

Symbiosis Institute of Technology, Pune
Bachelor of Technology (Robotics and Automation)
Programme Structure 2025-29

1.	OBJECTIVE	To generate competent manpower in the emerging areas of Robotics and Automation To inculcate among the students an aptitude for engineering and research in Industry 4.0 for generation of better and smarter solutions to real world problems.			
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)	
			15	7.5	
		II. Over and above the sanctioned intake	a) Kashmiri Migrants (In Seats)		b) International Students (In Percentage)
			2		20
5.	ELIGIBILITY	<p>Passed 10+2 examination with Physics, Chemistry and Mathematics as compulsory subjects. Obtained at least 45% marks (40% marks in case of candidates belonging to reserved category) in the above subjects taken together.</p> <p>OR</p> <p>Passed D.Voc. Stream in the same or allied sector. (The University will offer suitable bridge courses such as Mathematics, Physics, Engineering drawing, etc., for the students coming from diverse backgrounds to prepare Level playing field and desired learning outcomes of the programme).</p> <p>B.Tech. : Lateral Entry</p> <p>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.</p> <p>OR</p> <p>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</p>			

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		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	Selection would be based on joint merit of entrance exam score and PCM/PMV aggregate percentage		
7.	MEDIUM OF INSTRUCTION	English		
8.	PROGRAMME PATTERN	Semester		
9.	COURSE & SPECIALISATION	<p>Annexure A: Bachelor of Technology (Robotics and Automation) Students may pursue optional 'Honours' OR 'Minor' specialisation in one of the specialisation areas by completing additional 20 credits in Semester: 5, 6 and 7 as specified in Annexure B for Honours and Annexure C for Minor Specialisation in Specialisation by completing additional 18 credits in Semester: 3, 4, 5 and 6 as specified in Annexure C.</p> <p>Annexure B: Optional 'Honours' specialisation area 1. Aerial Robotics and Drone Technology</p> <p>Annexure C: Optional 'Minor' specialisation area 1. Computer Science Engineering Fundamentals</p>		
10.	FEE		Academic Fee p.a	Institute Deposit
				Total

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	Indian Students (Amount in INR)		300000	20000	320000						
	International Students	NRI/ PIO/ OCI Category (Amount in US\$)	5875	275	6150						
		Foreign National Category (Amount in US\$)	1300	275	1575						
11. ASSESSMENT	The theory courses will have 40% Continuous Assessment and 60% End Semester [University] examination, Lab courses (Practical) will have 60% Continuous Assessment and 40% End Semester [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 (Robotics and Automation) OR Bachelor of Technology (Robotics and Automation) with Honours in Aerial Robotics and Drone Technology OR Bachelor of Technology (Robotics and Automation) with Minor in Computer Science Engineering Fundamentals 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	Engineering	Professional	Professional	Humanities and	Multidisciplinary	Project/	Indian	Total	No. of	No. of Non-

	Sciences	Sciences	Core	Elective	Social Sciences including Management	Open Electives	Internship/Seminar	Knowledge System	Credits	Mandatory Non-Credit Course/s	Credit Audit Course/s
Track 1											
1	4	15	0	0	1	0	0	0	20	0	As per the student's choice
2	7	3	6	0	2	0	0	2	20	1 *	
3	5	0	11	3	1	0	0	0	20	1 *	
4	3	0	10	3	3	3	0	0	22	1 *	
5	0	1	11	8	0	3	0	0	23	2 *	
6	0	0	12	3	1	3	2	0	21	1 *	
7	0	0	13	3	0	0	4	0	20	1 *	
8	0	0	0	0	0	0	14	0	14	0	
Total	19	19	63	20	8	9	20	2	160	0	
Track 2											
1	4	15	0	0	1	0	0	0	20	0	As per the student's choice
2	7	3	6	0	2	0	0	2	20	1 *	
3	5	0	11	3	1	0	0	0	20	1 *	
4	3	0	10	3	3	3	0	0	22	1 *	
5	0	1	11	8	0	3	0	0	23	2 *	
6	0	0	12	3	1	3	2	0	21	1 *	
7	0	0	4	0	0	0	16	0	20	1 *	
8	0	0	0	0	0	0	14	0	14	0	
Total	19	19	54	17	8	9	32	2	160	0	
Honours											

