

Symbiosis Institute of Technology, Pune
Bachelor of Technology (Computer Science)
Programme Structure 2018-22

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.</p> <p>Being a professional programme it ensures a healthy balance between theoretical foundation and practical exposure to the present day world.</p> <p>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 valid score of Symbiosis Entrance Test (SET) or Joint Entrance Examination (JEE - Main) or Maharashtra Common Entrance Test (MHT-CET)					
7.	MEDIUM OF INSTRUCTION	English					
8.	PROGRAMME PATTERN	Semester					
9.	COURSE & SPECIALIZATION	As per Annexure A					
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	Bachelor of Technology (Computer Science & 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	2	0	0	0	0	26
2	25	0	0	0	0	0	25
3	27	0	0	0	0	0	27
4	25	2	0	0	0	1*	27
5	23	3	0	0	0	0	26
6	0	17	0	0	0	0	17
7	15	0	0	12	0	0	27
8	17	0	0	8	0	0	25

Total	156	24	0	20	0	0	200
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* Satisfactory completion of the letter grade course 'Integrated Disaster Management' is mandatory for award of degree.

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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
Semester : 1									
Generic Core Courses									
T7385	070122101	Engineering Mathematics -I		5	50	75	0	0	125
T7381	070122102	Chemistry		3	30	45	0	0	75
T7382	070122103	Chemistry Lab		1	0	0	10	15	25
T7540	070122104	Basic Electrical and Electronics Engineering		3	30	45	0	0	75
T7593	070122105	Basic Electrical and Electronics Engineering Lab		1	0	0	10	15	25
T7414	070122106	Engineering Mechanics		3	30	45	0	0	75
T7415	070122107	Engineering Mechanics Lab		1	0	0	10	15	25
T7924	070122108	Engineering Graphics		2	20	30	0	0	50
T7925	070122109	Engineering Graphics Lab		2	0	0	20	30	50
T7943	070122110	Technical English & Communication Skill		2	50	0	0	0	50
T7944	070122111	Technical English & Communication Skill Lab		1	0	0	10	15	25
Total				24	210	240	60	90	600
Generic Elective Courses Group									
T7946	070122112	Economics for Engineers		2	50	0	0	0	50
Total Required Credits				2	50	0	0	0	50
Semester : 2									
Generic Core Courses									
T7387	070122201	Engineering Mathematics-II		5	50	75	0	0	125
T7391	070122202	Physics		3	30	45	0	0	75
T7392	070122203	Physics lab		1	0	0	10	15	25
T7418	070122204	Environmental & Civil Engineering		3	30	45	0	0	75
T7458	070122205	Environmental & Civil Engineering Lab		1	0	0	10	15	25
T7934	070122206	C Programming		2	20	30	0	0	50
T7935	070122207	C Programming Lab		2	0	0	20	30	50
T7947	070122208	Computational Thinking and Problem Solving		2	20	30	0	0	50
T7658	070124209	Workshop Practice		2	0	0	20	30	50
T7604	070124210	Basic Mechanical Engineering		3	30	45	0	0	75
T7605	070124211	Basic Mechanical Engineering lab		1	0	0	10	15	25
Total				25	180	270	70	105	625
Semester : 3									

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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
Generic Core Courses									
T7995	070122301	Discrete Mathematics and Probability Theory		4	40	60	0	0	100
T7512	070122302	Programming Paradigms		3	30	45	0	0	75
T7513	070122303	Programming Paradigms Lab		1	0	0	10	15	25
T7495	070122304	Fundamentals of Data Structures		4	40	60	0	0	100
T7496	070122305	Fundamentals of Data Structures Lab		2	0	0	20	30	50
T7996	070122306	Computer Organization		3	30	45	0	0	75
T7997	070122307	Digital Electronics and Logic Design		3	30	45	0	0	75
T7555	070122308	Digital Electronics and Logic Design Lab		1	0	0	10	15	25
T2353	070122309	Entrepreneurship		2	50	0	0	0	50
T8000	070122310	Service Learning		4	100	0	0	0	100
Total				27	320	255	40	60	675
Semester : 4									
Generic Core Courses									
T7388	070122401	Engineering Mathematics-III		4	40	60	0	0	100
T7998	070122402	Operating Systems		4	40	60	0	0	100
T7999	070122403	Java Programming		4	40	60	0	0	100
TE7001	070122404	Java Programming Lab		2	0	0	20	30	50
TE7002	070122405	Data Structures		4	40	60	0	0	100
TE7003	070122406	Data Structures Lab		2	0	0	20	30	50
T7577	070122407	Microprocessor Techniques		3	30	45	0	0	75
T7511	070122408	Operating Systems Lab		1	0	0	10	15	25
T7578	070122409	Microprocessor Techniques Lab		1	0	0	10	15	25
T4005	070122410	Integrated Disaster Management *							Letter Grade
Total				25	190	285	60	90	625
Generic Elective Courses Group									
T6184	070122411	Basic German I		2	50	0	0	0	50
T6186	070122412	Basic French I		2	50	0	0	0	50
T6188	070122413	Basic Spanish I		2	50	0	0	0	50
Total Required Credits				2	50	0	0	0	50
Semester : 5									
Generic Core Courses									

