



Symbiosis Institute of Technology, Pune
Bachelor of Technology (Civil Engineering)
Programme Structure 2020-24

1. OBJECTIVE	<p>B.Tech is a full-time four year graduation programme, which aims at transforming a student into a technically sound professional. The syllabus contains courses on basic sciences, technical arts, humanities & liberal arts and professional courses. The mix of these courses has been evolved with an aim to produce professionals who have knowledge not only of Engineering but who are good managers to contribute in a cross-functional team and have human values. Being a professional programme it ensures a healthy balance between theoretical foundation and practical exposure to the present day world. The emphasis is to develop all round personality that would enable the students to take up the challenges of the corporate world and also become responsible citizens of the society.</p>			
2. DURATION (IN MONTHS)	48 (Full Time)			
3. INTAKE	60			
4. RESERVATION	I. Within the sanctioned intake	a) SC (In Percentage)	b) ST (In Percentage)	c) Differently abled (In Percentage)
		15	7.5	3
	II. Over and above the sanctioned intake	a) Kashmiri Migrants (In Seats)		b) International Students (In Percentage)
		2		15
5. ELIGIBILITY	<p>Passed 10+2 examination with Physics and Mathematics as compulsory subjects along with one of Chemistry/ Biotechnology/ Biology/ Technical Vocational subjects. Obtained at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) in the above subjects taken together.</p> <p>B. Tech (Lateral entry to second year) :</p> <p>a) Passed Diploma examination from an AICTE approved Institution; with at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) in appropriate branch of Engineering / Technology.</p> <p>b) Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks or equivalent grade (40% marks or equivalent grade for Scheduled Caste /Scheduled Tribes) and passed XII standard with mathematics as a subject.</p> <p>c) Provided that in case of students belonging to B. Sc. Stream, shall clear the subjects of Engineering Graphics / Engineering Drawing and Engineering Mechanics of the first year Engineering program along with the second year subjects.</p> <p>d) Provided further that, the students belonging to B. Sc. Stream shall be considered only after filling the supernumerary seats in this category with students belonging to the Diploma stream.</p> <p>e) Provided further that students, who have passed Diploma in Engineering and Technology from an AICTE approved Institution or B. Sc. Degree from a recognized University as defined by UGC, shall also be eligible for admission to</p>			



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		the first year Engineering Degree courses subject to vacancies in the first year class in case the vacancies at lateral entry are exhausted. However the admissions shall be based strictly on the eligibility criteria as mentioned in a, b, c, and d above.			
6.	SELECTION PROCEDURE	Merit list by a valid score of Symbiosis Entrance Test (SIT EEE) or Joint Entrance Examination (JEE - Mains) or All States Engineering Entrance Test			
7.	MEDIUM OF INSTRUCTION	English			
8.	PROGRAMME PATTERN	Semester			
9.	COURSE & SPECIALIZATION	<p>As per Annexure A.</p> <p>Students can pursue additional specialization in the following areas by completing 20 credits specified in the program structure of that specialization beyond the minimum requirement for the award of degree.</p> <ul style="list-style-type: none"> - GIS and Surveying Technology - Infrastructure Engineering and Management - Environmental Hydraulics - Geo-Environmental Engineering - Structural Engineering - Smart Cities and Urban Analytics 			
10.	FEE		Academic Fee p.a	Institute Deposit	Total
		Indian Students	260000	20000	280000
		International Students (USD equivalent to INR)	390000	20000	410000
11.	ASSESSMENT	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 40% internal component and 60% component as external [University] examination. The internal and external will be separate heads of passing.			
12.	STANDARD OF PASSING	The assessment of the student for each examination is done, based on relative performance. Maximum Grade Point (GP) is 10 corresponding to O (Outstanding). For all courses, a student is required to pass both internal and external examination separately with a minimum Grade Point of 4 corresponding to Grade P. Students securing less than 40% absolute marks in each head of passing will be declared FAIL. The University awards a degree to the student who has achieved a minimum CGPA of 4 out of maximum of 10 CGPA for the programme.			
13.	AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE	Bachelor of Technology (Civil Engineering) will be awarded at the end of semester VIII examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10.00 CGPA.			

