

Symbiosis Institute of Technology, Hyderabad
Bachelor of Technology (Computer Science and Technology)
Programme Structure 2024-28

1. OBJECTIVE	B. Tech (Computer Science and Engineering) 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	30			
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		20
5. ELIGIBILITY	Passed 10+2 examination with Physics and Mathematics as compulsory subjects along with one of Chemistry/Computer Science/Electronics/ Information Technology/Biology/Informatics Practices/ Biotechnology/Technical Vocational subject/Agriculture/Engineering Graphics/Business Studies /Entrepreneurship. Obtained at least 45% marks (40% marks in case of candidates belonging to reserved category) in the above subjects taken together. OR Passed D.Voc. Stream in the same or allied sector. (The University will offer suitable bridge courses such as Mathematics, Physics,			

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		Engineering drawing, etc., for the students coming from diverse backgrounds to prepare Level playing field and desired learning outcomes of the programme).		
		B.Tech. : Lateral Entry		
		Passed Minimum Three-years/ Two-year (Lateral Entry) Diploma examination with at least 45% marks (40% marks in case of candidates belonging to reserved category) in ANY branch of Engineering and Technology.		
		OR		
		Passed B.Sc. Degree from a recognized University as defined by UGC, with at least 45% marks (40% marks or equivalent grade for Scheduled Caste / Scheduled Tribes) and passed 10+2 examination with Mathematics as a subject.		
		OR		
		Passed B. Voc/3-year D.Voc. Stream in the same allied sector. (The Constituent will offer suitable bridge courses such as Mathematics, Physics, Engineering drawing, etc., for the students coming from diverse backgrounds to achieve desired learning outcomes of the programme).		
6.	SELECTION PROCEDURE	Merit list by valid score of Symbiosis Entrance Test (SITEEE) or Joint Entrance Examination (JEE - Main) or Any State Government Engineering Entrance Examination.		
7.	MEDIUM OF INSTRUCTION	English		
8.	PROGRAMME PATTERN	Semester		
9.	COURSE & SPECIALISATION	As per Annexure A		
10.	FEE		Academic Fee p.a	Institute Deposit
				Total

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	Indian Students (Amount in INR)		330000	20000	350000
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	6300	275	6575
		Foreign National Category (Amount in US\$)	1300	275	1575
11.	ASSESSMENT	The courses will have 40% Continuous Assessment and 60% Term End [University] examination however, some courses (not more than 30% of the total programme credits) may have 100% Continuous Assessment.			
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 and Technology) will be awarded at the end of the semester 8 examination by taking into consideration the performance of all semester examinations after obtaining a minimum 4.00 CGPA out of 10 CGPA.			

14. CLASSIFICATION OF CREDITS								
Semester	Generic Core	Generic Elective	Specialisation Core	Specialisation Elective	Open Elective	Mandatory Non-Credit Course/s	Non-Credit Audit Course/s	Total
Common								
1	19	0	0	0	0	0	As per the student's choice	19
2	20	0	0	0	0	1 *		20
3	23	1	0	0	0	1 *		24
4	18	2	0	0	0	1 *		20
5	21	0	0	0	3	0		24
6	12	10	0	0	3	0		25
7	13	11	0	0	0	0		24
8	14	0	0	0	0	0		14
Total	140	24	0	0	6	0		170
Optional Additional Courses (Honours)								
Total	0	0			0	0		20

* Satisfactory completion of non credit courses 'Health and Wellness Module I', 'Health and Wellness Module II', '*Vasudhaiva Kutumbakam*' and 'Environmental Science' is mandatory for award of degree.

The revised programme structure supersedes the previously approved programme structure dated 11/10/2024 for the programme.

This Programme Structure is aligned with the norms laid down by the University and is approved by the Academic Council.
Hereafter changes (if any) which conform to the policy on "Curriculum Development and Review" would be permissible, subject to revision of the Programme Structure, following the specified processes.

