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Symbiosis Institute of Technology, Pune

Bachelor of Technology (Robotics and Artificial Intelligence)

Provisional Programme Structure 2026-2030

<table>
<tr><td>1.</td><td>OBJECTIVE</td><td colspan="4">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.</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">60</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) Persons with Disabilities (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 colspan="2">b) International Students (In Percentage)</td></tr>
<tr><td colspan="2">2</td><td colspan="2">15</td></tr>
<tr><td>5.</td><td>ELIGIBILITY</td><td colspan="4">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.
OR
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).
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</td></tr>
</table>

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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 & SPECIALISATIO N**	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. Annexure B: Optional 'Honours' specialisation area 1. Aerial Robotics and Drone Technology Annexure C: Optional 'Minor' specialisation area 1. Computer Science Engineering Fundamentals 2. Quantum Technologies			
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/Quantum Technologies 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**	**Multidisciplinar**	**Project/**	**Indian**	**Total**	**No. of**	**No. of Non-**

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SIU **14/05/2026**

	Sciences	Sciences	Core	Elective	Social Sciences including Management	Open Electives	Internship / Seminar	Knowledg e System	Credits	Mandatory Non-Credit Course/s	Credit Audit Course/s
1	4	0	0	0	1	0	0	0	5	0	As per the student's choice
2	7	0	6	0	2	0	0	2	17	0	
3	5	0	16	0	1	0	0	0	22	0	
4	4	0	15	0	3	0	0	0	22	0	
5	0	0	22	0	0	0	2	0	24	0	
6	0	0	20	0	1	0	4	0	25	0	
7	0	0	8	0	1	0	11	0	20	0	
8	0	0	0	0	0	0	14	0	14	0	
Total	**20**	**0**	**87**	**0**	**9**	**0**	**31**	**2**	**149**	**0**	
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	
2	7	3	6	0	2	0	0	2	20	1 *	As per the student's choice
3	5	0	11	3			0	0			
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											
1	4	0	0	0	1	0	0	0	5	0	As per the student's choice
2	7	0	6	0	2	0	0	2	17	0	
3	5	0	16	0	1	0	0	0	22	0	
4	4	0	15	0	3	0	0	0	22	0	
5	0	0	22	0	0	0	2	0	24	0	
5	0	0	6	0	0	0	0	0	6	0	
6	0	0	7	0	0	0	0	0	7	0	
6	0	0	20	0	1	0	4	0	25	0	
7	0	0	8	0	1	0	11	0	20	0	
7	0	0	0	0	0	0	7	0	7	0	
8	0	0	0	0	0	0	14	0	14	0	
Total	**20**	**0**	**100**	**0**	**9**	**0**	**38**	**2**	**169**	**0**	
Optional Additional Courses (Minor)											
3	0	0	5	0	0	0	0	0	5	0	

4	0	0	8	0	0	0	0	0	8	0	As per the student's
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**	

	Optional Additional Courses (Minor) - Quantum Technologies										
3	0	0	3	0	0	0	0	0	3	0	
4	0	0	6	0	0	0	0	0	6	0	
5	0	0	6	0	0	0	0	0	6	0	
6	0	0	3	0	0	0	0	0	3	0	As per the student's choice
Total	0	0	18	0	0	0	0	0	18	0	

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Annexure A

Semester : 1

Generic Core Courses

Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
TEE7237	0701340101	Calculus	BS		3	1	0	0	0	40	60	4	100
TEE7357	0701340102	Programming for Engineers	ES		2	0	2	15	10	20	30	3	75
TEE7537	0701340103	Fundamentals of AI	PC		0	0	2	15	10	0	0	1	25
TEE7537	0701340104	Principles of Electrical and Electronics Engineering	ES		2	0	2	15	10	20	30	3	75
TEE7538	0701340105	Introduction to Robotics	PC		2	0	2	15	10	20	30	3	75
TEE7342	0701340106	Biophysics and Mechanics	ES		3	0	0	0	0	30	45	3	75
TM2278	0701340107	Introduction to Environment and Sustainability	ES		0	0	2	25	0	0	0	1	25
TEE7364	0701340108	Tinker and IDEA Lab	ES		0	0	2	25	0	0	0	1	25
T6873	0701340109	Creative Thinking	HSMC		1	0	0	0	0	25	0	1	25

