

**Symbiosis Institute of Technology, Pune**  
**Bachelor of Technology (Civil Engineering)**  
**Programme Structure 2018-22**

1.	<b>OBJECTIVE</b>	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.			
2.	<b>DURATION (IN MONTHS)</b>	48 (Full Time)			
3.	<b>INTAKE</b>	60			
4.	<b>RESERVATION</b>	<b>I. Within the sanctioned intake</b>	<b>a) SC (In Percentage)</b>	<b>b) ST (In Percentage)</b>	<b>c) Differently abled (In Percentage)</b>
			15	7.5	3
		<b>II. Over and above the sanctioned intake</b>	<b>a) Kashmiri Migrants (In Seats)</b>	<b>b) International Students (In Percentage)</b>	
			2	15	
5.	<b>ELIGIBILITY</b>	<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 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.</p>			
6.	<b>SELECTION PROCEDURE</b>	Merit list by valid score of Symbiosis Entrance Test (SET) or Joint Entrance Examination (JEE - Main) or Maharashtra Common Entrance Test (MHT-CET)			
7.	<b>MEDIUM OF INSTRUCTION</b>	English			
8.	<b>PROGRAMME PATTERN</b>	Semester			
9.	<b>COURSE &amp; SPECIALIZATION</b>	As per Annexure A			
10.	<b>FEE</b>		<b>Academic Fee p.a</b>	<b>Institute Deposit</b>	<b>Total</b>
		<b>Indian Students</b>	260000	20000	280000
		<b>International Students (USD equivalent to INR)</b>	390000	20000	410000

11.	<b>ASSESSMENT</b>	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.	<b>STANDARD OF PASSING</b>	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.	<b>AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE</b>	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 CGPA.

**14. NATURE WISE DISTRIBUTION OF CREDITS**

Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	24	0	0	0	0	0	24
2	24	2	0	0	0	0	26
3	26	2	0	0	0	1*	28
4	25	0	0	0	0	0	25
5	22	3	0	0	0	0	25
6	18	3	0	7	0	0	28
7	21	0	0	6	0	0	27
8	0	17	0	0	0	0	17
<b>Total</b>	<b>160</b>	<b>27</b>	<b>0</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>200</b>

\* Satisfactory completion of the non letter grade course 'Integrated Disaster Management' is mandatory for award of degree.

The revised programme structure supersedes the previously approved programme structure dated 11/03/2020 for the programme.

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	Specialization	Credits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
<b>Semester : 1</b>									
<b>Generic Core Courses</b>									
T7385	070121101	Engineering Mathematics -I		5	50	75	0	0	125
T7391	070121102	Physics		3	30	45	0	0	75
T7392	070121103	Physics lab		1	0	0	10	15	25
T7929	070121104	Basics of Surveying and Built Environment		3	30	45	0	0	75
T7930	070121105	Basics of Surveying and Built Environment Lab		1	0	0	10	15	25
T7484	070121106	Computer Programming		2	20	30	0	0	50
T7485	070121107	Computer Programming Lab		1	0	0	10	15	25
T7604	070121108	Basic Mechanical Engineering		3	30	45	0	0	75
T7605	070121109	Basic Mechanical Engineering lab		1	0	0	10	15	25
TE7077	070121110	Construction Materials		2	20	30	0	0	50
T7658	070121111	Workshop Practice		2	0	0	20	30	50
<b>Total</b>				<b>24</b>	<b>180</b>	<b>270</b>	<b>60</b>	<b>90</b>	<b>600</b>
<b>Semester : 2</b>									
<b>Generic Core Courses</b>									
T7943	070121201	Technical English & Communication Skill		2	50	0	0	0	50
T7944	070121202	Technical English & Communication Skill Lab		1	0	0	10	15	25
T7387	070121203	Engineering Mathematics-II		5	50	75	0	0	125
T7381	070121204	Chemistry		3	30	45	0	0	75
T7382	070121205	Chemistry Lab		1	0	0	10	15	25
T7540	070121206	Basic Electrical and Electronics Engineering		3	30	45	0	0	75
T7593	070121207	Basic Electrical and Electronics Engineering Lab		1	0	0	10	15	25
T7414	070121208	Engineering Mechanics		3	30	45	0	0	75
T7415	070121209	Engineering Mechanics Lab		1	0	0	10	15	25
T7924	070121210	Engineering Graphics		2	20	30	0	0	50
T7925	070121211	Engineering Graphics Lab		2	0	0	20	30	50
<b>Total</b>				<b>24</b>	<b>210</b>	<b>240</b>	<b>60</b>	<b>90</b>	<b>600</b>
<b>Generic Elective Courses Group</b>									
T7946	070121212	Economics for Engineers		2	50	0	0	0	50
<b>Total Required Credits</b>				<b>2</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>
<b>Semester : 3</b>									

