Symbiosis Institute of Technology, Hyderabad
Bachelor of Technology (Computer Science and Engineering)
Programme Structure 2025-29

<table>
<tr><td>1.</td><td>OBJECTIVE</td><td colspan="4">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.</td></tr>
<tr><td>2.</td><td>DURATION (IN MONTHS)</td><td colspan="4">48 (Full Time)</td></tr>
<tr><td>3.</td><td>INTAKE</td><td colspan="4">120</td></tr>
<tr><td rowspan="4">4.</td><td rowspan="4">RESERVATION</td><td rowspan="2">I.Within the sanctioned intake</td><td>a) SC
(In Percentage)</td><td>b) ST
(In Percentage)</td><td>c) Differently abled
(In Percentage)</td></tr>
<tr><td>15</td><td>7.5</td><td>3</td></tr>
<tr><td rowspan="2">II.Over and above the sanctioned intake</td><td colspan="2">a) Kashmiri Migrants
(In Seats)</td><td>b) International Students
(In Percentage)</td></tr>
<tr><td colspan="2">2</td><td>25</td></tr>
<tr><td>5.</td><td>ELIGIBILITY</td><td colspan="4">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,</td></tr>
</table>

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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 atleast 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**	Annexure A: Bachelor of Technology (Computer Science and Engineering) Students may pursue optional 'Honours' in one of the specialisation areas by completing an additional 20 credits in Semesters 5, 6, and 7 as specified in Annexure B for the respective specialisation area.: Annexure B: Optional 'Honours' specialisation area. 1. High Performance Computing 2. Data Science 3. IoT and Robotics

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		4. Game Design and Development			
10.	**FEE**		**Academic Fee p.a**	**Institute Deposit**	**Total**
	Indian Students (Amount in INR)		297000	20000	317000
	International Students	**NRI/ PIO/ OCI Category (Amount in US$)**	4200	275	4475
		Foreign National Category (Amount in US$)	1300	275	1575
11.	**ASSESSMENT**	The theory courses will have 40% Continuous Assessment and 60% Term End [University] examination, Lab courses (Practical) will have 60% Continuous Assessment and 40% 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 Engineering) OR Bachelor of Technology (Computer Science and Engineering) with Honours in High Performance Computing/Data Science/ IoT and Robotics/Game Design and Development will be awarded at the end of 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	Basic Sciences	Engineering Sciences	Professional Core	Professional Elective	Humanities and Social Sciences including Management	Multidisciplinary Open Electives	Project/ Internship/ Seminar	Indian Knowledge System	Total Credits	No. of Mandatory Non-Credit Course/s	No. of Non-Credit Audit Course/s
Track 1											
1	8	9	0	0	1	0	0	2	20	0	As per the student's choice
2	3	6	9	0	2	0	0	0	20	1 *	
3	3	0	17	0	0	0	0	0	20	1 *	
4	3	1	11	0	0	3	2	0	20	2 *	
5	0	0	12	4	3	3	0	0	22	2 *	
6	0	0	12	4	1	3	2	0	22	0	
7	0	0	8	10	0	0	4	0	22	0	
8	0	0	0	0	0	0	14	0	14	0	
Total	**17**	**16**	**69**	**18**	**7**	**9**	**22**	**2**	**160**	**0**	
Track 2											
1	8	9	0	0	1	0	0	2	20	0	As per the
2	3	6	9	0	2	0	0	0	20	1 *	
3	3	0	17	0	0	0	0	0	20	1 *	
4	3	1	11	0	0	3	2	0	20	2 *	

~~5~~	~~0~~	~~0~~	~~12~~	~~4~~	~~3~~	~~3~~	~~0~~	~~0~~	~~22~~	~~2 *~~	student's choice
6	0	0	12	4	1	3	2	0	22	0	
7	0	0	3	0	0	0	19	0	22	0	
8	0	0	0	0	0	0	14	0	14	0	
Total	**17**	**16**	**64**	**8**	**7**	**9**	**37**	**2**	**160**	**0**	
Optional Additional Courses (Honours)											
5	0	0	7	0	0	0	0	0	7	0	
6	0	0	6	0	0	0	0	0	6	0	
7	0	0	0	0	0	0	7	0	7	0	
Total	**0**	**0**	**13**	**0**	**0**	**0**	**7**	**0**	**20**	**0**	

* Satisfactory completion of non credit courses 'Health and Wellness' and '*Vasudhaiva Kutumbakam*' is mandatory for award of degree.