		Total	**13**	**1**	**12**	**110**	**40**	**155**	**195**	**20**	**500**

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Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 2													
Generic Core Courses													
TEE7255	0701340201	Linear Algebra	BS		2	1	0	0	0	30	45	3	75
TEE7257	0701340202	Statistics for Data Science	BS		3	1	0	0	0	40	60	4	100
TEE7541	0701340203	Robotics Sensors and Actuators	PC		0	0	4	30	20	0	0	2	50
TEE7540	0701340204	Python Essentials	PC		0	0	4	30	20	0	0	2	50
TEE7034	0701340205	Data Preprocessing and EDA Lab	PC		0	0	4	30	20	0	0	2	50
THM6150	0701340206	Technical and Professional Communication Skills	HSMC		0	0	2	15	10	0	0	1	25
T6732	0701340207	Critical Thinking	HSMC		1	0	0	0	0	10	15	1	25
THM6144	0701340208	Indian Knowledge Systems	IKS		2	0	0	0	0	50	0	2	50

TEE7265	0701340209	Career Essentials - I *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total Required Credits					**8**	**2**	**14**	**105**	**70**	**130**	**120**	**17**	**425**

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Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		

Semester : 3													
		Generic Core Courses											
TEE7254	0701340301	Discrete Mathematics	BS		2	0	0	0	0	20	30	2	50
TEE7542	0701340302	Supervised and Unsupervised Machine Learning	PC		2	0	4	30	20	20	30	4	100
TEE7497	0701340303	Robotic Control Systems	PC		2	0	2	15	10	20	30	3	75
TEE7536	0701340304	Data Structures and Algorithmic Techniques	PC		2	0	2	15	10	20	30	3	75
TEE7490	0701340305	Hydraulic and Pneumatic Systems	PC		2	0	2	15	10	20	30	3	75
TEE7401	0701340306	Total Productive Maintenance	PC		0	0	2	15	10	0	0	1	25
TEE7407	0701340307	Mechatronics	PC		1	0	0	0	0	10	15	1	25
TEE7492	0701340308	Mechatronics Lab	PC		0	0	2	15	10	0	0	1	25
P4411	0701340309	Principles of Economics	HSMC		1	0	0	0	0	10	15	1	25
TEE7419	0701340310	Career Essentials - II *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
TH4788	0701340311	Health and Wellness Module I #			0	0	0	0	0	0	0	0	0
				Total Required Credits	**12**	**0**	**14**	**105**	**70**	**120**	**180**	**19**	**475**

Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 4													
Generic Core Courses													
TE7699	0701340401	Probability and Random Processes	BS		2	1	0	0	0	30	45	3	75
P4350	0701340402	Robot Kinematics and Dynamics	PC		2	0	2	15	10	20	30	3	75
TEE7397	0701340403	Servo Motors and Drives	PC		1	0	0	0	0	10	15	1	25
TEE7398	0701340404	Servo Motors and Drives Lab	PC		0	0	2	15	10	0	0	1	25
TEE7495	0701340405	Process Control and Instrumentation	PC		2	0	4	30	20	20	30	4	100
TEE7496	0701340406	Programmable Logic Controller and Human Machine Interface	PC		2	0	4	30	20	20	30	4	100
T8000	0701340407	Service Learning	HSMC		0	0	4	30	20	0	0	2	50
T2646	0701340408	Entrepreneurship Venture	HSMC		1	0	0	0	0	10	15	1	25
TEE7420	0701340409	Career Essentials - III *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
TH4789	0701340410	Health and Wellness Module II #			0	0	0	0	0	0	0	0	0
				Total	**10**	**1**	**16**	**120**	**80**	**110**	**165**	**19**	**475**

