

**Curriculum (Scheme of Examination)
&
Syllabus**

**B.Tech. – Civil Engineering
Session: 2020-21 Onwards**



Registrar
SGT University
Budhera, Gurugram

SGT University, Gurugram

Scheme of Studies (B.Tech) Program Code: CE

Bachelor of Technology in Civil Engineering (2020-21)

Undergraduate Core (UC)		AICTE Credits	Undergraduate Elective (UE)		AICTE Credits
Category	Credits		Category	Credits	
Program Core (PC)	61	47	Program Electives Courses (PEC)	18	23
Basic Sciences (BS)	19	26	Open Electives (OE)	9	11
Engineering & Applied Science (EAS)	21	29	Value Added Course (VA courses)	0	0
HSMC & CRC Courses	12	12	Mandatory Courses	0	0
Internships & Project	20	12			
Core	133	126	Elective	27	34
Total Credits				160	160

Basic Sciences (BS) Core		L	T	P	C
13010101	Engineering Mathematics I	3	1	0	4
13010201	Engineering Mathematics II	3	1	0	4
13010102	Industrial Chemistry	3	0	2	4
13010202	Engineering Physics	3	0	0	3
13010301	Strength of materials	3	0	2	4
Total BS Core		15	2	6	19
Mandatory Courses (Non-Creditable)					
13010106	Environmental Science	2	0	0	-
13010310	Indian Constitution	2	0	0	-
13010407	Organizational Behavior	2	0	0	-
		6	0	0	-
Engg. & Applied Science (EAS) core					
13010105	Basic Electrical Engineering	3	0	0	3
13010203	Basic of Electrical engineering	3	0	2	4
13010110	Computer Programming Lab (C++)	0	0	4	2
13010206	Advance Programming Lab (C++)	0	0	4	2
13010205	Engineering Graphics Lab	0	0	4	2
13010104	Workshop Technology	1	0	4	3
13010304	Engineering Mechanics	3	0	0	3
13010307	Computer-aided Civil Engineering Drawing	0	0	4	2
Total EAS Core		10	0	22	21
HSMC & CRC					
13010103	Communications Skills	2	0	2	3
13010208	Communications Skills II Lab	0	0	2	1
13010406	Technical report writing	0	0	2	1
13010703	Energy Efficient Buildings	3	0	0	3
13010204	Universal Human Values	3	0	2	4
Total HSMC & CRC Core		8	0	8	12
Program Core(PC)					
13010403	Surveying	3	0	2	4
13010303	Fluid Mechanics	3	0	2	4
13010402	Structure Analysis	3	0	2	4
13010301	Soil Mechanics	3	0	2	4
13010305	Engineering Geology	3	0	2	4
13010401	Concrete Technology	3	0	2	4
13010501	Reinforced Concrete Structures	3	0	2	4
13010502	Water treatment and Supply System	3	0	2	4
13010602	Design of Steel Structure-I	4	0	0	4
13010702	Geo-Technology	3	0	2	4
13010603	Highway Engineering	3	0	2	4
13010701	Irrigation Engineering	3	0	0	3
13010302	Building Construction and Material	3	0	0	3
13010606	Building Information Modeling Lab	0	0	4	2
13010609	Highway Design Lab	0	0	2	1
13010707	Waterways Design Lab	0	0	4	2
13010706	Structure Design Lab (Stad-pro)	0	0	4	2
13010601	Estimation and Costing	3	0	2	4
Total PC Core		43	0	36	61
Industrial Training and Project (IT&P)					
13010526	Industrial Training-I	0	0	0	-
13010719	Industrial Training-II	0	0	0	-
13010801	Internship/ Major Project	0	0	20	20