5	0	0	6	0	0	0	0	0	6	0	
6	0	0	7	0	0	0	0	0	7	0	
7	0	0	0	0	0	0	7	0	7	0	
Total	0	0	13	0	0	0	7	0	20	0	
Optional Additional Courses (Minor)											
3	0	0	5	0	0	0	0	0	5	0	As per the student's choice
4	0	0	8	0	0	0	0	0	8	0	
5	0	0	3	0	0	0	0	0	3	0	
6	0	2	0	0	0	0	0	0	2	0	
Total	0	2	16	0	0	0	0	0	18	0	

* Satisfactory completion of non credit courses 'Health and Wellness', '*Vasudhaiva Kutumbakam*' and 'Career Essentials I to V' 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
					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Semester : 1													
Generic Core Courses													
TEE7246	0701270101	Matrices and Calculus	BS		3	1	0	0	0	40	60	4	100
TEE7357	0701270102	Programming for Engineers	ES		2	0	2	15	10	20	30	3	75
TM2278	0701270103	Introduction to Environment and Sustainability	ES		0	0	2	25	0	0	0	1	25
TEE7350	0701270104	Engineering Graphics and Design	ES		1	0	2	25	0	25	0	2	50
TEE7340	0701270105	Basic Electrical and Electronics Engineering	ES		2	0	2	25	0	50	0	3	75
TEE7342	0701270106	Biophysics and Mechanics	ES		3	0	0	0	0	30	45	3	75
TEE7341	0701270107	Basic Manufacturing Practices	ES		0	0	4	30	20	0	0	2	50
TEE7364	0701270108	Tinker and IDEA Lab	ES		0	0	2	25	0	0	0	1	25
T6873	0701270109	Creative Thinking	HSMC		1	0	0	0	0	25	0	1	25
Total					12	1	14	145	30	190	135	20	500
Semester : 2													
Generic Core Courses													
TEE7240	0701270201	Differential Equations and Vector Calculus	BS		3	0	2	15	10	30	45	4	100
TEE7242	0701270202	Fundamentals of Materials Science	BS		3	0	0	0	0	30	45	3	75
TEE7347	0701270203	Electronics and Instrumentation	ES		2	0	2	15	10	20	30	3	75
TEE7351	0701270204	Introduction to Artificial Intelligence	PC		2	0	4	30	20	20	30	4	100
TEE7348	0701270205	Elements of Robotics and Automation	PC		2	0	0	0	0	20	30	2	50

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								CA	ESE	CA	ESE		
THM6150	0701270206	Technical and Professional Communication Skills	HSMC		0	0	2	25	0	0	0	1	25
T6732	0701270207	Critical Thinking	HSMC		1	0	0	0	0	25	0	1	25
THM6144	0701270208	Indian Knowledge Systems	IKS		2	0	0	0	0	50	0	2	50
TEE7265	0701270209	Career Essentials - I *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					15	0	10	85	40	195	180	20	500
Semester : 3													
Generic Core Courses													
P5273	0701270301	Probability and Statistics	BS		2	0	2	25	0	50	0	3	75
P4354	0701270302	Energy Storage Technology	BS		2	0	0	0	0	20	30	2	50
P4352	0701270303	Applied Machine Learning and Deep Learning	PC		0	0	4	30	20	0	0	2	50
P5779	0701270304	Hydraulic and Pneumatic Systems	PC		2	0	2	15	10	20	30	3	75
TEE7401	0701270305	Total Productive Maintenance	PC		0	0	2	15	10	0	0	1	25
P5728	0701270306	Robotic Control Systems	PC		2	0	2	15	10	20	30	3	75
TEE7407	0701270307	Mechatronics	PC		1	0	0	0	0	25	0	1	25
P5930	0701270308	Mechatronics Lab	PC		0	0	2	15	10	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P4411	0701270309	Principles of Economics	HS		1	0	0	0	0	25	0	1	25
P4781	0701270310	Career Essentials - II *	MC		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					10	0	14	115	60	160	90	17	425
Programme Elective (Choose any one Course)													
P5788	0701270311	Robotic Perception and Actuation	PE		2	1	0	0	0	30	45	3	75
P5731	0701270312	Continuum Mechanics	PE		2	1	0	0	0	30	45	3	75
P5781	0701270313	Data Structures and Algorithms	PE		2	1	0	0	0	30	45	3	75
P4900	0701270314	Unmanned Aerial Vehicles	PE		2	1	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Semester : 4													
Generic Core Courses													
P5732	0701270401	Numerical Methods and Transforms	BS		2	0	2	25	0	50	0	3	75
TEE7397	0701270402	Servo Motors and Drives	PC		1	0	0	0	0	25	0	1	25
TEE7398	0701270403	Servo Motors and Drives Lab	PC		0	0	2	15	10	0	0	1	25