Additional Note: #Health and Wellness Module I and Module II will be conducted during the semesters mentioned in the programme structure. However, the course will be listed on the students' grade sheets as "Health and Wellness" in the semester in which the institute's course code is officially assigned.

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
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 1													
Generic Core Courses													
TEE7237	0707210101	Calculus	BS		3	1	0	0	0	40	60	4	100
TEE7244	0707210102	Fundamentals of Quantum Physics	BS		3	0	2	15	10	30	45	4	100
TEE7307	0707210103	Digital Electronics and Logic Design	ES		2	0	2	15	10	20	30	3	75
TEE7301	0707210104	Programming Paradigm and Problem Solving	ES		2	0	2	15	10	20	30	3	75
TEE7129	0707210105	Design Thinking and Creativity	ES		0	0	2	15	10	0	0	1	25
TEE7305	0707210106	Tinker Lab for Computer Science	ES		0	0	4	50	0	0	0	2	50
T6732	0707210107	Critical Thinking	HS		1	0	0	0	0	25	0	1	25
THM6144	0707210108	Indian Knowledge Systems	IKS		2	0	0	0	0	50	0	2	50
		Total			**13**	**1**	**12**	**110**	**40**	**185**	**165**	**20**	**500**
Semester : 2													
Generic Core Courses													
TE7541	0707210201	Linear Algebra	BS		2	1	0	0	0	30	45	3	75
TEE7317	0707210202	Microcontrollers and Sensors	ES		2	0	2	15	10	20	30	3	75
TE7894	0707210203	Exploratory Data Analysis	ES		1	0	2	25	0	25	0	2	50
TM2278	0707210204	Introduction to Environment and Sustainability	ES		0	0	2	25	0	0	0	1	25
TEE7290	0707210205	Computer Architecture and Organization	PC		2	0	2	15	10	20	30	3	75
TEE7304	0707210206	Software Engineering	PC		2	0	2	15	10	20	30	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TEE7302	0707210207	Python Programming	PC		2	0	1	0	0	30	45	3	75
THM6150	0707210208	Technical and Professional Communication Skills	HS		0	0	2	25	0	0	0	1	25
T6773	0707210209	Creative Thinking	HS		0	0	2	25	0	0	0	1	25
TEE7265	0707210210	Career Essentials - I *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
TH4788		Health and Wellness Module I #			0	0	0	0	0	0	0	0	0
				Total	**11**	**1**	**15**	**145**	**30**	**145**	**180**	**20**	**500**
Semester : 3													
Generic Core Courses													
TE7696	0707210301	Discrete Mathematics	BS		2	1	0	0	0	30	45	3	75
T7998	0707210302	Operating Systems	PC		3	1	0	0	0	40	60	4	100
T7486	0707210303	Data Base Management Systems	PC		3	1	0	0	0	40	60	4	100
TE7960	0707210304	Data Structures	PC		3	0	0	0	0	30	45	3	75
TE7959	0707210305	Data Structures Lab	PC		0	0	2	15	10	0	0	1	25
T7487	0707210306	Data Base Management Systems Lab	PC		0	0	4	30	20	0	0	2	50
F0002	0707210307	Flexi-Credit Course	PC		0	0	4	50	0	0	0	2	50

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
T7511	0707210308	Operating Systems Lab	PC		0	0	2	15	10	0	0	1	25
P4781	0707210309	Career Essentials - II *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
TH4789		Health and Wellness Module II #			0	0	0	0	0	0	0	0	0
Total					**11**	**3**	**12**	**110**	**40**	**140**	**210**	**20**	**500**
Semester : 4													
Generic Core Courses													
TE7689	0707210401	Statistics and Probability	BS		3	0	0	0	0	30	45	3	75
TEE7303	0707210402	Software and Generative AI Tools	ES		0	0	2	25	0	0	0	1	25
T7481	0707210403	Computer Networks	PC		3	1	0	0	0	40	60	4	100
T7909	0707210404	Design and Analysis of Algorithms	PC		3	0	0	0	0	30	45	3	75
T7499	0707210405	Java	PC		2	1	0	0	0	30	45	3	75
T7491	0707210406	Design and Analysis of Algorithms Lab	PC		0	0	2	15	10	0	0	1	25
TE7290	0707210407	Project Based Learning -I	PIS		0	0	4	50	0	0	0	2	50