Total(IT&P)Core		0	0	20	20
Program Electives					
Elective-I	Composite materials	3	0	0	3
	Air and Noise Pollution	3	0	0	3
	Open channel flow	3	0	0	3
	Ground Improvement Techniques	3	0	0	3
	Construction Planning and Management	3	0	0	3
Elective-II	Advance Structure Analysis	3	0	0	3
	Solid waste management	3	0	0	3
	Hydropower	3	0	0	3
	Advanced Surveying	3	0	0	3
	Quantitative technique in construction management	3	0	0	3
Elective-III	Pre-stressed concrete structure	3	0	0	3
	Environment impact assessment	3	0	0	3
	Hydrology	3	0	0	3
	Urban transportation planning	3	0	0	3
	Management of quality and safety in construction	3	0	0	3
Elective-IV	Bridge engineering	3	0	0	3
	Natural Disaster Mitigation and management	3	0	0	3
	Urban water resources management	3	0	0	3
	Architecture and Town Planning	3	0	0	3
	Construction economics and financial management	3	0	0	3
Elective-V	Design of Steel Structure-II	3	0	0	3
	Climate Change	3	0	0	3
	Analysis and design of hydraulic structures	3	0	0	3
	Traffic engineering	3	0	0	3
	Resource management and control in construction	3	0	0	3
Elective-VI	Earthquake Engineering	3	0	0	3
	Waste water treatment	3	0	0	3
	Ground water engineering	3	0	0	3
	Railways, Tunnel and Airport Engineering	3	0	0	3
	Construction methods and equipments	3	0	0	3
Total PE Core		18	0	0	18
Open Elective					
13010416	Foreign Language-I Elective	3	0	0	3
13010615	Foreign Language-II Elective	3	0	0	3
13010418	Recent Trends in Automotive Technology	3	0	0	3
13010419	Nanotechnology and Surface Engineering	3	0	0	3
13010520	Industrial Safety Engineering	3	0	0	3
13010521	Plant Layout and Material Handling	3	0	0	3
13010616	Supply Chain and Logistic Managements	3	0	0	3
13010617	Hydrogen and Fuel Cells	3	0	0	3
13010420	Signal And System	3	0	0	3
13010421	Digital electronics & computer	3	0	0	3

	organization				
13010522	Real time embedded system	3	0	0	3
13010523	Sensors	3	0	0	3
13010422	Ethical hacking	3	0	0	3
13010423	Internet of things	3	0	0	3
13010524	Software Project management	3	0	0	3
13010525	E- Commerce	3	0	0	3
13010618	Data structure and algorithm	3	0	0	3
13010417	Mathematics III	3	0	0	3
	Total OE	09	0	0	09

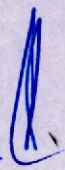
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SGT University															
Faculty of Engineering And Technology															
B.Tech. Civil Engineering															
Semester	Subject									Lecture course	L	T	P	Hours per week	Credits
I	Engineering Mathematics-I 3-1-0 (4)	Industrial Chemistry 3-0-2 (4)	Communication Skills 2-0-2 (3)	Basic of Electrical engineering 3-0-0 (3)	Workshop Technology 1-0-4 (3)	Environmental Science 2-0-0 (MC1)	Computer Programming Lab (C++) 0-0-4(2)			6	14	1	12	27	19
II	Engineering Mathematics-II 3-1-0 (4)	Basic of Electronics Engineering 3-0-2 (4)	Engineering Physics 3-0-0 (3)	Universal Human Values 3-0-2(4)	Communication Skill Lab 0-0-2(1)	Engineering Graphics Lab 0-0-4 (2)	Advance Programming Lab (C++) 0-0-4(2)			4	12	1	14	27	20
III	Strength of materials 3-0-2 (4)	Building Construction & Material 3-0-0(3)	Fluid Mechanics 3-0-2 (4)	Engineering Mechanics 3-0-0 (3)	Engineering Geology 3-0-2(4)	Computer-aided Civil Engineering Drawing 0-0-4(2)	Constitution of India 2-0-0(MC2)			6	17	0	10	27	20
IV	Concrete technology 3-0-2(4)	Structural Analysis 3-0-2 (4)	Surveying 3-0-2 (4)	Program Elective-I 3-0-0 (3)	Open Elective-I 3-0-0 (3)	Technical Report Writing 0-0-2(1)	Organizational behavior 2-0-0 (MC3)			6	17	0	8	25	19
Summer		Industry Training-I Practical (6 weeks)													
V	Reinforced Concrete Structures 3-0-2 (4)	Water Treatment & Supply Systems 3-0-2 (4)	Soil Mechanics 3-0-2 (4)	Program Elective-II 3-0-0 (3)	Program Elective-III 3-0-0 (3)	Open Elective-II 3-0-0 (3)				6	18	0	6	24	21
VI	Estimation & Costing 3-0-2 (4)	Design of Steel Structures-I 4-0-0 (4)	Highway Engineering 3-0-2 (4)	Open Elective-III 3-0-0 (3)	Program Elective-IV 3-0-0 (3)	Building Information Modeling Lab 0-0-4(2)	Highway Design Lab 0-0-2(1)			5	16	0	10	26	21
Summer		Industrial Training-II Practical (6 weeks)													
VII	Irrigation Engineering 3-0-0 (3)	Geo-Technology 3-0-2 (4)	Program Elective-V 3-0-0 (3)	Program Elective-VI 3-0-0 (3)	Energy Efficient Buildings 3-0-0(3)	Waterways Design Lab 0-0-4(2)	Structure Design Lab (Stad-pro) 0-0-4 (2)			5	15	0	10	25	20
VIII	Major Project 0-0-24 (20) / Internship(20)									0	0	0	24	24	20
	Total Credits														160