Director - Academics

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Annexure A

Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Semester : 1													
Generic Core Courses													
TE7680	0707240101	Mathematics-I	BS		2	1	0	0	0	30	45	3	75
TE7684	0707240102	Physics for Computer Engineers	BS		3	0	0	0	0	30	45	3	75
TE7687	0707240103	Physics Lab	BS		0	0	2	10	15	0	0	1	25
T7383	0707240104	Communication Skills	HS		2	0	0	0	0	20	30	2	50
T7384	0707240105	Communication skills lab	HS		0	0	2	10	15	0	0	1	25
TE7286	0707240106	Programming and Problem Solving	ES		2	0	0	0	0	20	30	2	50
TE7287	0707240107	Programming and Problem Solving Lab	ES		0	0	2	10	15	0	0	1	25
T7925	0707240108	Engineering Graphics Lab	ES		0	0	4	20	30	0	0	2	50
T6732	0707240109	Critical Thinking	HS		1	0	0	0	0	25	0	1	25
TE7749	0707240110	Software Tools for Computer Science	ES		0	0	2	25	0	0	0	1	25
TE7300	0707240111	Tinker Lab	ES		0	0	4	50	0	0	0	2	50
Total					10	1	16	125	75	125	150	19	475
Semester : 2													
Generic Core Courses													
TE7681	0707240201	Mathematics II	BS		3	1	0	0	0	40	60	4	100
TE7694	0707240202	Chemistry	BS		3	0	0	0	0	30	45	3	75
TE7695	0707240203	Chemistry Lab	BS		0	0	2	10	15	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
T7540	0707240204	Basic Electrical and Electronics Engineering	ES		3	0	0	0	0	30	45	3	75
T7593	0707240205	Basic Electrical and Electronics Engineering Lab	ES		0	0	2	10	15	0	0	1	25
TE7288	0707240206	Programming in C	PC		3	0	0	0	0	30	45	3	75
TE7289	0707240207	Programming in C Lab	PC		0	0	2	10	15	0	0	1	25
T6873	0707240208	Creative Thinking	HS		1	0	0	0	0	25	0	1	25
TE7689	0707240209	Statistics and Probability	BS		2	1	0	0	0	30	45	3	75
TE7188	0707240210	Environmental Science *			0	0	0	0	0	0	0	0	0
Total					15	2	6	30	45	185	240	20	500
Semester : 3													
Generic Core Courses													
TE7675	0707240301	Discrete Mathematics and Graph Theory	BS		3	1	0	0	0	40	60	4	100
T7996	0707240302	Computer Organization	PC		3	0	0	0	0	30	45	3	75
TE7960	0707240303	Data Structures	PC		3	0	0	0	0	30	45	3	75
TE7959	0707240304	Data Structures Lab	PC		0	0	2	10	15	0	0	1	25
T7512	0707240305	Programming Paradigms	PC		3	0	0	0	0	30	45	3	75
T7513	0707240306	Programming Paradigms Lab	PC		0	0	2	10	15	0	0	1	25
TE7745	0707240307	Sensors and Microcontrollers	ES		3	0	0	0	0	30	45	3	75
TE7746	0707240308	Sensors and Microcontrollers Lab	ES		0	0	2	10	15	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
T2646	0707240309	Entrepreneurship Venture	HS		1	0	0	0	0	25	0	1	25
T7499	0707240310	Java	PC		3	0	0	0	0	75	0	3	75
TH4788	0707240311	Health and Wellness Module I *	0		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					19	1	6	30	45	260	240	23	575
Generic Elective Courses Group (Choose Any One Course)													
T6872	0707240312	Foundation of Ethics	GE		1	0	0	0	0	25	0	1	25
T6760	0707240313	Introduction to Indian Philosophy	GE		1	0	0	0	0	25	0	1	25
Total Required Credits								0	0	25	0	1	25
Semester : 4													
Generic Core Courses													
TE7170	0707240401	Engineering Mathematics-III	BS		2	1	0	0	0	30	45	3	75
TEE7022	0707240402	Natural Language and Responsive AI	PC		4	0	0	0	0	100	0	4	100
T7907	0707240403	Database Management Systems	PC		3	0	0	0	0	30	45	3	75
T7487	0707240404	Data Base Management Systems Lab	PC		0	0	4	20	30	0	0	2	50
T7510	0707240405	Operating Systems	PC		3	0	0	0	0	30	45	3	75
T7511	0707240406	Operating Systems Lab	PC		0	0	2	10	15	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
TE7290	0707240407	Project Based Learning -I	PIS		0	0	4	50	0	0	0	2	50
TH4789	0707240408	Health and Wellness Module II *	0		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
SMC001	0707240412	Vasudhaiva Kutumbakam *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					12	1	10	80	45	190	135	18	450
Generic Elective Courses Group (Choose Any One Course)													
T6184	0707240409	Basic German I	GE		2	0	0	0	0	50	0	2	50
T6186	0707240410	Basic French I	GE		2	0	0	0	0	50	0	2	50
T6188	0707240411	Basic Spanish I	GE		2	0	0	0	0	50	0	2	50
Total Required Credits								0	0	50	0	2	50
Semester : 5													
Generic Core Courses													
F0004	0707240501	Flexi-Credit Course	PC		4	0	0	0	0	100	0	4	100