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
SMC003	0707210408	Health and Wellness *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
P4782	0707210409	Career Essentials - III *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
				Total	**11**	**2**	**8**	**90**	**10**	**130**	**195**	**17**	**425**
Multi-disciplinary Open Elective Courses (Choose any one course)													
TEE7251	0707210410	Physics for Quantum Computing	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TEE7249	0707210411	Numerical Methods	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
T3440	0707210412	Fundamentals of Data Science	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
TE7941	0707210413	MLOps	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
TE7206	0707210414	IOT for Smart Cities	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
T7952	0707210415	Waste Management Systems	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TE7024	0707210416	Web Technologies	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
TE7253	0707210417	Data Science	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
TEE7018	0707210418	Engineering Simulation and Modeling Tools	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7799	0707210419	Real Time Systems	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7284	0707210420	Power BI	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TE7881	0707210421	Robotic Process Automation	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TE7456	0707210422	Fundamentals of Cyber Security	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
TE7351	0707210423	3D Printing and Prototyping	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
TE7978	0707210424	Battery Management Systems	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
Total Required Credits								**0**	**0**	**30**	**45**	**3**	**75**
Semester : 5													
Generic Core Courses													
TE7299	0707210501	Theory of Computation	PC		3	0	0	0	0	30	45	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TE7953	0707210502	Information and Network Security	PC		2	1	0	0	0	30	45	3	75
T7529	0707210503	Machine Learning	PC		2	0	2	15	10	20	30	3	75
TE7948	0707210504	Introduction to Cloud Computing	PC		2	0	2	15	10	20	30	3	75
T8000	0707210505	Service Learning	HS		0	0	4	50	0	0	0	2	50
T2646	0707210506	Entrepreneurship Venture	HS		1	0	0	0	0	25	0	1	25
SMC001	0707210507	*Vasudhaiva Kutumbakam* *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
P4784	0707210508	Career Essentials - IV *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
				Total	**10**	**1**	**8**	**80**	**20**	**125**	**150**	**15**	**375**
Programme Elective Courses (Choose any one course)													
T7902	0707210509	Distributed Systems and Resource management	PE		3	0	2	25	0	75	0	4	100
TE7020	0707210510	Wireless Sensor Networks	PE		3	0	2	25	0	75	0	4	100