14. NATURE WISE DISTRIBUTION OF CREDITS							
Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	22	0	0	0	0	0	22
2	21	0	0	0	0	0	21
3	20	2	0	0	0	1*	22
4	23	1	0	0	0	1*	24
5	22	0	0	0	0	0	22
6	12	12	0	0	0	0	24
7	6	15	0	0	0	0	21
8	14	0	0	0	0	0	14
Total	140	30	0	0	0	0	170
Optional Additional Courses							
Total	0	0	11	9	0	0	20
Grand Total							190

* Satisfactory completion of the non letter grade courses 'Integrated Disaster Management' and 'Fitness for Life' is mandatory for the award of degree.

Note: For additional specializations (optional) as applicable, fees of Rs.25000/- will be charged, additionally in the third year

Programme Structure is approved by the Academic Council subject to its norms & conditions. Any provision in the Programme Structure which violates the basic rules & regulations is deemed to be termed "Null & Void".

Head-Academics

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Annexure A

Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total
				L	T	Lab	CA	ESE	CA	ESE		
Semester : 1												
Generic Core Courses												
TE7168	0701210101	Engineering Mathematics -I	BS	3	1	0	0	0	40	60	4	100
T7540	0701210102	Basic Electrical and Electronics Engineering	ES	3	0	0	0	0	30	45	3	75
T7593	0701210103	Basic Electrical and Electronics Engineering Lab	ES	0	0	2	10	15	0	0	1	25
T7381	0701210104	Chemistry	BS	3	0	0	0	0	30	45	3	75
T7382	0701210105	Chemistry Lab	BS	0	0	2	10	15	0	0	1	25
T7414	0701210106	Engineering Mechanics	ES	3	0	0	0	0	30	45	3	75
T7415	0701210107	Engineering Mechanics Lab	ES	0	0	2	10	15	0	0	1	25
T7925	0701210108	Engineering Graphics Lab	ES	0	0	4	20	30	0	0	2	50
TE7286	0701210109	Programming and Problem Solving	ES	2	0	0	0	0	20	30	2	50
TE7287	0701210110	Programming and Problem Solving Lab	ES	0	0	2	10	15	0	0	1	25
T6732	0701210111	Critical Thinking	HS	1	0	0	0	0	25	0	1	25
Total				15	1	12	60	90	175	225	22	550
Semester : 2												
Generic Core Courses												
TE7169	0701210201	Engineering Mathematics -II	BS	3	1	0	0	0	40	60	4	100
T7391	0701210202	Physics	BS	3	0	0	0	0	30	45	3	75
T7392	0701210203	Physics lab	BS	0	0	2	10	15	0	0	1	25
TE7178	0701210204	Basics of Civil Engineering	ES	3	0	0	0	0	30	45	3	75
TE7179	0701210205	Basics of Civil Engineering Lab	ES	0	0	2	10	15	0	0	1	25
T7383	0701210206	Communication Skills	HS	2	0	0	0	0	20	30	2	50
T7384	0701210207	Communication skills lab	HS	0	0	2	10	15	0	0	1	25
TE7188	0701210208	Environmental Science	ES	2	0	0	0	0	20	30	2	50
TE7300	0701210209	Tinker Lab	ES	0	0	4	50	0	0	0	2	50
TE7396	0701210210	Software Tools	ES	0	0	2	25	0	0	0	1	25
T6773	0701210211	Creative Thinking	HS	1	0	0	0	0	25	0	1	25
Total				14	1	12	105	45	165	210	21	525
Semester : 3												
Generic Core Courses												
T7957	0701210301	Building Construction Technology	PC	3	0	0	0	0	30	45	3	75
T7958	0701210302	Building Construction Technology Lab	PC	0	0	2	10	15	0	0	1	25
TE7170	0701210303	Engineering Mathematics-III	BS	2	1	0	0	0	30	45	3	75