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
T8000	0707240502	Service Learning	HS		0	0	8	100	0	0	0	4	100
T7908	0707240503	Computer Networks	PC		3	0	0	0	0	30	45	3	75
T7482	0707240504	Computer Networks Lab	PC		0	0	2	10	15	0	0	1	25
T7909	0707240505	Design and Analysis of Algorithms	PC		3	0	0	0	0	30	45	3	75
T7491	0707240506	Design and Analysis of Algorithms Lab	PC		0	0	2	10	15	0	0	1	25
TE7299	0707240507	Theory of Computation	PC		3	0	0	0	0	30	45	3	75
T6774	0707240508	Principles of Economics	HS		2	0	0	0	0	50	0	2	50
Total					15	0	12	120	30	240	135	21	525
Open Elective Courses Group (Choose Any One Course)													
TE7677	0707240509	Financial Mathematics	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7700	0707240510	Smart Materials	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7223	0707240511	Smart Urban Planning	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7240	0707240512	Water Resource Planning and Management	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7952	0707240514	User Interface and Experience Design	OE	Computer Science and Technology	3	0	0	0	0	30	45	3	75
TEE7018	0707240515	Engineering Simulation and Modeling Tools	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
TE7428	0707240516	Introduction to Image Processing	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75
TE7810	0707240517	Industrial Revolution and Introduction of Industry 5.0	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
T7650	0707240518	Six Sigma	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
TE7948	0707240513	Introduction to Cloud Computing	OE	Computer Science and Technology	3	0	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Semester : 6													
Generic Core Courses													
TE7008	0707240601	Distributed Systems and Resource Management	PC		3	0	0	0	0	30	45	3	75
F0003	0707240602	Flexi-Credit Course	PC		3	0	0	0	0	75	0	3	75
T6749	0707240603	Design Thinking	HS		2	0	0	0	0	50	0	2	50
TE7291	0707240604	Project Based Learning-II	PIS		0	0	4	50	0	0	0	2	50
T7802	0707240605	Capstone Course	PC		2	0	0	0	0	50	0	2	50
Total					10	0	4	50	0	205	45	12	300
Generic Elective Courses Group (Choose Any One Course)													
T2585	0707240606	Organizational Behaviour	GE		2	0	0	0	0	50	0	2	50

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								Practical		Theory			
					L	T	La b	CA	ESE	CA	ESE		
TE7438	0707240607	History of Science and Technology	GE		2	0	0	0	0	50	0	2	50
Total Required Credits								0	0	50	0	2	50
Generic Elective Courses Group - II (Choose any one Group from Group A to C)													
Generic Elective Courses Group - A													
TE7255	0707240608	Data Warehousing and Mining	PE		3	0	0	0	0	30	45	3	75
TE7013	0707240609	Data Warehousing and Mining Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - B													
TE7101	0707240610	Internet of Things	PE		3	0	0	0	0	30	45	3	75
TE7262	0707240611	Internet of Things Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - C													
TE7916	0707240612	Cloud Computing Tools and Techniques	PE		3	0	0	0	0	30	45	3	75
TE7949	0707240613	Cloud Computing Tools and Techniques Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - D													
T7473	0707240614	Artificial Intelligence	PE		3	0	0	0	0	30	45	3	75
TE7014	0707240615	Artificial Intelligence Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - E													
TE7328	0707240616	Image Processing	PE		3	0	0	0	0	30	45	3	75
TE7329	0707240617	Image Processing Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - F													