Multidisciplinary Open Elective (Choose any one course)													
TEE7416	0701340411	Quantum Computing for Engineers	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TEE7414	0701340412	Mathematics for Data Science	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
TEE7438	0701340413	Smart Cities Planning and Management	MOPE	Civil	2	1	0	0	0	30	45	3	75
TEE7435	0701340414	Intelligent Waste Management Techniques	MOPE	Civil	2	1	0	0	0	30	45	3	75
TEE7458	0701340415	Web Technologies	MOPE	CSE	2	1	0	0	0	30	45	3	75
TEE7447	0701340416	Data Science	MOPE	CSE	2	1	0	0	0	30	45	3	75
TEE7018	0701340417	Engineering Simulation and Modelling Tools	MOPE	ENTC	2	1	0	0	0	30	45	3	75
TEE7472	0701340418	Medical Electronics	MOPE	ENTC	2	1	0	0	0	30	45	3	75
TE7351	0701340419	3D Printing and Prototyping	MOPE	Mechanical	2	1	0	0	0	30	45	3	75
TEE7476	0701340420	Battery Management Systems	MOPE	Mechanical	2	1	0	0	0	30	45	3	75
TEE7425	0701340421	Fundamentals of Machine Learning	MOPE	AIML	2	1	0	0	0	30	45	3	75
TEE7418	0701340422	AI System development	MOPE	AIML	2	1	0	0	0	30	45	3	75
				Total Required Credits	**2**	**1**	**0**	**0**	**0**	**30**	**45**	**3**	**75**

Catalog Course Code	**Course Code**	**Course Title**	**Nature**	**Specialization/ Area/ Department**				**Practical**		**Theory**			
					L	**T**	**Lab**	**CA**	**ESE**	**CA**	**ESE**		
Program Elective (Choose any one course)													
TEE7498	0701340423	Robotic Perception and Actuation	PE		2	0	2	15	10	20	30	3	75
P6134	0701340424	Cloud Computing Essentials	PE		2	0	2	15	10	20	30	3	75
TEE7504	0701340425	Unmanned Aerial Vehicles	PE		2	0	2	15	10	20	30	3	75
				Total Required Credits	**2**	**0**	**2**	**15**	**10**	**20**	**30**	**3**	**75**

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Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	La b	CA	ESE	CA	ESE		
Semester : 5													
Generic Core Courses													
P5230	0701340501	Design Thinking	ES		1	0	0	0	0	10	15	1	25
P6135	0701340502	Deep Learning	PC		2	0	2	15	10	20	30	3	75
P4361	0701340503	Microcontroller and Embedded Systems	PC		2	0	2	15	10	20	30	3	75
P5741	0701340504	Industrial Internet of Things	PC		2	0	4	30	20	20	30	4	100
P5742	0701340505	AI for Manufacturing	PC		2	0	4	30	20	20	30	4	100
TEE7385	0701340506	Applied ARVR	PC		0	0	2	15	10	0	0	1	25
P5740	0701340507	Manufacturing Systems	PC		2	0	4	30	20	20	30	4	100
P4784	0701340508	Career Essentials - IV *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0

SMC001	0701340509	Vasudhaiva Kutumbakam			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
				Total Required Credits	**11**	**0**	**18**	**135**	**90**	**110**	**165**	**20**	**500**

Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Multi-disciplinary Open Elective Courses (Choose any one Course)													
P5210	0701340510	Financial Mathematics	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P5211	0701340511	Advanced Materials	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P4656	0701340512	Sustainability Engineering- Design and Innovation	MOPE	Civil	2	1	0	0	0	30	45	3	75
P4658	0701340513	Occupational Health and Safety Management	MOPE	Civil	2	1	0	0	0	30	45	3	75
P4840	0701340514	Introduction to Cloud Computing	MOPE	CSE	2	1	0	0	0	30	45	3	75
P4844	0701340515	Agile Methodologies	MOPE	CSE	2	1	0	0	0	30	45	3	75
P4472	0701340516	Embedded System & IoT	MOPE	ENTC	2	1	0	0	0	30	45	3	75
P5241	0701340517	Basics of 5G Technology	MOPE	ENTC	2	1	0	0	0	30	45	3	75
P2253	0701340518	Electric and Hybrid Vehicles	MOPE	Mechanical	2	1	0	0	0	30	45	3	75
T7650	0701340519	Six Sigma	MOPE	Mechanical	2	1	0	0	0	30	45	3	75
P4790	0701340520	Deep Learning Essentials	MOPE	AI/ML	2	1	0	0	0	30	45	3	75

