

**Sardar Vallabhbhai National Institute of Technology (SVNIT) Surat**  
**Department of Civil Engineering**  
**B. Tech. Civil Engineering**

**Teaching Scheme**  
**for**  
**Bachelor of Technology**  
**in**  
**Civil Engineering**  
**(As per NEP-2023)**



**Department of Civil Engineering**  
**Sardar Vallabhbhai National Institute of Technology, Surat**

**(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)**  
**(Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)**

Sr. No.	Subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours of Learning (Approx.)
<b>First Semester (1<sup>st</sup> year of UG)</b>					
1	Engineering Graphics	CE101	2-0-4	4	100
2	Building Technology	CE103	3-0-2	4	85
3	Environmental Pollution and Management	CE105	3-0-0	3	55
4	Mathematics-I	MA109	3-1-0	4	70
5	Indian Value System and Social Consciousness	HS120	2-0-0	2	35
			<b>Total</b>	<b>17</b>	<b>345</b>
6	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CEV01/ CEP01	0-0-10	5	200 (20x10)
<b>Second Semester (1<sup>st</sup> year of UG)</b>					
1	Mechanics of Materials	CE102	3-0-2	4	85
2	Surveying-I	CE104	3-1-2	5	100
3	Material Science	CY106	3-0-2	4	85
4	Mathematics II	MA108	3-1-0	4	70
5	Innovation, Incubation and Entrepreneurship	MG110	3-1-0	4	70
6	English and Professional Communication	HS112	3-1-0	4	70
			<b>Total</b>	<b>25</b>	<b>480</b>
7	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CEV02/ CEP02	0-0-10	5	200 (20x10)
<b>Third Semester (2<sup>nd</sup> year of UG)</b>					
1	Hydraulic Engineering	CE201	3-1-2	5	100
2	Environmental Engineering	CE203	3-1-2	5	100
3	Building Planning	CE205	3-1-2	5	100
4	Soil Mechanics	CE207	3-1-2	5	100
5	Elective 1	CE2AA	3-X-X	3/4	55/70
			<b>Total</b>	<b>23-24</b>	<b>455-485</b>
<b>Fourth Semester (2<sup>nd</sup> year of UG)</b>					
1	Concrete Technology (*)	CE202	3-0-2	4	85
2	Highway Materials and Construction	CE204	3-0-2	4	85
3	Surveying-II	CE206	3-1-2	5	100
4	Elementary Structural Mechanics	CE208	3-0-2	4	85
5	Elective 2	CE2BB	3-X-X	3/4	55/70
			<b>Total</b>	<b>20-21</b>	<b>410-440</b>
6	Minor / Honor(M/H#1)	CE2CC	3-X-X	3/4	55/70/85
7	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CEV04/ CEP04	0-0-10	5	200 (20x10)

(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)  
(Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)

Sr. No.	Subject	Code	Scheme L-T-P	Credits (Min.)	Notional hours of Learning (Approx.)
<b>Fifth Semester (3<sup>rd</sup> year of UG)</b>					
1	Design of Steel Structures	CE301	3-0-2	4	85
2	Structural Analysis	CE303	3-1-2	5	100
3	Transport System Design (*)	CE305	3-1-0	4	70
4	Elective 3	CE3AA	3-X-X	3/4	55/70
5	Elective 4 (Global Elective)	CE3BB	3-X-X	3/4	55/70
			<b>Total</b>	<b>19-21</b>	<b>365-425</b>
6	Minor / Honor (M/H#2)	CE3CC	3-X-X	3/4	55/70/85
<b>Sixth Semester (3<sup>rd</sup> year of UG)</b>					
1	Estimation and Cost Analysis	CE302	3-0-2	4	85
2	Water Resources Engineering (*)	CE304	3-1-2	5	100
3	Design of Concrete Structures	CE306	3-1-2	5	100
4	Elective 5	CE3AA	3-X-X	3/4	55/70
5	Elective 6 (Global Elective)	CE3BB	3-X-X	3/4	55/70
			<b>Total</b>	<b>20-22</b>	<b>395-455</b>
6	Minor / Honor (M/H#3)	CE3DD	3-X-X	3/4	55/70/85
7	Vocational Training / Professional Experience (Optional) (Mandatory for Exit)	CEV06/ CEP06	0-0-10	5	200 (20x10)
<b>Seventh Semester (4<sup>th</sup> year of UG)</b>					
1	Construction Project Management (*)	CE401	3-1-0	4	70
2	Elective 7	CE4AA	3-X-X	3/4	55/70
3	Elective 8	CE4BB	3-X-X	3/4	55/70
4	Elective 9	CE4CC	3-X-X	3/4	55/70
5	Elective10	CE4DD	3-X-X	3/4	55/70
			<b>Total</b>	<b>16-20</b>	<b>350-410</b>
6	Minor/Honor(M/H#4)	CE4EE	3-X-X	3/4	55/70/85
<b>Eighth Semester (4<sup>th</sup> year of UG)</b>					
1	Industrial Internship/Professional Experience (Mandatory)	CEP08	0-0-40	20	800 (20x40)
			<b>Total</b>	<b>20</b>	<b>800</b>