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
TE7953	0707240618	Information and Network Security	PE		3	0	0	0	0	30	45	3	75
TE7947	0707240619	Information and Network Security Lab	PE		0	0	2	10	15	0	0	1	25
Open Elective Courses Group (Choose Any One Course)													
TE7698	0707240620	Nanotechnology	OE		3	0	0	0	0	30	45	3	75
TE7676	0707240621	Executive Corporate Communication For Impact	OE		3	0	0	0	0	30	45	3	75
TE7195	0707240622	GIS Applications	OE		3	0	0	0	0	30	45	3	75
TE7203	0707240623	Intelligent Transportation Management	OE		3	0	0	0	0	30	45	3	75
TE7297	0707240624	Software Testing Tools	OE		3	0	0	0	0	30	45	3	75
TE7756	0707240625	Open Source Technologies	OE		3	0	0	0	0	30	45	3	75
T7584	0707240626	Printed Circuit Board (PCB) Design	OE		3	0	0	0	0	30	45	3	75
TE7334	0707240627	Introduction to Mechatronics	OE		3	0	0	0	0	30	45	3	75
TE7804	0707240628	Design Optimization Techniques	OE		3	0	0	0	0	30	45	3	75
TE7351	0707240629	3D Printing and Prototyping	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	0707240701	Project	PIS		0	0	8	40	60	0	0	4	100
TE7751	0707240702	Compiler Construction	PC		3	0	0	0	0	30	45	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
T7478	0707240703	Compiler Construction Lab	PC		0	0	2	10	15	0	0	1	25
F0003	0707240704	Flexi-Credit Course	PC		3	0	0	0	0	75	0	3	75
T7674	0707240705	Cyber Security	PC		2	0	0	0	0	20	30	2	50
Total					8	0	10	50	75	125	75	13	325
Generic Elective Courses Group - I (Choose Any One Course)													
TE7955	0707240706	Introduction to AR/VR	PE		3	0	0	0	0	30	45	3	75
TE7259	0707240707	Human Computer Interface	PE		3	0	0	0	0	30	45	3	75
TE7954	0707240708	Introduction to Information Retrieval	PE		3	0	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Generic Elective Courses Group - II (Choose any one Group from Group A to D)													
Generic Elective Courses Group - A													
TE7253	0707240709	Data Science	PE		3	0	0	0	0	30	45	3	75
TE7254	0707240710	Data Science Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - B													
TE7261	0707240711	Internet of Things	PE		3	0	0	0	0	30	45	3	75
TE7262	0707240712	Internet of Things Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Courses Group - C													
TE7282	0707240713	Optimization Techniques and Algorithms	PE		3	0	0	0	0	30	45	3	75
TE7283	0707240714	Optimization Techniques and Algorithms Lab	PE		0	0	2	10	15	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Generic Elective Courses Group - D													
TE7552	0707240715	Big Data Analytics	PE		3	0	0	30	45	0	0	3	75
TE7554	0707240716	Big Data Analytics Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Course Group - E													
T7529	0707240717	Machine Learning	PE		3	0	0	0	0	30	45	3	75
TE7105	0707240718	Machine Learning Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Course Group - F													
TE7103	0707240719	Natural Language Processing	PE		3	0	0	0	0	30	45	3	75
TE7106	0707240720	Natural Language Processing Lab	PE		0	0	2	10	15	0	0	1	25
Generic Elective Course Group - G													
TE7951	0707240721	DevOps	PE		2	0	0	0	0	20	30	2	50
TE7950	0707240722	DevOps Lab	PE		0	0	4	20	30	0	0	2	50
Total Required Credits								20	30	20	30	4	100
Semester : 8													
Generic Core Courses													
T7912	0707240801	Internship	PIS		0	0	24	120	180	0	0	12	300
T7802	0707240802	Seminar	PIS		0	0	4	20	30	0	0	2	50
Total					0	0	28	140	210	0	0	14	350

Abbreviations (Nature)	Description
BS	Basic Sciences
ES	Engineering Sciences
HS	Humanities and Social Sciences
OE	Open Electives
PC	Professional Core
PE	Professional Elective
PIS	Project, Internship, Seminar
PD	Professional Development Course
MC	Mandatory Course
L	Lecture
T	Tutorial
CA	Continuous Assessment
ESE	End Semester Examination
GE	Generic Elective

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Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Common				
Semester 1	4	15	19	475
Semester 2	1	19	20	500
Semester 3	5	19	24	600
Semester 4	8	12	20	500
Semester 5	10	14	24	600
Semester 6	11	14	25	625
Semester 7	3	21	24	600
Semester 8	0	14	14	350
Total	42	128	170	4250