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Catalog Course Code	Course Code	Course Title	Specialization	Credits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
<b>Generic Core Courses</b>									
T7388	070121301	Engineering Mathematics-III		4	40	60	0	0	100
T7435	070121302	Solid Mechanics		4	40	60	0	0	100
T7436	070121303	Solid Mechanics Lab		1	0	0	10	15	25
T7403	070121304	Building design and drawing		4	40	60	0	0	100
T7404	070121305	Building Design and drawing Lab		1	0	0	10	15	25
T7422	070121306	Fluid Mechanics - I		4	40	60	0	0	100
T7423	070121307	Fluid Mechanics - I Lab		1	0	0	10	15	25
T7957	070121308	Building Construction Technology		3	30	45	0	0	75
T7958	070121309	Building Construction Technology Lab		1	0	0	10	15	25
T7959	070121310	Engineering Hydrology		3	30	45	0	0	75
T4005	070121311	Integrated Disaster Management *		0	0	0	0	0	Non Letter Grade
<b>Total</b>				<b>26</b>	<b>220</b>	<b>330</b>	<b>40</b>	<b>60</b>	<b>650</b>
<b>Generic Elective Courses Group</b>									
T6184	070121312	Basic German I		2	50	0	0	0	50
T6186	070121313	Basic French I		2	50	0	0	0	50
T6188	070121314	Basic Spanish I		2	50	0	0	0	50
<b>Total Required Credits</b>				<b>2</b>	<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>
<b>Semester : 4</b>									
<b>Generic Core Courses</b>									
T7960	070121401	Statistics, Probability and Numerical Methods		3	30	45	0	0	75
T7961	070121402	Statistics, Probability and Numerical Methods lab		1	0	0	10	15	25
T7438	070121403	Structural Analysis - I		4	40	60	0	0	100
T7962	070121404	Geology & Soil Mechanics		4	40	60	0	0	100
T7963	070121405	Geology & Soil Mechanics Lab		1	0	0	10	15	25
T7964	070121406	Fluid Mechanics II		3	30	45	0	0	75
T7425	070121407	Fluid Mechanics - II Lab		1	0	0	10	15	25
T7966	070121408	Advanced Surveying Lab		2	0	0	20	30	50
T8000	070121409	Service Learning		4	100	0	0	0	100
T2353	070121410	Entrepreneurship		2	50	0	0	0	50
<b>Total</b>				<b>25</b>	<b>290</b>	<b>210</b>	<b>50</b>	<b>75</b>	<b>625</b>
<b>Semester : 5</b>									
<b>Generic Core Courses</b>									