(\*) To be offered along with B. Tech. Minors

**Subject Code: ##nXX; ##: Department Identity, n: Year, XX: Subject Sequence number**  
**XX: last digit 0 (subject offered in both ODD and EVEN semesters, XX: 01 to 30 – last digit**  
**ODD and EVEN for ODD and EVEN semesters (Mandatory Core), XX: 31 to 50 (Optional**  
**Core), XX: 51 to 99 (Elective), Subjects list for Minor and Honor (M/H#1-4), Subjects list**  
**for Specialization track (#1-4) EG: Engineering Subject, SC: Science Subject (offered**  
**combined by departments) (SVNIT Surat)**

## Minor in Civil Engineering

(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)  
 (Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)

Sr. No.	Course Name	Code	Scheme	Credit	Semester
1	Concrete Technology	CE202	3-0-2	4	4 <sup>th</sup>
2	Transport System Design	CE305	3-1-0	4	5 <sup>th</sup>
3	Water Resources Engineering	CE304	3-1-2	4	6 <sup>th</sup>
4	Construction Project Management	CE401	3-1-0	4	7 <sup>th</sup>
5	Mini Project		0-0-4	2	7 <sup>th</sup>
		<b>Total</b>		<b>18</b>	

### Honors in Civil Engineering

Sr. No.	Course Name	Code	Scheme	Credit	Semester
1	Structural Dynamics and Earthquake Engineering	CE-H202	3-1-0	4	4 <sup>th</sup>
2	Occupational Health Safety and Environment	CE-H204	3-1-0	4	4 <sup>th</sup>
3	Special Concrete	CE-H301	3-1-0	4	5 <sup>th</sup>
4	Urban Design and Landscape Development	CE-H303	3-1-0	4	5 <sup>th</sup>
5	Applications of FEM in Structural Engineering	CE-H302	3-1-0	4	6 <sup>th</sup>
6	Hydraulics of Alluvial rivers	CE-H304	3-1-0	4	6 <sup>th</sup>
7	Design of Special Structures	CE-H401	3-1-0	4	7 <sup>th</sup>
8	Environmental Ethics Law and Policy	CE-H403	3-1-0	4	7 <sup>th</sup>
9	Project for Honors	CE-H405	0-0-4	2	7 <sup>th</sup>

### Electives Baskets

Sr. No.	Subject (L – T – P : 3 – X – X)	Code
<b>Third Semester (Elective-1)</b>		
1	Environmental Management	CE231
2	Engineering Geology	CE233
3	Airport Planning	CE235
4	Integrated Watershed Management	CE237
5	Professional Ethics, Economics and Business Management	MA239
<b>Fourth Semester (Elective-2)</b>		
1	Advanced Construction Technology	CE232
2	Building Maintenance	CE234
3	Advanced Water and Wastewater Treatment	CE236
5	Environmental Geo-technology	CE242
6	Rock Mechanics	CE244
7	Pavement Construction and Evaluation	CE246
8	Railway Engineering	CE248

(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)  
(Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)

