

**Symbiosis Institute of Technology, Pune**  
**Master of Technology (Robotics and Automation)**  
**Programme Structure 2024-26**

<b>1. OBJECTIVE</b>	<p>M.Tech (Robotics and Automation) is a full-time two-year post-graduation programme, which aims at transforming a student into a technically sound professional. This programme aims at providing the students with appropriate theoretical inputs along with adequate hands-on training. The programme includes hands-on experience on Robotics and Automation by theory &amp; practice, development of analytical skills, modelling and simulation skills to identify and analyse problems, propose, and execute solutions in well-equipped labs and training on latest equipment. The syllabus contains cross disciplinary courses such as artificial intelligence, machine learning, Internet of Things in addition to the domain specific 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.</p> <p>The emphasis is to develop all round personality that would enable the students to take up the challenges of the corporate world and become responsible citizens of the society.</p>			
<b>2. DURATION (IN MONTHS)</b>	24 (Full Time)			
<b>3. INTAKE</b>	18			
<b>4. RESERVATION</b>	<b>I. Within the sanctioned intake</b>	<b>a) SC (In Percentage)</b>	<b>b) ST (In Percentage)</b>	<b>c) Differently abled (In Percentage)</b>
		15	7.5	3
	<b>II. Over and above the sanctioned intake</b>	<b>a) Kashmiri Migrants (In Seats)</b>		<b>b) International Students (In Percentage)</b>
		2		20
<b>5. ELIGIBILITY</b>	<p>B.Tech./ B.E. in Mechanical /Electronics and Communication/ Computer Science/ Information Technology and other related disciplines with minimum four years duration from any recognized University/Institution of National Importance with a minimum of 50% marks or equivalent grade (45% Marks or equivalent grade for Scheduled Caste/Scheduled Tribes)</p>			
<b>6. SELECTION PROCEDURE</b>	<p>Both GATE qualified and non-GATE candidates are eligible to take admission in M.Tech (Robotics and Automation) Program, as per the following criteria:</p> <p>1. GATE Qualified candidates: Selection will be based on GATE Score</p> <p>2. Non-Gate Qualified candidates: An entrance examination will be conducted at SIT and selection will be based on the entrance examination score.</p>			
<b>7. MEDIUM OF INSTRUCTION</b>	English			
<b>8. PROGRAMME PATTERN</b>	Semester			
<b>9. COURSE &amp;</b>	As per Annexure A			

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SPECIALISATION								
10. FEE		Academic Fee p.a	Institute Deposit	Total				
	<b>Indian Students (Amount in INR)</b>	185000	20000	205000				
	<b>International Students</b>	<b>NRI/ PIO/ OCI Category (Amount in US\$)</b>	3650	275	3925			
		<b>Foreign National Category (Amount in US\$)</b>	1950	275	2225			
11. ASSESSMENT	The courses 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	Master of Technology (Robotics and Automation) will be awarded at the end of semester 4 examination by taking into consideration the performance of all semester examinations after obtaining 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-Letter Grade Audit Course/s	Total
<b>Common</b>								
1	23	3	0	0	0	0	As per the student's choice	26
2	23	4	0	0	0	2		27
3	13	0	0	0	0	1		13
4	14	0	0	0	0	0		14
<b>Total</b>	<b>73</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>80</b>
* Satisfactory completion of the non letter grade course 'Health and Wellness', 'Vasudhaiva Kutumbakam' is mandatory for award of degree.								
The revised programme structure supersedes the previously approved programme structure dated 24/01/2025 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	Teaching Scheme			Practical		Examination Scheme Marks		Total Credits	Total
				L	T	Lab	CA	ESE	CA	ESE		
<b>Semester : 1</b>												
<b>Generic Core Courses</b>												
TE7588	0701480101	Programming Tools (Python)	PC	0	0	4	60	40	0	0	2	100
TEE7035	0701480102	Research Methodology in Engineering	PC	2	0	0	0	0	100	0	2	100
TE7628	0701480103	Advanced Computer Integrated Manufacturing	PC	3	0	0	0	0	90	60	3	150
TE7654	0701480104	Additive Manufacturing	PC	3	0	0	0	0	90	60	3	150
TE7594	0701480105	Additive Manufacturing Lab	PC	0	0	2	30	20	0	0	1	50
TE7630	0701480106	Industrial Robotics	PC	3	0	0	0	0	90	60	3	150
TE7570	0701480107	Robotics lab	PC	0	0	4	60	40	0	0	2	100
TE7639	0701480108	Mechatronics and IoT	PC	3	0	0	0	0	90	60	3	150
TE7578	0701480109	Mechatronics and IoT Lab	PC	0	0	4	60	40	0	0	2	100
TE7656	0701480110	Strategic Project Management	PC	2	0	0	0	0	100	0	2	100
<b>Total</b>				<b>16</b>	<b>0</b>	<b>14</b>	<b>210</b>	<b>140</b>	<b>560</b>	<b>240</b>	<b>23</b>	<b>1150</b>
<b>Generic Elective Course Group (Choose any one course)</b>												
TE7640	0701480112	Digital Manufacturing	PE	3	0	0	0	0	90	60	3	150
TE7642	0701480113	Signal Processing and Application	PE	3	0	0	0	0	90	60	3	150
TE7644	0701480114	Production Technology	PE	3	0	0	0	0	90	60	3	150
<b>Total Required Credits</b>							<b>0</b>	<b>0</b>	<b>90</b>	<b>60</b>	<b>3</b>	<b>150</b>
<b>Semester : 2</b>												
<b>Generic Core Courses</b>												
TE7645	0701480201	Industrial Internet of Things	PC	2	0	0	0	0	100	0	2	100
F7076	0701480202	Computer Vision with Deep Learning	PC	2	0	0	0	0	100	0	2	100
TE7647	0701480203	Machine Learning and Artificial Intelligence	PC	3	0	0	0	0	90	60	3	150
TE7500	0701480204	Supervised Machine Learning Lab	PC	0	0	4	60	40	0	0	2	100
TE7652	0701480205	Mechanisms and Robotics	PC	3	0	0	0	0	90	60	3	150
TE7586	0701480206	Mechanisms and Robotics Lab	PC	0	0	2	30	20	0	0	1	50
TE7629	0701480207	Autonomous Technology	PC	3	0	0	0	0	150	0	3	150
TE7569	0701480208	Modelling and Simulation Lab	PC	0	0	4	60	40	0	0	2	100
TE7659	0701480209	Technical Communication Skills	PC	2	0	0	0	0	100	0	2	100
TE7826	0701480210	Applications of Robotic Process Automation	PC	3	0	0	0	0	150	0	3	150