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P5735	0701270404	Process Control and Instrumentation	PC		2	0	4	30	20	20	30	4	100
P5733	0701270405	Programmable Logic Controller and Human Machine Interface	PC		2	0	4	30	20	20	30	4	100
P4618	0701270406	Service Learning	HSMC		0	0	4	50	0	0	0	2	50
T2646	0701270407	Entrepreneurship Venture	HSMC		1	0	0	0	0	25	0	1	25
P4782	0701270408	Career Essentials - III *	MC		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					8	0	16	150	50	140	60	16	400
Programme Elective (Choose any one Course)													
P4893	0701270409	IOT and Cloud Computing	PE		2	0	2	15	10	20	30	3	75
P5736	0701270410	Theory of Mechanisms	PE		2	0	2	15	10	20	30	3	75
P4898	0701270411	Object Oriented Programming	PE		2	0	2	15	10	20	30	3	75
P4902	0701270412	Micro and Probabilistic Robotics	PE		2	0	2	15	10	20	30	3	75
Total Required Credits								15	10	20	30	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Multidisciplinary Open Elective Courses (Choose any one Course)													
P5208	0701270413	Quantum Computing for Engineers	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P5209	0701270414	Mathematics for Data Science	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P4627	0701270415	Smart Cities Planning and Management	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4633	0701270416	Intelligent Waste Management Techniques	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4811	0701270417	Web Technologies	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
P4812	0701270418	Data Science	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
TEE7018	0701270419	Engineering Simulation and Modeling Tools	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
P4278	0701270420	Medical Electronics	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7351	0701270421	3D Printing and Prototyping	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
P5275	0701270422	Battery Management Systems	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P4787	0701270423	Fundamentals of Machine Learning	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
P4788	0701270424	AI System Development	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Semester : 5													
Generic Core Courses													
P5230	0701270501	Design Thinking	ES		1	0	0	0	0	25	0	1	25
P4350	0701270502	Robot Kinematics and Dynamics	PC		2	0	2	25	0	50	0	3	75
P4361	0701270503	Microcontroller and Embedded Systems	PC		2	0	2	15	10	20	30	3	75
TEE7385	0701270504	Applied ARVR	PC		0	0	2	15	10	0	0	1	25
P5740	0701270505	Manufacturing Systems	PC		2	0	4	30	20	20	30	4	100
P4784	0701270506	Career Essentials - IV *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
SMC001	0701270507	Vasudhaiva Kutumbakam *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					7	0	10	85	40	115	60	12	300
Multidisciplinary Open Elective Courses (Choose any one Course)													
P5210	0701270508	Financial Mathematics	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P5211	0701270509	Advanced Materials	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P4656	0701270510	Sustainability Engineering- Design and Innovation	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4658	0701270511	Occupational Health and Safety Management	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4840	0701270512	Introduction to Cloud Computing	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
P4844	0701270513	Agile Methodologies	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
P4472	0701270514	Embedded System and IoT	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P5241	0701270515	Basics of 5G Technology	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
TE7989	0701270516	Electric and Hybrid Vehicles	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
T7650	0701270517	Six Sigma	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
P4790	0701270518	Deep Learning Essentials	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
P4789	0701270519	Optimization for ML Systems	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Choose Any One Group													
Programme Elective Courses Group - I													
P5748	0701270520	Automation	PE		1	0	0	0	0	25	0	1	25
TEE7391	0701270521	Automation Lab	PE		0	0	4	30	20	0	0	2	50
P5738	0701270522	Robotics	PE		2	0	4	30	20	20	30	4	100
P5739	0701270523	Simulation and Programming Lab	PE		0	0	2	15	10	0	0	1	25
Programme Elective Courses Group - II													
P5741	0701270524	Industrial Internet of Things	PE		2	0	4	30	20	20	30	4	100
P5742	0701270525	AI for Manufacturing	PE		2	0	4	30	20	20	30	4	100
Total Required Credits								60	40	40	60	8	200