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
T7526	0707210511	Artificial Intelligence and Neural Networks	PE		3	0	2	25	0	75	0	4	100
TE7010	0707210512	Data Warehousing and Mining	PE		3	0	2	25	0	75	0	4	100
T7904	0707210513	Object Oriented Analysis and Design Pattern	PE		3	0	2	25	0	75	0	4	100
TE7268	0707210514	Introduction to IOT	PE		3	0	2	25	0	75	0	4	100
Total Required Credits								**25**	**0**	**75**	**0**	**4**	**100**
Multi-disciplinary Open Elective Courses (Choose any one course)													
T7139	0707210515	Software Testing and Quality Assurance	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
TE7677	0707210516	Financial Mathematics	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
T7120	0707210517	Advanced Materials	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TE7282	0707210518	Optimization Techniques and Algorithms	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
TEE7094	0707210519	Graph Neural Networks	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
T7950	0707210520	Green Building Technology	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
T7953	0707210521	Airport Engineering	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
TEE7039	0707210522	Cryptography and Network Security	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TEE7173	0707210523	Microcontrollers and Embedded Systems	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7762	0707210524	5G Technology	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7989	0707210525	Electric and Hybrid Vehicles	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
T7650	0707210526	Six Sigma	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
TE7630	0707210527	Industrial Robotics	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TE7653	0707210528	PLC and SCADA	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TEE7155	0707210529	Network and Cyber Forensics	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
Total Required Credits								**0**	**0**	**30**	**45**	**3**	**75**
Semester : 6													
Generic Core Courses													
TE7751	0707210601	Compiler Construction	PC		2	0	2	15	10	20	30	3	75
TEE7127	0707210602	Deep Learning and Its Applications	PC		2	0	2	15	10	20	30	3	75
TE7551	0707210603	Block chain Technologies	PC		2	0	2	15	10	20	30	3	75
F0003	0707210604	Flexi-Credit Course	PC		2	0	1	25	0	50	0	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
T6805	0707210605	Introduction to Logic	HS		1	0	0	0	0	25	0	1	25
TE7291	0707210606	Project Based Learning-II	PIS		0	0	4	50	0	0	0	2	50
				Total	**9**	**0**	**11**	**120**	**30**	**135**	**90**	**15**	**375**
Programme Elective Courses (Choose any one course)													
T3752	0707210607	Fog Computing and Edge Computing	PE		3	0	2	25	0	75	0	4	100
TE7758	0707210608	Predictive Analytics	PE		3	0	2	25	0	75	0	4	100
TE7333	0707210609	Introduction to Computer Vision	PE		3	0	2	25	0	75	0	4	100
T7137	0707210610	Design Patterns	PE		3	0	2	25	0	75	0	4	100
T7471	0707210611	Advanced Database Management System	PE		3	0	2	25	0	75	0	4	100
T7065	0707210612	Human Computer Interaction	PE		3	0	2	25	0	75	0	4	100
T3688	0707210613	Advance Data Structure and Algorithm	PE		3	0	2	25	0	75	0	4	100
				Total Required Credits				**25**	**0**	**75**	**0**	**4**	**100**
Multi-disciplinary Open Elective Courses (Choose any one course)													
TEE7248	0707210614	Nanotechnology: Concepts, Fabrication, and Emerging Applications	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TE7700	0707210615	Smart Materials	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TEE7031	0707210616	Optimization Techniques for Machine Learning	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TEE7138	0707210617	Foundation of Data Engineering	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
T7954	0707210618	Elementary Remote Sensing and GIS	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
TE7421	0707210619	Environmental Impact Assessment	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
T7139	0707210620	Software Testing and Quality Assurance	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
TE7955	0707210621	Introduction to AR/VR	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
TE7339	0707210622	Renewable Energy Systems	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TEE7058	0707210623	Semiconductor Equipment Design and Technology	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
T2167	0707210624	Supply Chain Management	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
TE7672	0707210625	AI and ML for Smart Manufacturing	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
TE7053	0707210626	Mobile Robotics	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TE7850	0707210627	Introduction to Aerial Robotics and Drones	MOPE	Robotics and Automation	2	1	0	0	0	30	45	3	75
TEE7152	0707210628	Malware Analysis	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75

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Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Total Required Credits								**0**	**0**	**30**	**45**	**3**	**75**
Semester : 7													
Generic Core Courses - Track 1													
TE7552	0707210701	Big Data Analytics	PC		2	0	2	15	10	20	30	3	75
T3533	0707210702	Software Project	PC		2	0	0	0	0	20	30	2	50
F0003	0707210703	Flexi-Credit Course	PC		2	0	2	50	0	25	0	3	75
F0002	0707210704	Flexi-Credit Course	PE		2	0	0	0	0	50	0	2	50
T7804	0707210705	Project	PIS		0	0	8	60	40	0	0	4	100
Total Required Credits								**125**	**50**	**115**	**60**	**14**	**350**
Programme Elective - I (Choose any one course)													
T3838	0707210706	Cloud Computing and Distributed Systems	PE		3	0	2	25	0	75	0	4	100
T7527	0707210707	Internet of Things	PE		3	0	2	25	0	75	0	4	100
T3779	0707210708	Health Care Analytics	PE		3	0	2	25	0	75	0	4	100
TE7566	0707210709	Advanced Deep Learning	PE		3	0	2	25	0	75	0	4	100
TE7016	0707210710	Big Data Stores	PE		3	0	2	25	0	75	0	4	100
T7902	0707210711	Distributed Systems and Resource management	PE		3	0	2	25	0	75	0	4	100
T3487	0707210712	Network Security Essentials	PE		3	0	2	25	0	75	0	4	100