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Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total
				L	T	Lab	CA	ESE	CA	ESE		
TE7199	0701210304	Hydrology and Water Resource Engineering	PC	3	0	0	0	0	30	45	3	75
TE7398	0701210305	Introduction to Solid Mechanics	ES	3	0	0	0	0	30	45	3	75
TE7399	0701210306	Introduction to Solid Mechanics Lab	ES	0	0	2	10	15	0	0	1	25
TE7181	0701210307	Computer Aided Civil Engineering Drawing	ES	0	0	4	50	0	0	0	2	50
TE7400	0701210308	Introduction to Fluid Mechanics	PC	3	0	0	0	0	30	45	3	75
TE7401	0701210309	Introduction to Fluid Mechanics Lab	PC	0	0	2	10	15	0	0	1	25
T4005	0701210310	Integrated Disaster Management *		0	0	0	0	0	0	0	Non Letter Grade	0
Total				14	1	10	80	45	150	225	20	500
Generic Elective Courses Group												
T6184	0701210311	Basic German I	OE	2	0	0	0	0	50	0	2	50
T6186	0701210312	Basic French I	OE	2	0	0	0	0	50	0	2	50
T6188	0701210313	Basic Spanish I	OE	2	0	0	0	0	50	0	2	50
Total Required Credits							0	0	50	0	2	50
Semester : 4												
Generic Core Courses												
T8000	0701210401	Service Learning	HS	0	0	8	100	0	0	0	4	100
T7960	0701210402	Statistics, Probability and Numerical Methods	BS	3	0	0	0	0	30	45	3	75
TE7402	0701210403	Structural Analysis-I	PC	3	0	0	0	0	30	45	3	75
TE7403	0701210404	Geology and Soil Mechanics	PC	3	0	0	0	0	30	45	3	75
T7963	0701210405	Geology & Soil Mechanics Lab	PC	0	0	2	10	15	0	0	1	25
TE7404	0701210406	Open Channel Flow	PC	3	0	0	0	0	30	45	3	75
TE7405	0701210407	Open Channel Flow Lab	PC	0	0	2	10	15	0	0	1	25
T7966	0701210408	Advanced Surveying Lab	PC	0	0	4	50	0	0	0	2	50
TE7290	0701210409	Project Based Learning -I	PIS	0	0	4	50	0	0	0	2	50
T2646	0701210410	Entrepreneurship Venture	HS	1	0	0	0	0	25	0	1	25
TH4095	0701210411	Fitness for Life *		0	0	0	0	0	0	0	Non Letter Grade	0
Total				13	0	20	220	30	145	180	23	575
Generic Elective Courses Group												
T6761	0701210412	Foundation of Ethics	OE	1	0	0	0	0	25	0	1	25



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				L	T	Lab	CA	ESE	CA	ESE		
T6760	0701210413	Introduction to Indian Philosophy	OE	1	0	0	0	0	25	0	1	25
Total Required Credits							0	0	25	0	1	25
Semester : 5												
Generic Core Courses												
T7416	0701210501	Environmental Engineering I	PC	3	0	0	0	0	30	45	3	75
T7417	0701210502	Environmental Engineering I Lab	PC	0	0	2	10	15	0	0	1	25
F0003	0701210503	Flexi-Credit Course	PC	3	0	0	0	0	75	0	3	75
TE7406	0701210504	Structural Analysis-II	PC	3	0	0	0	0	30	45	3	75
TE7408	0701210505	Structural Design-I	PC	3	0	0	0	0	30	45	3	75
T7440	0701210506	Structural Design I Lab.	PC	0	0	2	25	0	0	0	1	25
T6749	0701210507	Design Thinking	HS	2	0	0	0	0	50	0	2	50
TE7291	0701210508	Project Based Learning-II	PIS	0	0	4	50	0	0	0	2	50
TE7407	0701210509	Quantity Surveying and Valuation	PC	0	0	4	50	0	0	0	2	50
T6774	0701210510	Principles of Economics	HS	2	0	0	0	0	50	0	2	50
Total				16	0	12	135	15	265	135	22	550
Specialization Core Courses for Optional Additional Specialization : Environmental Hydraulics (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Geo-Environmental Engineering (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : GIS and Surveying Technology (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Infrastructure Engineering and Management (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Smart Cities and Urban Analytics (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Structural Engineering (Major)												
T7802	0701210511	Project Phase - I	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50