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Semester : 6													
Generic Core Courses													
P4366	0701270601	Machine Vision	PC		2	0	2	15	10	20	30	3	75
P5782	0701270602	Robot Operating System	PC		2	0	4	30	20	20	30	4	100
P4369	0701270603	Advanced PLC and HMI	PC		1	0	2	25	0	25	0	2	50
P4370	0701270604	Reinforcement Learning Techniques	PC		2	0	2	15	10	20	30	3	75
P4371	0701270605	Responsible AI	HSMC		1	0	0	0	0	25	0	1	25
P5783	0701270606	Project Based Learning	PIS		0	0	4	50	0	0	0	2	50
P4785	0701270607	Career Essentials - V *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					8	0	14	135	40	110	90	15	375
Programme Elective (Choose any one Course)													
P5730	0701270608	Advanced Microcontrollers and Microprocessors	PE		2	0	2	15	10	20	30	3	75
P5744	0701270609	Electro-Mechanical System Design	PE		2	0	2	15	10	20	30	3	75
P4901	0701270610	Machine Learning Operations	PE		2	0	2	15	10	20	30	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P5218	0701270611	Mobile Robotics	PE		2	0	2	15	10	20	30	3	75
Total Required Credits								15	10	20	30	3	75
Multidisciplinary Open Elective Courses (Choose any one Course)													
P5212	0701270612	Bioinformatics	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P5213	0701270613	Introduction to Space Science	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P4657	0701270614	GIS and Remote Sensing Analytics	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4659	0701270615	Environmental Impact Assessment	MOPE	Civil Engineering	2	1	0	0	0	30	45	3	75
P4830	0701270616	Software Testing and Quality Assurance	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
P4831	0701270617	Introduction to AR-VR	MOPE	Computer Science and Engineering and Information Technology	2	1	0	0	0	30	45	3	75
P4475	0701270618	Renewable Energy Systems	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
P4274	0701270619	Semiconductor Technology Trends	MOPE	Electronics and Telecommunication Engineering	2	1	0	0	0	30	45	3	75
P4448	0701270620	Supply Chain Management	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75

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					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
P4449	0701270621	Smart Manufacturing and Introduction of Industry 5.0	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
P4792	0701270622	Data Engineering and Applications	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
P4791	0701270623	Gen AI Tools and Techniques	MOPE	Artificial Intelligence and Machine Learning	2	1	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Semester : 7													
Generic Core Courses - Track 1													
P4887	0701270701	Robot System Design and Simulation	PC		2	0	2	15	10	20	30	3	75
F0001	0701270702	Flexi-Credit Course	PC		1	0	0	0	0	25	0	1	25
F0002	0701270703	Flexi-Credit Course	PC		2	0	0	0	0	50	0	2	50
P4406	0701270704	Organizational Behaviour	PC		1	0	0	0	0	25	0	1	25
P4365	0701270705	Natural Language Processing Techniques	PC		2	1	0	0	0	30	45	3	75
P4905	0701270706	Generative Artificial Intelligence	PC		2	1	0	0	0	30	45	3	75
T7804	0701270707	Project	PIS		0	0	8	60	40	0	0	4	100

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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		
SMC003	0701270708	Health and Wellness *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total Required Credits								75	50	180	120	20	425
Programme Elective-I (Choose any one course)													
P5789	0701270709	Embedded Linux and Real Time Operating Systems	PE		2	1	0	0	0	30	45	3	75
P5745	0701270710	Metrology and Measurement Systems	PE		2	1	0	0	0	30	45	3	75
P5790	0701270711	Cloud Computing for Intelligent Robotics	PE		2	1	0	0	0	30	45	3	75
P5746	0701270712	Swarm Robotics	PE		2	1	0	0	0	30	45	3	75
Total Required Credits								0	0	30	45	3	75
Generic Core Courses - Track 2													
T7804	0701270707	Project	PIS		0	0	8	60	40	0	0	4	100
SMC003	0701270708	Health and Wellness *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0

