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

1.	OBJECTIVE	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.	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	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. B. Tech (Lateral entry to second year) : 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. 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. 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. 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. 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.			
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/ DIPLOMA/ CERTIFICATE	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	0*	27
5	23	3	0	0	0	1	26
6	15	0	0	12	0	0	27
7	17	0	0	8	0	0	25
8	0	17	0	0	0	0	17
Total	156	24	0	20	0	0	200

* 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.

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Annexure A

Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
Semester : 1									
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	070122209	Workshop Practice		2	0	0	20	30	50
T7604	070122210	Basic Mechanical Engineering		3	30	45	0	0	75
T7605	070122211	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	Cre-dits	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
T8000	070122310	Service Learning		4	100	0	0	0	100
T2353	070122309	Entrepreneurship		2	50	0	0	0	50
			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
			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**									
T7518	070122501	Theory of Computation		4	40	60	0	0	100
T7486	070122502	Data Base Management Systems		4	40	60	0	0	100

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Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
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
T4005	070122515	Integrated Disaster Management *		0	0	0	0	0	Non Letter Grade
			Total	**23**	**190**	**285**	**40**	**60**	**575**

Generic Elective Courses Group

Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
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
Generic Core Courses

Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
T7517	070122601	System Programming		3	30	45	0	0	75
TE7007	070122602	Skill Development Lab		4	0	0	40	60	100
TE7008	070122603	Distributed Systems and Resource Management		3	30	45	0	0	75
T7903	070122604	Distributed Systems and Resource management Lab		1	0	0	10	15	25
T6274	070122605	Foundations of Ethics		2	50	0	0	0	50
TE7038	070122606	Project Planning and Charter		2	0	0	20	30	50
			Total	**15**	**110**	**90**	**70**	**105**	**375**

Specialization Elective : Computer Science and Engineering

Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
TE7010	070122607	Data Warehousing and Mining	Computer Science and Engineering	4	40	60	0	0	100

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Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
TE7011	070122608	Artificial Intelligence	Computer Science and Engineering	4	40	60	0	0	100
TE7012	070122609	Network Analysis and Design	Computer Science and Engineering	4	40	60	0	0	100
		Total Required Credits		4	40	60	0	0	100
		Specialization Elective : Computer Science and Engineering							
TE7013	070122610	Data Warehousing and Mining Lab	Computer Science and Engineering	1	0	0	10	15	25
TE7014	070122611	Artificial Intelligence Lab	Computer Science and Engineering	1	0	0	10	15	25
TE7015	070122612	Network Analysis and Design Lab	Computer Science and Engineering	1	0	0	10	15	25
		Total Required Credits		1	0	0	10	15	25
		Specialization Elective : Computer Science and Engineering							
TE7016	070122613	Big Data Stores	Computer Science and Engineering	4	40	60	0	0	100
TE7079	070122614	Neural Networks	Computer Science and Engineering	4	40	60	0	0	100
TE7017	070122615	Network Security	Computer Science and Engineering	4	40	60	0	0	100
		Total Required Credits		4	40	60	0	0	100
		Specialization Elective : Computer Science and Engineering							
T7456	070122616	Town & Country Planning	Computer Science and Engineering	3	30	45	0	0	75
T7509	070122617	Open Source Technologies	Computer Science and Engineering	3	30	45	0	0	75
T7474	070122618	Basics of Database	Computer Science and Engineering	3	30	45	0	0	75
T7584	070122619	Printed Circuit Board (PCB) Design	Computer Science and Engineering	3	30	45	0	0	75

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Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
T7650	070122620	Six sigma	Computer Science and Engineering	3	30	45	0	0	75
T7394	070122621	Smart Materials	Computer Science and Engineering	3	30	45	0	0	75
		Total Required Credits		**3**	**30**	**45**	**0**	**0**	**75**
		Semester : 7							
		Generic Core Courses							
T7507	070122701	Object Oriented Analysis and Design		3	30	45	0	0	75
T7508	070122702	Object Oriented Analysis and Design Lab		1	0	0	10	15	25
T7477	070122703	Compiler Construction		3	30	45	0	0	75
T7478	070122704	Compiler Construction Lab		1	0	0	10	15	25
TE7018	070122705	Business Analytics		3	30	45	0	0	75
T7804	070122706	Project		4	0	0	40	60	100
T7674	070122707	Cyber Security		2	50	0	0	0	50
		Total		**17**	**140**	**135**	**60**	**90**	**425**
		Specialization Elective : Computer Science and Engineering							
TE7019	070122708	Big Data Analytics	Computer Science and Engineering	4	40	60	0	0	100
TE7020	070122709	Wireless Sensor Networks	Computer Science and Engineering	4	40	60	0	0	100
TE7021	070122710	Optimization Techniques and Algorithms	Computer Science and Engineering	4	40	60	0	0	100
		Total Required Credits		**4**	**40**	**60**	**0**	**0**	**100**
		Specialization Elective : Computer Science and Engineering							
TE7022	070122711	Predictive Analytics	Computer Science and Engineering	4	40	60	0	0	100
T7527	070122712	Internet of Things	Computer Science and Engineering	4	40	60	0	0	100
TE7023	070122713	Machine learning	Computer Science and Engineering	4	40	60	0	0	100
		Total Required Credits		**4**	**40**	**60**	**0**	**0**	**100**
		Semester : 8							

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Catalog Course Code	Course Code	Course Title	Specialization	Cre-dits	Internal Marks	External Mark	Internal Practical Marks	External Practical Marks	Total Marks
Generic Elective Courses									
T7912	070122801	Internship		13	0	325	0	0	325
T7671	070122802	Seminar		4	0	0	100	0	100
Generic Elective Courses									
T7905	070122803	Internship(6-8 Weeks)		5	0	0	75	50	125
T7048	070122804	Project Management		4	40	60	0	0	100
T7139	070122805	Software Testing and Quality Assurance		3	30	45	0	0	75
T7080	070122806	Software Testing and Quality Assurance Lab		1	0	0	10	15	25
T7509	070122807	Open Source Technologies		3	30	45	0	0	75
TE7006	070122808	Open Source Technologies Lab		1	0	0	10	15	25
Total Required Credits				**17**	**100**	**150**	**95**	**80**	**425**

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Semester	Internal Credits	External Credits	Total Credits	Total Marks
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	4	22	26	650
Semester 6	2	25	27	675
Semester 7	2	23	25	625
Semester 8	0	17	17	425
Total	**20**	**180**	**200**	**5000**