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				L	T	Lab	CA	ESE	CA	ESE		
Specialization Elective : Environmental Hydraulics												
TE7185	0701210512	Environmental Fluid Mechanics	PE	3	0	0	0	0	30	45	3	75
TE7211	0701210513	Pipeline Engineering	PE	3	0	0	0	0	30	45	3	75
TE7218	0701210514	River Engineering	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Specialization Elective : Geo-Environmental Engineering												
TE7187	0701210515	Environmental Laws and Policy	PE	3	0	0	0	0	30	45	3	75
TE7190	0701210516	Environmental Systems	PE	3	0	0	0	0	30	45	3	75
TE7194	0701210517	Geotechnical Design	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Specialization Elective : GIS and Surveying Technology												
TE7184	0701210518	Digital Image Processing in GIS	PE	3	0	0	0	0	30	45	3	75
TE7227	0701210519	Spatial Modelling and Analysis	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Specialization Elective : Infrastructure Engineering and Management												
TE7236	0701210520	Urban Transportation Planning	PE	3	0	0	0	0	30	45	3	75
TE7217	0701210521	Public Transportation Systems	PE	3	0	0	0	0	30	45	3	75
TE7210	0701210522	Pavement Materials	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Specialization Elective : Smart Cities and Urban Analytics												
TE7177	0701210523	Application of Sensor Technology to Smart Cities	PE	3	0	0	0	0	30	45	3	75
TE7220	0701210524	Smart Cities : Context Policy and Governance	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Specialization Elective : Structural Engineering												
TE7228	0701210525	Structural Analysis by Matrix Methods	PE	3	0	0	0	0	30	45	3	75
TE7213	0701210526	Prestressed Concrete	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	60	90	6	150
Semester : 6												
Generic Core Courses												
T7419	0701210601	Environmental Engineering II	PC	3	0	0	0	0	30	45	3	75



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				L	T	Lab	CA	ESE	CA	ESE		
F0003	0701210602	Flexi-Credit Course	PC	3	0	0	0	0	75	0	3	75
TE7410	0701210603	Structural Design-II	PC	3	0	0	0	0	30	45	3	75
T7802	0701210604	Capstone Course	PC	2	0	0	0	0	50	0	2	50
F0001	0701210605	Flexi-Credit Course	PC	0	0	2	25	0	0	0	1	25
Total				11	0	2	25	0	185	90	12	300
Specialization Core Courses for Optional Additional Specialization : Environmental Hydraulics (Major)												
TE7241	0701210606	Water Resources Field Methods	PE	3	0	0	0	0	30	45	3	75
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7242	0701210608	Water Resources Field Methods Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Specialization Core Courses for Optional Additional Specialization : Geo-Environmental Engineering (Major)												
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7229	0701210609	Structural Geology	PE	3	0	0	0	0	30	45	3	75
TE7230	0701210610	Structural Geology Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Specialization Core Courses for Optional Additional Specialization : GIS and Surveying Technology (Major)												
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7196	0701210611	Global Navigation Satellite Systems	PE	3	0	0	0	0	30	45	3	75
TE7197	0701210612	Global Navigation Satellite Systems Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Specialization Core Courses for Optional Additional Specialization : Infrastructure Engineering and Management (Major)												
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7201	0701210613	Infrastructure Planning and Design	PE	3	0	0	0	0	30	45	3	75
TE7202	0701210614	Infrastructure Planning and Design Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Specialization Core Courses for Optional Additional Specialization : Smart Cities and Urban Analytics (Major)												
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7206	0701210615	IOT for Smart Cities	PE	3	0	0	0	0	30	45	3	75
TE7207	0701210616	IOT for Smart Cities Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Specialization Core Courses for Optional Additional Specialization : Structural Engineering (Major)												