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T7437	070121501	Structural Analysis II		4	40	60	0	0	100
T7967	070121502	Railway Tunnel and Harbour Engineering		3	30	45	0	0	75
T7721	070121503	Quantity Surveying and Valuation		3	30	45	0	0	75
T7434	070121504	Quantity Surveying and Valuation Lab.		1	0	0	10	15	25
T7416	070121505	Environmental Engineering I		3	30	45	0	0	75
T7417	070121506	Environmental Engineering I Lab		1	0	0	10	15	25
T7439	070121507	Structural Design I		4	40	60	0	0	100
T7440	070121508	Structural Design I Lab.		1	0	0	10	15	25
T7968	070121509	Foundation of Ethics		2	50	0	0	0	50
<b>Total</b>				<b>22</b>	<b>220</b>	<b>255</b>	<b>30</b>	<b>45</b>	<b>550</b>
<b>Generic Elective Courses Group</b>									
T7457	070121510	Integrated Water Resources Development and Management		3	30	45	0	0	75
T7499	070121511	Java		3	30	45	0	0	75
T7574	070121512	MATLAB		3	30	45	0	0	75
T7616	070121513	Fundamentals of Automotive Technology		3	30	45	0	0	75
T7020	070121514	Nanotechnology		3	30	45	0	0	75
T7393	070121515	Computer Based Statistical Packages		3	30	45	0	0	75
<b>Total Required Credits</b>				<b>3</b>	<b>30</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>75</b>
<b>Semester : 6</b>									
<b>Generic Core Courses</b>									
T7419	070121601	Environmental Engineering II		3	30	45	0	0	75
T7420	070121602	Environmental Engineering II Lab		1	0	0	10	15	25
T7441	070121603	Structural Design II		4	40	60	0	0	100
T7442	070121604	Structural Design II Lab		1	0	0	10	15	25
T7971	070121605	Highway Engineering		3	30	45	0	0	75
T7972	070121606	Highway Engineering Lab		1	0	0	10	15	25
T7454	070121607	Water Resources Engineering		3	30	45	0	0	75
TE7082	070121608	Project Planning and Charter		2	0	0	20	30	50

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<b>Total</b>				<b>18</b>	<b>130</b>	<b>195</b>	<b>50</b>	<b>75</b>	<b>450</b>
<b>Generic Elective Courses Group</b>									
T7456	070121623	Town & Country Planning		3	30	45	0	0	75
T7509	070121624	Open Source Technologies		3	30	45	0	0	75
T7474	070121625	Basics of Database		3	30	45	0	0	75
T7584	070121626	Printed Circuit Board (PCB) Design		3	30	45	0	0	75
T7650	070121627	Six sigma		3	30	45	0	0	75
T7394	070121628	Smart Materials		3	30	45	0	0	75
<b>Total Required Credits</b>				<b>3</b>	<b>30</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>75</b>
<b>Specialization Elective : Civil Engineering</b>									
T7973	070121609	Bridge Engineering & design	Civil Engineering	4	40	60	0	0	100
T7974	070121610	Waste Management Systems	Civil Engineering	4	40	60	0	0	100
T7975	070121611	Green Building Technology	Civil Engineering	4	40	60	0	0	100
T7976	070121612	Environmental Geotechnics	Civil Engineering	4	40	60	0	0	100
T7977	070121613	Pavement Design & Construction	Civil Engineering	4	40	60	0	0	100
T7978	070121614	Advanced Design of RCC structures	Civil Engineering	4	40	60	0	0	100
T7453	070121615	Water Power Engineering	Civil Engineering	4	40	60	0	0	100
T7979	070121616	Applied Soil Mechanics	Civil Engineering	4	40	60	0	0	100
<b>Total Required Credits</b>				<b>4</b>	<b>40</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>100</b>
<b>Specialization Elective : Civil Engineering</b>									
T7980	070121617	Glass Facade Engineering	Civil Engineering	3	30	45	0	0	75
T7981	070121618	Town Planning	Civil Engineering	3	30	45	0	0	75
T7982	070121619	Intergrated Water Resource Management in India	Civil Engineering	3	30	45	0	0	75
T7983	070121620	Ground Improvement Techniques	Civil Engineering	3	30	45	0	0	75
T7984	070121621	Computer Applications in Construction Management	Civil Engineering	3	30	45	0	0	75
T7985	070121622	Urban Transport Management	Civil Engineering	3	30	45	0	0	75