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				L	T	Lab	CA	ESE	CA	ESE		
TH4788	0701480211	Health and Wellness Module I		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
TH4789	0701480220	Health and Wellness Module II		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
<b>Total</b>				<b>18</b>	<b>0</b>	<b>10</b>	<b>150</b>	<b>100</b>	<b>780</b>	<b>120</b>	<b>23</b>	<b>1150</b>
<b>Generic Elective Course Group - I (Choose any one Courses Group - A To D)</b>												
<b>Generic Elective Course Group - A</b>												
TE7653	0701480212	PLC and SCADA	PE	3	0	0	0	0	90	60	3	150
TE7596	0701480213	PLC Programming Lab	PE	0	0	2	30	20	0	0	1	50
<b>Generic Elective Course Group - B</b>												
TE7657	0701480214	Cyber Physical Security and cloud computing	PE	3	0	0	0	0	90	60	3	150
TE7597	0701480215	Cyber Physical Security Lab	PE	0	0	2	30	20	0	0	1	50
<b>Generic Elective Course Group - C</b>												
TE7655	0701480216	Machine Vision and Image Processing	PE	3	0	0	0	0	90	60	3	150
TE7598	0701480217	Machine Vision and Image processing Lab	PE	0	0	2	30	20	0	0	1	50
<b>Generic Elective Course Group - D</b>												
TE7651	0701480218	Smart Manufacturing and Digital Twins	PE	3	0	0	0	0	90	60	3	150
TE7589	0701480219	Smart Manufacturing and Digital Twins Lab	PE	0	0	2	30	20	0	0	1	50
<b>Total Required Credits</b>							<b>30</b>	<b>20</b>	<b>90</b>	<b>60</b>	<b>4</b>	<b>200</b>
<b>Semester : 3</b>												
<b>Generic Core Courses</b>												
T7710	0701480301	Dissertation Phase 1	PIS	0	0	20	300	200	0	0	10	500
F7105	0701480302	Robot Operating System	PC	3	0	0	0	0	150	0	3	150

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				L	T	Lab	CA	ESE	CA	ESE		
SMC001	0701480303	Vasudhaiva Kutumbakam		0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
<b>Total</b>				<b>3</b>	<b>0</b>	<b>20</b>	<b>300</b>	<b>200</b>	<b>150</b>	<b>0</b>	<b>13</b>	<b>650</b>
<b>Semester : 4</b>												
<b>Generic Core Courses</b>												
T7714	0701480401	Dissertation Phase 2	PIS	0	0	28	420	280	0	0	14	700
<b>Total</b>				<b>0</b>	<b>0</b>	<b>28</b>	<b>420</b>	<b>280</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>700</b>

**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	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Semester 1	4	22	26	1300
Semester 2	12	15	27	1350
Semester 3	3	10	13	650
Semester 4	0	14	14	700
<b>Total</b>	<b>19</b>	<b>61</b>	<b>80</b>	<b>4000</b>