P4789	0701340521	Optimization for ML Systems	MOPE	AI/ML	2	1		0	0	30	45	3	75
				Total Required Credits	2	1	0	**0**	**0**	**30**	**45**	**3**	**75**

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Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Generic Core Courses													
P4528	0701340601	Natural Language Processing and Linguistics	PC		2	0	2	15	10	20	30	3	75
P4529	0701340602	Computer Networks and Advances	PC		2	0	0	0	0	20	30	2	50
P5225	0701340603	Computer Vision and Image Processing	PC		2	0	2	15	10	20	30	3	75
P5782	0701340604	Robot Operating System	PC		1	0	4	30	20	10	15	3	75
P4371	0701340605	Responsible AI	HSMC		1	0	0	0	0	10	15	1	25
P5783	0701340606	Project Based Learning	PIS		0	0	4	30	20	0	0	2	50
P4785	0701340607	Career Essentials - V *	MC		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0

Total Required Credits	**8**	**0**	**12**	**90**	**60**	**80**	**120**	**14**	**350**

Multi-disciplinary Open Elective Courses (Choose any one Course)														
Catalog Course Code	**Course Code**	**Course Title**	**Nature**	**Specialization/ Area/ Department**	**Teaching Scheme (Hours Per Week)**			**Examination Scheme (Marks)**				**Total Credits**	**Total**
								Practical		**Theory**			
					L	**T**	**Lab**	**CA**	**ESE**	**CA**	**ESE**		
P5212	0701340608	Bioinformatics	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P5213	0701340609	Introduction to Space Science	MOPE	Applied Science	2	1	0	0	0	30	45	3	75
P4657	0701340610	GIS and Remote Sensing Analytics	MOPE	Civil	2	1	0	0	0	30	45	3	75
P4659	0701340611	Environmental Impact Assessment	MOPE	Civil	2	1	0	0	0	30	45	3	75
P4830	0701340612	Software Testing and Quality Assurance	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
P4831	0701340613	Introduction to AR-VR	MOPE	Computer Science and Engineering	2	1	0	0	0	30	45	3	75
P4475	0701340614	Renewable Energy Systems	MOPE	ENTC	2	1	0	0	0	30	45	3	75
P4274	0701340615	Semiconductor Technology Trends	MOPE	ENTC	2	1	0	0	0	30	45	3	75
P4448	0701340616	Supply Chain Management	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
P4449	0701340617	Smart Manufacturing and Introduction of Industry 5.0	MOPE	Mechanical Engineering	2	1	0	0	0	30	45	3	75
P4792	0701340618	Data Engineering and Applications	MOPE	AI/ML	2	1	0	0	0	30	45	3	75
P4791	0701340619	Gen AI Tools and Techniques	MOPE	AI/ML	2	1	0	0	0	30	45	3	75

				Total Required Credits	**2**	**0**	**0**	**0**	**0**	**30**	**45**	**3**	**75**
Program Elective IV (Choose any one Course)													
P5730	0701340620	Advanced Microcontrollers and Microprocessors	PE		2	0	2	15	10	20	30	3	75
	0701340621	Data Engineering	PE		2	0	2	15	10	20	30	3	75
P5218	0701340622	Mobile Robotics	PE		2	0	2	15	10	20	30	3	75
				Total Required Credits	2	0	2	**15**	**10**	**20**	**30**	**3**	**75**