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<b>Total Required Credits</b>				<b>3</b>	<b>30</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>75</b>
<b>Semester : 7</b>									
<b>Generic Core Courses</b>									
T7804	070121701	B.Tech Project		4	0	0	40	60	100
T7987	070121702	Foundation Engineering		4	40	60	0	0	100
T7443	070121703	Structural Design III		3	30	45	0	0	75
T7444	070121704	Structural Design III Lab		1	0	0	10	15	25
T7408	070121705	Dams and Hydraulic Structures		3	30	45	0	0	75
T7409	070121706	Dams and Hydraulic Structures Lab		1	0	0	10	15	25
T7988	070121707	Optimization in Civil Engineering		3	30	45	0	0	75
T7674	070121708	Cyber Security		2	50	0	0	0	50
<b>Total</b>				<b>21</b>	<b>180</b>	<b>195</b>	<b>60</b>	<b>90</b>	<b>525</b>
<b>Specialization Elective : Civil Engineering</b>									
T7954	070121709	Elementary Remote Sensing and GIS	Civil Engineering	3	30	45	0	0	75
T7953	070121710	Airport Engineering	Civil Engineering	3	30	45	0	0	75
T7955	070121711	Professional Practices in Construction	Civil Engineering	3	30	45	0	0	75
T7989	070121712	Geosynthetics and Applications	Civil Engineering	3	30	45	0	0	75
T7990	070121713	Advanced Concrete Technology	Civil Engineering	3	30	45	0	0	75
<b>Total Required Credits</b>				<b>3</b>	<b>30</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>75</b>
<b>Specialization Elective : Civil Engineering</b>									
T7951	070121714	Introduction to Coastal Engineering	Civil Engineering	3	30	45	0	0	75
T7991	070121715	Introduction To finite Element Method	Civil Engineering	3	30	45	0	0	75
T7992	070121716	Modern Construction Techniques	Civil Engineering	3	30	45	0	0	75
T7993	070121717	Environmental Impact Assessment	Civil Engineering	3	30	45	0	0	75
T7994	070121718	Traffic Engineering and Management	Civil Engineering	3	30	45	0	0	75
<b>Total Required Credits</b>				<b>3</b>	<b>30</b>	<b>45</b>	<b>0</b>	<b>0</b>	<b>75</b>
<b>Semester : 8</b>									
<b>Generic Elective Courses Group</b>									

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Catalog Course Code	Course Code	Course Title	Specialization	Credits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
<b>Generic Elective Courses</b>									
T7671	070121802	Seminar		4	0	0	60	40	100
T7191	070121801	Internship (6 Months)		13	0	0	195	130	325
<b>Total Required Credits</b>				<b>17</b>	<b>0</b>	<b>0</b>	<b>255</b>	<b>170</b>	<b>425</b>
<b>Generic Elective Courses</b>									
T7905	070121803	Internship(6-8 Weeks)		5	0	0	75	50	125
T7048	070121804	Project Management		4	40	60	0	0	100
T7804	070121805	Mini Project		4	0	0	40	60	100
T7969	070121806	Case studies on sustainable environment		2	0	0	20	30	50
T7970	070121807	Software Applications in civil engineering		2	0	0	20	30	50
<b>Total Required Credits</b>				<b>17</b>	<b>40</b>	<b>60</b>	<b>155</b>	<b>170</b>	<b>425</b>



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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester 1	0	24	24	600
Semester 2	4	22	26	650
Semester 3	2	26	28	700
Semester 4	6	19	25	625
Semester 5	2	23	25	625
Semester 6	0	28	28	700
Semester 7	2	25	27	675
Semester 8	0	17	17	425
<b>Total</b>	<b>16</b>	<b>184</b>	<b>200</b>	<b>5000</b>