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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	La b	CA	ESE	CA	ESE		
F0003	0701270713	Flexi-Credit Course	PE		3	0	0	0	0	75	0	3	75
F0001	0701270714	Flexi-Credit Course	PE		1	0	0	0	0	25	0	1	25
Total Required Credits								60	40	100	0	8	200
Generic Elective courses Group (Choose any one Course)													
T7912	0701270715	Startup Internship	PIS		0	0	24	180	120	0	0	12	300
T7912	0701270716	Research Internship	PIS		0	0	24	180	120	0	0	12	300
T7912	0701270717	Industry Internship	PIS		0	0	24	180	120	0	0	12	300
Total Required Credits								180	120	0	0	12	300
Semester : 8													
Generic Core Courses													
T7912	0701270801	Internship	PIS		0	0	24	180	120	0	0	12	300
T7802	0701270802	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	End Semester Examination	Total Credits	Total Marks
Track 1				
Semester 1	2	18	20	500
Semester 2	4	16	20	500
Semester 3	2	18	20	500
Semester 4	4	18	22	550
Semester 5	1	22	23	575
Semester 6	5	16	21	525
Semester 7	4	16	20	500
Semester 8	0	14	14	350
Total	22	138	160	4000
Track 2				
Semester 1	2	18	20	500
Semester 2	4	16	20	500
Semester 3	2	18	20	500
Semester 4	4	18	22	550
Semester 5	1	22	23	575
Semester 6	5	16	21	525
Semester 7	4	16	20	500
Semester 8	0	14	14	350
Total	22	138	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
					L	T	La b	Practical		Theory			
								CA	ESE	CA	ESE		
Semester : 5													
Aerial Robotics and Drone Technology Specialisation Core Courses													
TE7850	0701270526	Introduction to Aerial Robotics and Drones	PC		3	0	0	0	0	30	45	3	75
P5288	0701270527	Motion Planning and Control	PC		2	0	2	15	10	20	30	3	75
Total					5	0	2	15	10	50	75	6	150
Semester : 6													
Aerial Robotics and Drone Technology Specialisation Core Courses													
TE7884	0701270624	Robotics Mobility and Perception	PC		3	0	0	0	0	30	45	3	75
TE7883	0701270625	Robotics Estimation and Learning	PC		2	0	0	0	0	20	30	2	50
TE7866	0701270626	Navigation and Communication Lab	PC		0	0	4	30	20	0	0	2	50
Total					5	0	4	30	20	50	75	7	175
Semester : 7													
Aerial Robotics and Drone Technology Specialisation Core Courses													
T7805	0701270718	Honours Project	PIS		0	0	10	75	50	0	0	5	125
T7802	0701270719	Seminar	PIS		0	0	4	30	20	0	0	2	50

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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	La b	CA	ESE	CA	ESE		
Total					0	0	14	105	70	0	0	7	175

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Annexure B
Optional 'Honours' Specialisation

Semester	Continuous Assessment	End Semester Examination	Total Credits	Total Marks
Aerial Robotics and Drone Technology				
Semester 5	0	6	6	150
Semester 6	0	7	7	175
Semester 7	0	7	7	175
Total	0	20	20	500

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Annexure C
Optional 'Minor' 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	La b	CA	ESE	CA	ESE		
Semester : 3													
Computer Science Engineering Fundamentals Specialisation Core Courses													
TEE7290	0701270315	Computer Architecture and Organization	PC		2	0	2	15	10	20	30	3	75
P4807	0701270316	Programming with JAVA	PC		0	0	4	30	20	0	0	2	50
Total					2	0	6	45	30	20	30	5	125
Semester : 4													
Computer Science Engineering Fundamentals Specialisation Core Courses													
P4806	0701270425	Database Management Systems	PC		2	0	4	30	20	20	30	4	100
P4801	0701270426	Computer Networks	PC		3	0	2	15	10	30	45	4	100
Total					5	0	6	45	30	50	75	8	200
Semester : 5													
Computer Science Engineering Fundamentals Specialisation Core Courses													
P5300	0701270528	Operating Systems	PC		3	0	0	0	0	75	0	3	75
Total					3	0	0	0	0	75	0	3	75
Semester : 6													

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Annexure C
Optional 'Minor' 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	La b	CA	ESE	CA	ESE		
Computer Science Engineering Fundamentals Specialisation Core Courses													
TEE7306	0701270627	Cyber Security	ES		1	0	2	25	0	25	0	2	50
Total					1	0	2	25	0	25	0	2	50

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Annexure C
Optional 'Minor' Specialisation

Semester	Continuous Assessment	End Semester Examination	Total Credits	Total Marks
Computer Science Engineering Fundamentals				
Semester 3	0	5	5	125
Semester 4	0	8	8	200
Semester 5	3	0	3	75
Semester 6	0	2	2	50
Total	3	15	18	450