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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
T7518	070122501	Theory of Computation		4	40	60	0	0	100
T7486	070122502	Data Base Management Systems		4	40	60	0	0	100
T7487	070122503	Data Base Management Systems Lab		2	0	0	20	30	50
T7908	070122504	Computer Networks		3	30	45	0	0	75
T7482	070122505	Computer Networks Lab		1	0	0	10	15	25
T7490	070122506	Design and Analysis of Algorithms		4	40	60	0	0	100
T7491	070122507	Design and Analysis of Algorithms Lab		1	0	0	10	15	25
T7516	070122508	Software Engineering		4	40	60	0	0	100
Total				23	190	285	40	60	575
Generic Elective Courses Group									
T7457	070122509	Integrated Water Resources Development and Management		3	30	45	0	0	75
T7499	070122510	Java		3	30	45	0	0	75
T7574	070122511	MATLAB		3	30	45	0	0	75
T7616	070122512	Fundamentals of Automotive Technology		3	30	45	0	0	75
T7020	070122513	Nanotechnology		3	30	45	0	0	75
T7393	070122514	Computer Based Statistical Packages		3	30	45	0	0	75
Total Required Credits				3	30	45	0	0	75
Semester : 6									
Group of group 1									
Generic Elective Courses									
T7191	070122601	Internship (6 Months)		13	0	0	195	130	325
T7671	070122602	Seminar		4	0	0	100	0	100
Generic Elective Courses									
T7905	070122603	Internship(6-8 Weeks)		5	0	0	75	50	125
T7048	070122604	Project Management		4	40	60	0	0	100
T7139	070122605	Software Testing and Quality Assurance		3	30	45	0	0	75
T7080	070122606	Software Testing and Quality Assurance Lab		1	0	0	10	15	25
T7509	070122607	Open Source Technologies		3	30	45	0	0	75
TE7006	070122608	Open Source Technologies Lab		1	0	0	10	15	25
Total Required Credits				17	100	150	95	80	425

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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
Semester : 7									
Generic Core Courses									
T7517	070122701	System Programming		3	30	45	0	0	75
TE7007	070122702	Skill Development Lab		4	0	0	40	60	100
TE7008	070122703	Distributed Systems and Resource Management		3	30	45	0	0	75
T7903	070122704	Distributed Systems and Resource management Lab		1	0	0	10	15	25
T6274	070122705	Foundations of Ethics		2	50	0	0	0	50
TE7038	070122706	Project Planning and Charter		2	0	0	20	30	50
Total				15	110	90	70	105	375
Specialization : Computer Science and Engineering									
TE7010	070122707	Data Warehousing and Mining		4	40	60	0	0	100
TE7011	070122708	Artificial Intelligence		4	40	60	0	0	100
TE7012	070122709	Network Analysis and Design		4	40	60	0	0	100
Total Required Credits				4	40	60	0	0	100
Specialization : Computer Science and Engineering									
TE7013	070122710	Data Warehousing and Mining Lab		1	0	0	10	15	25
TE7014	070122711	Artificial Intelligence Lab		1	0	0	10	15	25
TE7015	070122712	Network Analysis and Design Lab		1	0	0	10	15	25
Total Required Credits				1	0	0	10	15	25
Specialization : Computer Science and Engineering									
TE7016	070122713	Big Data Stores		4	40	60	0	0	100
TE7079	070122714	Neural Networks		4	40	60	0	0	100
TE7017	070122715	Network Security		4	40	60	0	0	100
Total Required Credits				4	40	60	0	0	100
Specialization : Computer Science and Engineering									
T7456	070122716	Town & Country Planning		3	30	45	0	0	75
T7509	070122717	Open Source Technologies		3	30	45	0	0	75
T7474	070122718	Basics of Database		3	30	45	0	0	75
T7584	070122719	Printed Circuit Board (PCB) Design		3	30	45	0	0	75
T7650	070122720	Six sigma		3	30	45	0	0	75

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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
T7394	070122721	Smart Materials		3	30	45	0	0	75
Total Required Credits				3	30	45	0	0	75
Semester : 8									
Generic Core Courses									
T7507	070122801	Object Oriented Analysis and Design		3	30	45	0	0	75
T7508	070122802	Object Oriented Analysis and Design Lab		1	0	0	10	15	25
T7477	070122803	Compiler Construction		3	30	45	0	0	75
T7478	070122804	Compiler Construction Lab		1	0	0	10	15	25
TE7018	070122805	Business Analytics		3	30	45	0	0	75
T7804	070122806	Project		4	0	0	40	60	100
T7674	070122807	Cyber Security		2	50	0	0	0	50
Total				17	140	135	60	90	425
Specialization : Computer Science and Engineering									
TE7019	070122808	Big Data Analytics		4	40	60	0	0	100
TE7020	070122809	Wireless Sensor Networks		4	40	60	0	0	100
TE7021	070122810	Optimization Techniques and Algorithms		4	40	60	0	0	100
Total Required Credits				4	40	60	0	0	100
Specialization : Computer Science and Engineering									
TE7022	070122811	Predictive Analytics		4	40	60	0	0	100
T7527	070122812	Internet of Things		4	40	60	0	0	100
TE7023	070122813	Machine learning		4	40	60	0	0	100
Total Required Credits				4	40	60	0	0	100

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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Computer Science and Engineering				
Semester 1	4	22	26	650
Semester 2	0	25	25	625
Semester 3	6	21	27	675
Semester 4	2	25	27	675
Semester 5	0	26	26	650
Semester 6	0	17	17	425
Semester 7	2	25	27	675
Semester 8	2	23	25	625
Total	16	184	200	5000