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Total Required Credits								**25**	**0**	**75**	**0**	**4**	**100**
Programme Elective - II (Choose any one course)													
TE7252	0707210713	Cryptography	PE		3	0	2	25	0	75	0	4	100
T3690	0707210714	Computer Forensics - Detection and Prevention of IT Frauds	PE		3	0	2	25	0	75	0	4	100
T7055	0707210715	Advanced Computing	PE		3	0	2	25	0	75	0	4	100
T3578	0707210716	Image Processing	PE		3	0	2	25	0	75	0	4	100
TE7125	0707210717	Mobile Robotics	PE		3	0	2	25	0	75	0	4	100
T3486	0707210718	Network Infrastructure Essential	PE		3	0	2	25	0	75	0	4	100
Total Required Credits								**25**	**0**	**75**	**0**	**4**	**100**
Generic Core Courses - Track 2													
F0003	0707210719	Flexi-Credit Course	PC		0	0	6	75	0	0	0	3	75
T7805	0707210721	Seminar	PIS		0	0	10	75	50	0	0	5	125
T7804	0707210705	Project	PIS		0	0	8	60	40	0	0	4	100
T2910	0707210720	Summer Internship	PIS		0	0	20	250	0	0	0	10	250
Total Required Credits								**460**	**90**	**0**	**0**	**22**	**550**
Semester : 8													
Generic Core Courses													

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								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
T7912	0707210801	Internship	PIS		0	0	24	180	120	0	0	12	300
T7802	0707210802	Seminar	PIS		0	0	4	30	20	0	0	2	50
				Total	**0**	**0**	**28**	**210**	**140**	**0**	**0**	**14**	**350**

Abbreviations (Nature)	Description
BS	Basic Sciences
ES	Engineering Sciences
PC	Professional Core
PE	Professional Elective
HSMC	Humanities and Social Sciences including Management
MOPE	Multidisciplinary Open Electives
PIS	Project, Internship, Seminar
IKS	Indian Knowledge System
L	Lecture
MC	Mandatory Course
T	Tutorial
CA	Continuous Assessment
ESE	End Semester Examination
LAB	Laboratory

Track 1 (T1): For Regular Students
Track 2 (T2): For Students opting for Internship/ Entrepreneurship

Definition:
Honours: Students have the option to pursue an "Honours" degree by completing an additional 20 credits within their major discipline, focusing on more advanced, specialised, emerging, or multidisciplinary courses beyond the standard requirements of the B.Tech degree.

Minors: Students have the option to pursue a "Minor" by completing 18 credits in a discipline/ specialisation other than their major discipline beyond the standard requirements of the B.Tech. Degree.

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Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Track 1				
Semester 1	5	15	20	500
Semester 2	5	15	20	500
Semester 3	2	18	20	500
Semester 4	3	17	20	500
Semester 5	7	15	22	550
Semester 6	10	12	22	550
Semester 7	13	9	22	550
Semester 8	0	14	14	350
Total	**45**	**115**	**160**	**4000**
Track 2				
Semester 1	5	15	20	500
Semester 2	5	15	20	500
Semester 3	2	18	20	500
Semester 4	3	17	20	500
Semester 5	7	15	22	550
Semester 6	10	12	22	550
Semester 7	13	9	22	550
Semester 8	0	14	14	350
Total	**45**	**115**	**160**	**4000**

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Annexure B
Optional 'Honours' Specialisation

Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 5													
High Performance Computing Specialisation Core Courses													
P5117	0707210530	Advanced concepts in Machine Learning for HPC	PC		3	0	2	15	10	30	45	4	100
P5098	0707210531	Introduction to High Performance Computing Architectures	PC		3	0	0	0	0	30	45	3	75
		Total			**6**	**0**	**2**	**15**	**10**	**60**	**90**	**7**	**175**
Semester : 5													
Data Science Specialisation Core Courses													
T3516	0707210532	Statistical Inference and Modelling	PC		3	1	0	0	0	40	60	4	100
F7020	0707210533	Deep Learning	PC		2	0	2	15	10	20	30	3	75
		Total			**5**	**1**	**2**	**15**	**10**	**60**	**90**	**7**	**175**
Semester : 5													
IoT and Robotics Specialisation Core Courses													
T7539	0707210534	Automation and Robotics	PC		3	0	2	15	10	30	45	4	100
TEE7114	0707210535	Basics of Internet of Things and Raspberry Pi	PC		2	0	2	15	10	20	30	3	75

