Code	Course Name	Credits	Prerequisite	Odd/even semester
CE3420	Fundamentals of GIS and Remote Sensing	2	NIL	Even
CE3421	RS and GIS Lab	1	CE3420	Even
CE3530	Environmental Systems Engineering III	2	CE 3522, CE 3590	Even
CE 6500	Engineering Hydrology and Hydrologic Systems	3	CE3400	Odd
CE 6520	Irrigation Water Management	2		Odd
CE 6510	Open-Channel Hydraulics and Sediment Transport	3	CE2400 CE2410	Even
CE 6530	Groundwater Modelling	3	CE2400 CE2410 MA1150	Even
CE6540	Contaminant hydrology and remediation	3	NIL	Odd
CE5220	Solid waste management	3	NIL	Even
CE 5110	Physico-chemical Processes	3	NIL	Odd
CEXXXX	Environmental Impact Assessment	2	NIL	Odd
CE 5210	Bio-chemical Processes	3	CE 5110	Even
CEXXXX	Industrial and Hazardous Waste Management	2	NIL	Even
CE5120	Air pollution control	3	NIL	Odd
CE6300	Advanced foundation engineering	3	CE2300	Even
			CE2301	
			CE3312	
CE6310	Advanced soil mechanics	3	CE2300	Odd
			CE2301	
			CE3312	
CE6340	Ground modification techniques	3	CE2300	Even
			CE2301	
			CE3312	
CE6330	Soil dynamics	3	CE2300	Odd
			CE2301	
			CE3312	

CE6352	Design of earth structures	3	CE2300	Even
			CE2301	
			CE3312	
CE6130	Finite element analysis	3	CE2100	Even
			MA1140	
			CE6110	
CE6222	Prestressed concrete	3	CE3102	Even
			CE4102	
CE6120	Applied elasticity and Plasticity	3	CE2100	Odd
			CE2110	
			MA1150	
			MA1140	
CE4102	Advanced reinforced concrete design	2	CE3102	Odd
CE6140	Structural dynamics	3	CE2100	Even
			MA2120	
			MA1150	
			MA1140	
			CE6110	
CE6110	Advanced structural mechanics	3	CE2110	Odd
			CE2100	
			MA1150	
			MA1140	
CE6232	Advanced steel design	3	CE3142	Even
CE6150	Stability of Structures	3	CE6110	When offered
CE 6200	Condition Assessment and Rehabilitation of Structures	3	CE3142	When Offered
			CE3102	
CE6011	Computer methods in civil engineering	2 (1-6)	NIL	
CE4330	Geology I	1 (1-2)	NIL	
CE5390	Geothermics	2	CE4330	
CE6501	Applied Computational Laboratory	2	NIL	Odd
CE 6511	Hydraulic and Hydrologic Simulation Laboratory	2	NIL	Even

Basket 2 (Institute-wide Courses):

Course Code	Course Name	Credits
CE6540	Contaminant hydrology and remediation	3
CE5220	Solid waste management	3
CE5120	Air pollution control	3
CE5110	Physico-chemical Processes	3
CEXXXX	Environmental Impact Assessment	2
CE 5210	Bio-chemical Processes	3
CE3530	Environmental Systems Engineering III	2
CE6300	Advanced foundation engineering	3
CE6310	Advanced soil mechanics	3
CE6340	Ground Modification Techniques	3
CE6330	Soil dynamics	3
CE6352	Design of earth structures	3
CE6130	Finite element analysis	3
CE6222	Prestressed concrete	3
CE6120	Applied elasticity and Plasticity	3
CE4102	Advanced Reinforced Concrete Design	2
CE6140	Structural dynamics	3
CE6110	Advanced structural mechanics	3
CE6232	Advanced steel design	3
CE6150	Stability of Structures	3
CE6200	Condition Assessment and Rehabilitation of Structures	3
CE6500	Engineering hydrology and hydrologic systems	3
CE6610	Remote sensing and GIS applications to civil engineering	3
CE6530	Ground water modeling	3
CE6011	Computer methods in civil engineering	2
CE4330	Geology I	1
CE5390	Geothermics	2
ME2090	Kinematics of mechanisms	2 (1-3)
ME2100	Dynamics of mechanisms	2 (4-6)
ME3150	Applied elasticity	2 (1-4)
ME3413	Machine drawing and solid modeling	2 (1-6)
ME2070	Introduction to mathematical modeling	1.5 (1-3)

ME5010	Mathematical methods for engineers	3
ME5110	Advanced mechanics of solids	3
ME5120	Dynamics and vibration	3
ME5700	Analysis and design of composite structures	3
ME5610	Fracture mechanics	3
ME5630	Nonlinear oscillation	3
ME5690	Advanced FEM	3
ME5260	Continuum mechanics	3
ME5320	Advanced heat transfer	3
ME5330	Computational fluid dynamics	3
CH5050	Computational methods for engineers	3
MS5100	Composite materials	3
MS5140	Introduction to computational methods in materials science	3