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				L	T	La b	CA	ESE	CA	ESE		
T7803	0701210607	Project Phase II	PIS	0	0	6	30	45	0	0	3	75
TE7208	0701210617	Modelling and Analysis of Uncertainty	PE	3	0	0	0	0	30	45	3	75
TE7209	0701210618	Modelling and Analysis of Uncertainty Lab	PE	0	0	2	25	0	0	0	1	25
Total				3	0	8	55	45	30	45	7	175
Generic Elective Courses Group												
TE7224	0701210619	Soil Mechanics II	PE	4	0	0	0	0	40	60	4	100
TE7409	0701210621	Bridge Engineering	PE	4	0	0	0	0	40	60	4	100
T7975	0701210622	Green Building Technology	PE	4	0	0	0	0	40	60	4	100
TE7411	0701210623	Airport Planning and Design	PE	4	0	0	0	0	40	60	4	100
TE7412	0701210624	Introduction to Remote Sensing and GIS	PE	4	0	0	0	0	40	60	4	100
TE7189	0701210625	Environmental Systems	PE	4	0	0	0	0	40	60	4	100
TE7221	0701210627	Smart Cities and Future Urbanism	PE	4	0	0	0	0	40	60	4	100
Total Required Credits							0	0	40	60	4	100
Generic Elective Courses Group												
T7980	0701210628	Glass Facade Engineering	PE	3	0	0	0	0	30	45	3	75
TE7413	0701210629	Foundation Engineering	PE	3	0	0	0	0	30	45	3	75
TE7414	0701210630	Pavement Design	PE	3	0	0	0	0	30	45	3	75
TE7415	0701210631	Integrated Water Resource Management	PE	3	0	0	0	0	30	45	3	75
T7984	0701210632	Computer Applications in Construction Management	PE	3	0	0	0	0	30	45	3	75
TE7235	0701210633	Urban Transport Engineering	PE	3	0	0	0	0	30	45	3	75
TE7416	0701210634	Smart Cities Planning and Development	PE	3	0	0	0	0	30	45	3	75
TE7175	0701210635	Advanced Structural Analysis	PE	3	0	0	0	0	30	45	3	75
TE7182	0701210637	Design of Hydraulic Structures	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Generic Elective Courses Group												
TE7225	0701210620	Soil Mechanics II Lab	PE	0	0	2	10	15	0	0	1	25
TE7191	0701210626	Environmental Systems Lab	PE	0	0	2	10	15	0	0	1	25
Total Required Credits							10	15	0	0	1	25
Generic Elective Courses Group												