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Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 7 (Track 1)													
Generic Core Courses													
F0001	0701340701	Flexi-Credit Course	PC		3	0	0	0	0	30	45	3	75
F0001	0701340702	Flexi-Credit Course	PC		3	0	0	0	0	30	45	3	75
P4534	0701340703	Reinforcement Learning	PC		2	0	2	15	10	20	30	3	75
T7804	0701340704	Project	PIS		0	0	8	60	40	0	0	4	100
SMC003	0701340705	Health and Wellness *			0	0	0	0	0	0	0	Mandatory Non-Cr	0

												edit Course	
				Total	**6**	**0**	**10**	**75**	**50**	**80**	**120**	**13**	**325**
Professional Elective – V (Choose any one Course)													
P5789	0701340706	Embedded Linux and Real Time Operating Systems	PE		2	0	2	15	10	20	30	3	75
P4901	0701340707	Machine Learning Operations	PE		2	0	2	15	10	20	30	3	75
P5746	0701340708	Swarm Robotics	PE		2	0	2	15	10	20	30	3	75
				Total	**2**	**1**	**0**	**0**	**0**	**30**	**45**	**3**	**75**

Catalog Course Code	**Course Code**	**Course Title**	**Nature**	**Specialization/ Area/ Department**	**Teaching Scheme (Hours Per Week)**			**Examination Scheme (Marks)**				**Total Credits**	**Total**
								Practical		**Theory**			
					L	**T**	**Lab**	**CA**	**ESE**	**CA**	**ESE**		
Professional Elective VI (Choose any one Course)													
P5743	0701340708	Embedded Machine Learning	PE		2	1	0	0	0	30	45	3	75
P5747	0701340709	Foundations of GEN AI and LLM	PE		2	1	0	0	0	30	45	3	75
P4365	0701340710	Biomedical Robotics	PE		2	1	0	0	0	30	45	3	75
				Total Required Credits	**2**	**1**	**0**	**0**	**0**	**30**	**45**	**3**	**75**

Professional Elective - VII (Choose any one Course)													
P4897	0701340711	Hardware and Network Security	PE		2	1	0	0	0	30	45	3	75
P5785	0701340712	Graph Neural Networks and Applications	PE		2	1	0	0	0	30	45	3	75
P4905	0701340713	Collaborative and Service Robotics	PE		2	1	0	0	0	30	45	3	75
				Total Required Credits	**2**	**1**	**0**	**0**	**0**	**45**	**30**	**3**	**75**
Semester : 7 (Track 2)													
T7804	701270707	Project	PIS		0	0	8	60	40	0	0	4	100
SMC003	701270708	Health and Wellness *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
F0003	701270713	Flexi-Credit Course	PC		3	0	0	0	0	30	45	3	75
F0001	701270714	Flexi-Credit Course	PC		3	0	0	0	0	30	45	3	75
Generic Elective courses Group (Choose any one Course)													
T7912	701270715	Startup Internship	PIS		0	0	24	180	120	0	0	12	300
T7912	701270716	Research Internship	PIS		0	0	24	180	120	0	0	12	300
T7912	701270717	Industry Internship	PIS		0	0	24	180	120	0	0	12	300
				Total Required Credits	**180**	**120**	**0**	**0**	**12**	**300**	**180**	**120**	**0**
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**

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Celebrating 50 Years of Excellence

Abbreviations (Nature)

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	Internal Credits	External Credits	Total Credits	Total Marks
Semester 1	3	17	20	500
Semester 2	4	16	20	500
Semester 3	4	16	20	500
Semester 4	6	16	22	550
Semester 5	4	19	23	575
Semester 6	5	16	21	525
Semester 7	Track 1-4,Track 2-4	Track 1-16,Track 2-16	20	500
Semester 8	0	14	14	350

Total	**30**	**130**	**160**	**4000**

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Optional 'Honours' Specialization

Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 5													

Aerial Robotics and Drone Technology Specialization Core Courses													
TE7850	0701340522	Introduction to Aerial Robotics and Drones	PC		3	0	0	0	0	30	45	3	75
P5288	0701340523	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 Specialization Core Courses													
TE7884	0701340623	Robotics Mobility and Perception	PC		3	0	0	0	0	30	45	3	75
TE7883	0701340624	Robotics Estimation and Learning	PC		2	0	0	0	0	20	30	2	50
TE7866	0701340625	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 Specialization Core Courses													
P5295	0701340718	Honours Project	PIS		0	0	10	75	50	0	0	5	125
P5296	0701340719	Honours Seminar	PIS		0	0	4	30	20	0	0	2	50
				Total	**0**	**0**	**14**	**105**	**70**	**0**	**0**	**7**	**175**

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Semester	Continuous Assessment	Term End 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	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester : 3													
Computer Science Engineering Fundamentals Specialization Core Courses													
TEE7290	0701340312	Computer Architecture and Organization	PC		2	0	2	15	10	20	30	3	75
P4807	0701340313	Programming with JAVA	PC		0	0	4	30	20	0	0	2	50
				Total	**2**	**0**	**6**	**45**	**30**	**20**	**30**	**5**	**125**
Semester : 3													
Quantum Technologies Specialization Core Courses													
P6788	0701340314	Foundations of Quantum Computing	PC		3	0	0	0	0	30	45	3	75
				Total	**3**	**0**	**0**	**0**	**0**	**30**	**45**	**3**	**75**
Semester : 4													
Computer Science Engineering Fundamentals Specialization Core Courses													
TEE7449	0701340426	Database Management Systems	PC		2	0	4	30	20	20	30	4	100
TEE7442	0701270427	Computer Networks	PC		3	0	2	15	10	30	45	4	100
				Total	**5**	**0**	**6**	**45**	**30**	**50**	**75**	**8**	**200**
Semester : 4													
Quantum Technologies Specialization Core Courses													
P6784	0701340428	Foundations of Quantum Technologies	PC		3	0	0	0	0	30	45	3	75

P6785	0701340429	Quantum Technologies Lab	PC		2	0	2	15	10	20	30	3	75
				Total	**5**	**0**	**2**	**15**	**10**	**50**	**75**	**6**	**150**
Semester : 5													
Computer Science Engineering Fundamentals Specialization Core Courses													
P5300	0701340524	Operating Systems		PC	3	0	0	0	0	75	0	3	75
	Total			**Total**	3	0	0	0	0	75	0	3	75
Semester : 5													
Quantum Technologies Specialization Core Courses													
P6786	0701340525	Introduction to Quantum Computation	PC		3	0	0	0	0	75	0	3	75
P6789	0701270530	Survey of Quantum Technologies and Applications	PC		3	0	0	0	0	75	0	3	75
				Total	6	0	0	0	0	150	0	6	150

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Annexure C
Optional 'Minor' Specialization

Catalog Course Code	Course Code	Course Title	Nature	Specialization/ Area/ Department	Teaching Scheme (Hours Per Week)			Examination Scheme (Marks)				Total Credits	Total
								Practical		Theory			
					L	T	Lab	CA	ESE	CA	ESE		
Semester :6													
Computer Science Engineering Fundamentals Specialization Core Courses													
TEE7306	0701340526	Cyber Security	ES		1	0	2	25	0	25	0	2	50
				Total	**1**	**0**	**2**	**25**	**0**	**25**	**0**	**2**	**50**
Semester : 6													
Quantum Technologies Specialization Core Courses													
P6787	0701340626	Introduction to Quantum Communication	PC		3	0	0	0	0	75	0	3	75
				Total	**3**	**0**	**0**	**0**	**0**	**75**	**0**	**3**	**75**

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Annexure C
Optional 'Minor' Specialization

Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Computer Science Engineering Fundamentals				
Semester 3	0	5	5	125
Semester 4	0	8	8	200
Semester 5	0	3	3	75
Semester 6	0	2	2	50
Total	**0**	**18**	**18**	**500**

Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Quantum Technologies				
Semester 3	0	3	3	75
Semester 4	0	6	6	150
Semester 5	0	6	6	150
Semester 6	0	3	3	75
Total	**0**	**18**	**18**	**450**