List of Program Elective

S. No.	Specialization	Program Elective I	Program Elective II	Program Elective III
1	Structural Engineering	Composite materials	Advance Structure Analysis	Pre-stressed concrete structure
2	Environmental Engineering	Air and Noise Pollution	Solid waste management	Environment impact assessment
3	Water Resource Engineering	Open channel flow	Hydropower	Hydrology
4	Transportation Engineering	Ground Improvement Techniques	Advanced Surveying	Urban transportation planning
5	Construction Management	Construction Planning and Management	Quantitative technique in construction management	Management of quality and safety in construction

S. No	Specialization	Program Elective IV	Program Elective V	Program Elective VI
1	Structural Engineering	Bridge engineering	Design of Steel Structure-II	Earthquake Engineering
2	Environmental Engineering	Natural Disaster Mitigation and management	Climate Change	Waste water treatment
3	Water Resource Engineering	Urban water resources management	Analysis and design of hydraulic structures.	Ground water engineering
4	Transportation Engineering	Architecture and Town Planning	Traffic engineering	Railways, Tunnel and Airport Engineering
5	Construction Management	Construction economics and financial management	Resource management and control in construction	Construction methods and equipments


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Scheme of Examination for B.Tech. Civil Program 2020-2021

SEMESTER WISE COURSE STRUCTURE

First Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010101	Engineering Mathematics-1	3	1	0	4	60	40	100
2	13010102	Industrial Chemistry	3	0	0	3	60	40	100
3	13010103	Communication Skills	2	0	0	2	60	40	100
4	13010104	Workshop Technology	1	0	0	1	60	40	100
5	13010105	Basics of Electrical Engineering	3	0	0	3	60	40	100
6	13010106	Environment Science	2	0	0	0	60	40	*
7	13010107	Industrial Chemistry Lab	0	0	2	1	40	60	100
8	13010108	Communication Skills Lab	0	0	2	1	40	60	100
9	13010109	Workshop Technology Lab	0	0	4	2	40	60	100
10	13010110	Computer Programming Lab (C++)	0	0	4	2	40	60	100
		Total	14	1	12	19	440	460	900

Second Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010201	Engineering Mathematics II	3	1	0	4	60	40	100
2	13010202	Engineering Physics	3	0	0	3	60	40	100
3	13010203	Basics of Electronics Engineering	3	0	0	3	60	40	100
4	13010204	Universal Human Values	3	0	2	4	60	40	100
5	13010205	Engineering Graphics Lab	0	0	4	2	40	60	100
6	13010206	Advance Programming Lab (C++)	0	0	4	2	40	60	100
7	13010207	Basic Electronics Lab	0	0	2	1	40	60	100
8	13010208	Communication Skill II Lab	0	0	2	1	40	60	100
9		Universal Human Values Lab	0	0	2	1	40	60	100
		Total	12	1	14	20	440	460	900



Scheme of Examination for B.Tech. Civil Program 2020-2021
SEMESTER WISE COURSE STRUCTURE
Third Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010301	Strength of materials	3	0	0	3	60	40	100
2	13010302	Building Construction & Material	3	0	0	3	60	40	100
3	13010303	Fluid Mechanics	3	0	0	3	60	40	100
4	13010304	Engineering Mechanics	3	0	0	3	60	40	100
5	13010305	Engineering Geology	3	0	0	3	60	40	100
6	13010306	Strength of materials Lab	0	0	2	1	40	60	100
7	13010307	Computer-aided Civil Engineering Drawing	0	0	4	2	40	60	100
8	13010308	Fluid Mechanics Lab	0	0	2	1	40	60	100
9	13010309	Engineering Geology Lab	0	0	2	1	40	60	100
10	13010310	Constitution of India	2	0	0	MC2	40	60	*
		Total	17	0	10	20	460	440	900

Fourth Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010401	Concrete technology	3	0	0	3	60	40	100
2	13010402	Structural Analysis	3	0	0	3	60	40	100
3	13010403	Surveying	3	0	0	3	60	40	100
4		Program Elective-I	3	0	0	3	60	40	100
5		Open Elective-I	3	0	0	3	60	40	100
6	13010406	Technical Report Writing	0	0	2	1	40	60	100
7	13010407	Organizational Behavior	2	0	0	MC2	40	60	*
8	13010408	Concrete technology Lab	0	0	2	1	40	60	100
9	13010409	Structural Analysis Lab	0	0	2	1	40	60	100
10	13010410	Surveying Lab	0	0	2	1	40	60	100
		Total	17	0	8	19	460	440	900