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				L	T	Lab	CA	ESE	CA	ESE		
TE7176	0701210636	Advanced Structural Analysis Lab	PE	0	0	2	25	0	0	0	1	25
TE7183	0701210638	Design of Hydraulic Structures Lab	PE	0	0	2	25	0	0	0	1	25
Total Required Credits							25	0	0	0	1	25
Generic Elective Courses Group (Major)												
T7574	0701210639	MATLAB	OE	3	0	0	0	0	30	45	3	75
TE7335	0701210640	Introduction to Robotics	OE	3	0	0	0	0	30	45	3	75
TE7339	0701210641	Renewable Energy Systems	OE	3	0	0	0	0	30	45	3	75
TE7428	0701210642	Introduction to Image Processing	OE	3	0	0	0	0	30	45	3	75
TE7223	0701210643	Smart Urban Planning	OE	3	0	0	0	0	30	45	3	75
TE7240	0701210644	Water Resource Planning and Management	OE	3	0	0	0	0	30	45	3	75
T7499	0701210645	Java	OE	3	0	0	0	0	30	45	3	75
TE7265	0701210646	Introduction to Data Science	OE	3	0	0	0	0	30	45	3	75
TE7263	0701210647	Introduction to AI and Machine Learning	OE	3	0	0	0	0	30	45	3	75
TE7388	0701210648	Quality Management Techniques	OE	3	0	0	0	0	30	45	3	75
TE7319	0701210649	Electrical and Electronics Materials	OE	3	0	0	0	0	30	45	3	75
TE7351	0701210650	3D Printing and Prototyping	OE	3	0	0	0	0	30	45	3	75
TE7387	0701210651	Project Management	OE	3	0	0	0	0	30	45	3	75
T7020	0701210652	Nanotechnology	OE	3	0	0	0	0	30	45	3	75
T7393	0701210653	Computer Based Statistical Packages	OE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Semester : 7												
Generic Core Courses												
T7804	0701210701	Project	PIS	0	0	8	40	60	0	0	4	100
T7674	0701210702	Cyber Security	ES	2	0	0	0	0	50	0	2	50
Total				2	0	8	40	60	50	0	6	150
Specialization Core Courses for Optional Additional Specialization : Environmental Hydraulics (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Geo-Environmental Engineering (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50



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Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total
				L	T	Lab	CA	ESE	CA	ESE		
Specialization Core Courses for Optional Additional Specialization : GIS and Surveying Technology (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Infrastructure Engineering and Management (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Smart Cities and Urban Analytics (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Specialization Core Courses for Optional Additional Specialization : Structural Engineering (Major)												
T7802	0701210703	Seminar	PIS	0	0	4	30	20	0	0	2	50
Total				0	0	4	30	20	0	0	2	50
Generic Elective Courses Group												
T2585	0701210704	Organizational Behaviour	OE	2	0	0	0	0	50	0	2	50
TE7438	0701210705	History of Science and Technology	OE	2	0	0	0	0	50	0	2	50
Total Required Credits							0	0	50	0	2	50
Generic Elective Courses Group												
TE7212	0701210706	Port and Harbor Engineering	PE	3	0	0	0	0	30	45	3	75
TE7238	0701210707	Water and Air Quality Modelling	PE	3	0	0	0	0	30	45	3	75
TE7417	0701210708	Advanced Concrete Technology	PE	3	0	0	0	0	30	45	3	75
TE7418	0701210709	Geoinformatics Application for Emergency Response Management	PE	3	0	0	0	0	30	45	3	75
T7955	0701210710	Professional Practices in Construction	PE	3	0	0	0	0	30	45	3	75
TE7216	0701210711	Project Management in Smart Cities	PE	3	0	0	0	0	30	45	3	75
TE7219	0701210712	Rock Mechanics	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Generic Elective Courses Group												
TE7231	0701210713	Sustainable Construction Methods	PE	3	0	0	0	0	75	0	3	75
TE7419	0701210714	Introduction to Finite Element Methods	PE	3	0	0	0	0	75	0	3	75