<b>Sr. No.</b>	<b>Subject (L – T – P : 3 – X – X)</b>	<b>Code</b>
9	Traffic Engineering and Management	CE252
10	Town Planning	CE254
11	Sustainable Building Planning	CE256
12	Regional Planning	CE258
13	Channel Hydraulics	CE262
14	Optimization Methods	EE264
<b>Fifth Semester (Elective-3)</b>		
1	Heavy Construction Technology	CE331
2	Solid and Hazardous Waste Management	CE333
3	Advanced Geotechnical Engineering	CE335
4	Advanced Concrete Technology	CE337
5	Pavement Analysis and Design	CE339
6	Urban Transport Planning	CE341
7	Highway Geometric Design	CE343
8	Tourism Planning and Development	CE345
9	Urban Design and Landscape Development	CE347
10	Planning Legislation	CE349
11	Advanced Geomatics Surveying	CE351
12	Stochastic Hydrology	CE353
13	Advanced Hydrologic Analysis and Design	CE355
14	Water Supply Distribution Systems	CE357
<b>Fifth Semester (Elective-4) (Global)</b>		
1	Industrial Safety and Environment	CE357
2	Ground Engineering	CE359
3	Introduction to Wind Engineering	CE361
4	Transportation Safety and Environment	CE363
5	Hydropower Engineering	CE365
<b>Sixth Semester (Elective-5)</b>		
1	Professional Practice	CE332
2	Air Pollution and Control	CE334
3	Ground Improvement Techniques	CE336
4	Introduction to Earthquake Geotechnical Engineering	CE338
5	Design of Formwork	CE342
6	Design of Industrial Structures	CE344
7	Structural Vibration Control	CE346
8	Public Transport Planning	CE348
9	Operation and Maintenance Management of Pavements	CE352
10	Traffic Flow Theory	CE354
11	Rural Planning and Development	CE356
12	Urban Land Management	CE358
13	Housing	CE362
14	Fundamentals of GIS and Remote Sensing	CE364
15	Irrigation and Drainage System	CE366

(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)  
(Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)

<b>Sr. No.</b>	<b>Subject (L – T – P : 3 – X – X)</b>	<b>Code</b>
17	Ground Water Engineering	CE372
18	B. Tech. Project - I	CE374
<b>Sixth Semester (Elective-6) (Global)</b>		
1	Waste to Energy Technologies	CE376
2	Soil Exploration and Field Tests	CE378
3	Disaster Management	CE382
4	Advanced Mechanics of Solids	CE384
5	Intelligent Transport System	CE386
6	Smart Cities Planning and Management	CE388
7	Climate Change Studies	CE392
8	Water Infrastructure for Smart Cities	CE394
<b>Seventh Semester (Elective-7)</b>		
1	Construction Laws	CE431
2	Environmental Legislation and Impact Assessment	CE433
3	Geo-synthetic and Reinforced Soil Structure	CE435
4	Design of Pre-stressed Concrete Structures	CE437
5	Computer Aided Design of Structures	CE439
6	Transport Economics	CE441
7	Urban Economics and Sociology	CE443
8	Advanced Hydraulic Structures	CE445
<b>Seventh Semester (Elective-8)</b>		
1	Building Information Modeling	CE447
2	Industrial Waste Management	CE449
3	Introduction to Finite Element Method	CE451
4	Design of Bridge Structures	CE453
5	Rehabilitation of Concrete Structures	CE455
6	Planning and Development of Informal Sector	CE457
7	Flood Control and River Training Works	CE459
<b>Seventh Semester (Elective-9)</b>		
1	Metro Construction Technology	CE461
2	Advanced Foundation Engineering	CE463
3	Earthquake Resistant Design of Structures	CE465
4	Non-linear Analysis of Frame Buildings	CE467
5	Urban Infrastructure Planning	CE469
6	GPS and applications	CE471
<b>Seventh Semester (Elective-10)</b>		
1	Construction Safety Management	CE473
2	Environmental Ethics, law and Policy	CE475
3	Design of Advanced Concrete Structures	CE477
4	Computational Hydraulics	CE479
5	Urban Governance and Legislation	CE481
6	B. Tech. Project-II (#)	CE483
<b>(#) Pre-requisite – B. Tech. Project-I in Semester-6</b>		

(As per 58<sup>th</sup> Senate, 31<sup>st</sup> May 2023)  
(Modifications as per 63<sup>rd</sup> Senate, 24<sup>th</sup> January, 2025)