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SEMESTER WISE COURSE STRUCTURE

Fifth Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010501	Reinforced Concrete Structures	3	0	0	3	60	40	100
2	13010502	Water Treatment & Supply Systems	3	0	0	3	60	40	100
3	13010503	Soil Mechanics	3	0	0	3	60	40	100
4		Program Elective-II	3	0	0	3	60	40	100
5		Program Elective-III	3	0	0	3	60	40	100
6		Open Elective-II	3	0	0	3	60	40	100
7	13010507	Reinforced Concrete Structures Lab	0	0	2	1	40	60	100
8	13010508	Water Treatment & Supply Systems Lab	0	0	2	1	40	60	100
9	13010509	Soil Mechanics Lab	0	0	2	1	40	60	100
		Total	18	0	6	21	420	480	900

Sixth semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010601	Estimation & Costing	3	0	0	3	60	40	100
2	13010602	Design of Steel Structures-1	4	0	0	4	60	40	100
3	13010603	Highway Engineering	3	0	0	3	60	40	100
4		Program Elective-IV	3	0	0	3	60	40	100
5		Open Elective-III	3	0	0	3	60	40	100
6	13010606	Building Information Modeling Lab	0	0	4	2	40	60	100
7	13010607	Estimation & Costing Lab	0	0	2	1	40	60	100
8	13010608	Highway Engineering Lab	0	0	2	1	40	60	100
9	13010609	Highway Design Lab	0	0	2	1	40	60	100
		Total	16	0	10	21	460	440	900



Scheme of Examination for B.Tech. Civil Program 2020-2021 SEMESTER WISE COURSE STRUCTURE

Seventh Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010701	Irrigation Engineering	3	0	0	3	60	40	100
2	13010702	Geo-Technology	3	0	0	3	60	40	100
3	13010703	Energy Efficient Buildings	3	0	0	3	60	40	100
4		Program Elective-V	3	0	0	3	60	40	100
5		Program Elective-VI	3	0	0	3	60	40	100
6	13010706	Structure Design Lab (Stad-pro)	0	0	4	2	40	60	100
7	13010707	Waterways Design Lab	0	0	4	2	40	60	100
8	13010708	Geo-Technology Lab	0	0	2	1	40	60	100
		Total	15	0	10	20	420	380	800

Eighth Semester

S. No.	Subject Code	Course Title	L	T	P	C	Examination marks		Subject Total
							Ext.	Int.	
1	13010801	Major Project /Internship	0	0	20	20	100	100	200
		Total	0	0	20	20	100	100	200

* These marks are used for grading purpose only.

O: - Above or = 90%

A+:- 80% - 90%

A: - 70% -80%

B+:- 60% - 70%

B: - 50% - 60%

Fail: - Below 50%

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Program Elective-

I

S. No.	Subject	Subject Code
1	Air and Noise Pollution	13010412
2	Hydrology	13010413
3	Ground Improvement Techniques	13010413
4	Construction Planning and Management	13010414
5	Composite materials	13010411


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•Program Elective-

II

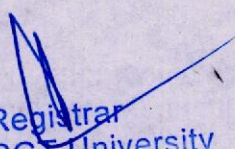
S. No.	Subjects	Subject Code
1	Advance Structure Analysis	13010510
2	Solid waste management	13010511
3	Hydropower	13010512
4	Advanced Surveying	13010513
5	Quantitative technique in construction management	13010514

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Program Elective-

IV

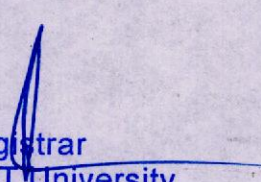
S. No.	Subjects	Subject Code
1	Bridge engineering	13010610
2	Natural Disaster Mitigation and management	13010611
3	Urban water resources management	13010612
4	Architecture and Town Planning	13010613
5	Construction economics and financial management	13010614


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Program Elective-

V

S. No.	Subjects	Subject Code
1	Design of Steel Structure-II	13010709
2	Climate Change	13010710
3	Analysis and design of hydraulic structures.	13010711
4	Traffic engineering	13010712
5	Resource management and control in construction	13010713


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Program Elective-

VI

S. No.	Subjects	Subject Code
1	Earthquake Engineering	13010714
2	Waste water treatment	13010715
3	Ground water engineering	13010716
4	Railways, Tunnel and Airport Engineering	13010717
5	Construction methods and equipments	13010718


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