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				L	T	La b	CA	ESE	CA	ESE		
TE7420	0701210715	Environmental Geotechniques	PE	3	0	0	0	0	75	0	3	75
TE7421	0701210716	Environmental Impact Assessment	PE	3	0	0	0	0	75	0	3	75
TE7422	0701210717	Traffic Engineering	PE	3	0	0	0	0	75	0	3	75
TE7423	0701210718	Optimization in Civil Engineering	PE	3	0	0	0	0	75	0	3	75
Total Required Credits							0	0	75	0	3	75
Generic Elective Courses Group												
TE7424	0701210719	Water Power Engineering	PE	3	0	0	0	0	30	45	3	75
TE7214	0701210721	Prestressed Concrete Structure	PE	3	0	0	0	0	30	45	3	75
T7952	0701210723	Waste Management Systems	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Generic Elective Courses Group												
TE7239	0701210720	Water Power Engineering Lab	PE	0	0	2	25	0	0	0	1	25
TE7215	0701210722	Prestressed Concrete Structure Lab	PE	0	0	2	25	0	0	0	1	25
TE7237	0701210724	Waste Management System Lab	PE	0	0	2	25	0	0	0	1	25
Total Required Credits							25	0	0	0	1	25
Generic Elective Courses Group												
TE7171	0701210725	Introduction to Mathematical Modelling	OE	3	0	0	0	0	30	45	3	75
TE7195	0701210726	GIS Applications	OE	3	0	0	0	0	30	45	3	75
TE7203	0701210727	Intelligent Transportation Management	OE	3	0	0	0	0	30	45	3	75
T7584	0701210728	Printed Circuit Board (PCB) Design	OE	3	0	0	0	0	30	45	3	75
T7650	0701210729	Six sigma	OE	3	0	0	0	0	30	45	3	75
T7394	0701210730	Smart Materials	OE	3	0	0	0	0	30	45	3	75
T7474	0701210731	Basics of Database	OE	3	0	0	0	0	30	45	3	75
T7616	0701210732	Fundamentals of Automotive Technology	OE	3	0	0	0	0	30	45	3	75
T7529	0701210733	Machine Learning	OE	3	0	0	0	0	30	45	3	75
T7509	0701210734	Open Source Technologies	OE	3	0	0	0	0	30	45	3	75
TE7264	0701210735	Introduction to BIGDATA	OE	3	0	0	0	0	30	45	3	75
TE7334	0701210736	Introduction to Mechatronics	OE	3	0	0	0	0	30	45	3	75



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Catalog Course Code	Course Code	Course Title	Nature	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total
				L	T	Lab	CA	ESE	CA	ESE		
TE7338	0701210737	Principles of Modern Communication Systems	OE	3	0	0	0	0	30	45	3	75
TE7376	0701210738	Introduction to Operations Research	OE	3	0	0	0	0	30	45	3	75
TE7377	0701210739	Introduction to Optimisation	OE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : Environmental Hydraulics												
TE7198	0701210740	Hydraulic Modelling	PE	3	0	0	0	0	30	45	3	75
TE7180	0701210741	Basics of Computational Methods	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : Geo-Environmental Engineering												
TE7226	0701210742	Solid and Hazardous Waste Management	PE	3	0	0	0	0	30	45	3	75
TE7186	0701210743	Environmental Geotechnology	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : GIS and Surveying Technology												
TE7193	0701210744	Geoinformatics Applications in Natural Resource Management	PE	3	0	0	0	0	30	45	3	75
TE7204	0701210745	Intelligent Transportation Systems	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : Infrastructure Engineering and Management												
TE7204	0701210745	Intelligent Transportation Systems	PE	3	0	0	0	0	30	45	3	75
TE7233	0701210746	Transportation Economics	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : Smart Cities and Urban Analytics												
TE7204	0701210745	Intelligent Transportation Systems	PE	3	0	0	0	0	30	45	3	75
TE7234	0701210747	Urban Hydrology and Hydraulics	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Specialization Elective : Structural Engineering												



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				L	T	Lab	CA	ESE	CA	ESE		
TE7200	0701210748	Industrial Structures	PE	3	0	0	0	0	30	45	3	75
TE7232	0701210749	System Engineering and Economics	PE	3	0	0	0	0	30	45	3	75
Total Required Credits							0	0	30	45	3	75
Semester : 8												
Generic Core Courses												
T7912	0701210801	Internship	PIS	0	0	24	180	120	0	0	12	300
T7802	0701210803	Seminar	PIS	0	0	4	50	0	0	0	2	50
Total				0	0	28	230	120	0	0	14	350



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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester1	1	21	22	550
Semester2	4	17	21	525
Semester3	4	18	22	550
Semester4	10	14	24	600
Semester5	12	10	22	550
Semester6	7	17	24	600
Semester7	8	13	21	525
Semester8	2	12	14	350
Total	48	122	170	4250