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Optional 'Honours' Specialisation

Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
		Total			**5**	**0**	**4**	**30**	**20**	**50**	**75**	**7**	**175**
Semester : 5													
Game Design and Development Specialisation Core Courses													
TE7275	0707210536	Modern Platforms in Game Development	PC		3	0	2	15	10	30	45	4	100
TE7285	0707210537	Principles of Game Design	PC		2	0	2	15	10	20	30	3	75
		Total			**5**	**0**	**4**	**30**	**20**	**50**	**75**	**7**	**175**
Semester : 6													
High Performance Computing Specialisation Core Courses													
P5119	0707210629	Numerical Methods and Algorithms for HPC	PC		3	0	0	0	0	30	45	3	75
P5120	0707210630	Parallel and Distributed Computing	PC		3	0	0	0	0	30	45	3	75
		Total			**6**	**0**	**0**	**0**	**0**	**60**	**90**	**6**	**150**
Semester : 6													
Data Science Specialisation Core Courses													
TE7103	0707210631	Natural Language Processing	PC		2	0	2	15	10	20	30	3	75
T3675	0707210632	Business Intelligence	PC		2	0	2	15	10	20	30	3	75

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Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Total					**4**	**0**	**4**	**30**	**20**	**40**	**60**	**6**	**150**
Semester : 6													
IoT and Robotics Specialisation Core Courses													
TE7808	0707210633	Industrial Automation and Robotics	PC		2	0	2	15	10	20	30	3	75
TE7848	0707210634	Industrial Internet of Things	PC		2	0	2	15	10	20	30	3	75
Total					**4**	**0**	**4**	**30**	**20**	**40**	**60**	**6**	**150**
Semester : 6													
Game Design and Development Specialisation Core Courses													
THM6023	0707210635	Games of Uncertainty	PC		2	0	2	15	10	20	30	3	75
TE7267	0707210636	Introduction to Game Development	PC		2	0	2	15	10	20	30	3	75
Total					**4**	**0**	**4**	**30**	**20**	**40**	**60**	**6**	**150**
Semester : 7													
High Performance Computing Specialisation Core Courses													
T7805	0707210722	Honours Project	PIS		0	0	10	75	50	0	0	5	125
T7802	0707210723	Honours Seminar	PIS		0	0	4	30	20	0	0	2	50

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Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Total					**0**	**0**	**14**	**105**	**70**	**0**	**0**	**7**	**175**
Semester : 7													
Data Science Specialisation Core Courses													
T7805	0707210724	Honours Project	PIS		0	0	10	75	50	0	0	5	125
T7802	0707210725	Honours Seminar	PIS		0	0	4	30	20	0	0	2	50
Total					**0**	**0**	**14**	**105**	**70**	**0**	**0**	**7**	**175**
Semester : 7													
IoT and Robotics Specialisation Core Courses													
T7805	0707210726	Honours Project	PIS		0	0	10	75	50	0	0	5	125
T7802	0707210727	Honours Seminar	PIS		0	0	4	30	20	0	0	2	50
Total					**0**	**0**	**14**	**105**	**70**	**0**	**0**	**7**	**175**
Semester : 7													
Game Design and Development Specialisation Core Courses													
T7805	0707210728	Honours Project	PIS		0	0	10	75	50	0	0	5	125
T7802	0707210729	Honours Seminar	PIS		0	0	4	30	20	0	0	2	50

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Catalog Course Code	Course Code	Course Title	Nature	Specialisation/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
				Total	0	0	14	105	70	0	0	7	175

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Optional 'Honours' Specialisation

Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
High Performance Computing				
Semester 5	0	7	7	175
Semester 6	0	6	6	150
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**
Data Science				
Semester 5	0	7	7	175
Semester 6	0	6	6	150
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**
IoT and Robotics				
Semester 5	0	7	7	175
Semester 6	0	6	6	150
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**
Game Design and Development				
Semester 5	0	7	7	175
Semester 6	0	6	6	150
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**