



**Symbiosis Institute of Technology, Pune**  
**Master of Technology (Artificial Intelligence and Machine Learning)**  
**Programme Structure 2021-23**

1.	<b>OBJECTIVE</b>	To generate competent manpower in the emerging areas of AI and Machine Learning. To inculcate among the students an aptitude for engineering and research in the area of Artificial Intelligence and Machine Learning for generation of better and smarter solutions to real.			
2.	<b>DURATION (IN MONTHS)</b>	24 (Full Time)			
3.	<b>INTAKE</b>	24			
4.	<b>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	15
5.	<b>ELIGIBILITY</b>	Engineering Graduate (B.E./ B.Tech.) in ANY relevant disciplines of Engineering 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)			
6.	<b>SELECTION PROCEDURE</b>	GATE score or Entrance Test on python programming or equivalent programming language for non-GATE candidates			
7.	<b>MEDIUM OF INSTRUCTION</b>	English			
8.	<b>PROGRAMME PATTERN</b>	Semester			
9.	<b>COURSE &amp; SPECIALIZATION</b>	As per Annexure A.			
10.	<b>FEE</b>		<b>Academic Fee p.a</b>	<b>Institute Deposit</b>	<b>Total</b>
		<b>Indian Students</b>	185000	20000	205000
		<b>International Students (USD equivalent to INR)</b>	280000	20000	300000
11.	<b>ASSESSMENT</b>	All internal courses will have 100% component as internal evaluation at the institute level. All external courses will have 60% internal component and 40% component as external [University] examination. The internal and external will be separate heads of passing.			
12.	<b>STANDARD OF PASSING</b>	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.	<b>AWARD OF DEGREE/ DIPLOMA/ CERTIFICATE</b>	Master of Technology (Artificial Intelligence and Machine Learning) will be awarded at the end of semester IV examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10.00 CGPA.					
14.	<b>CLASSIFICATION OF CREDITS</b>						
Semester	Generic Core	Generic Elective	Specialization Core	Specialization Elective	Open Elective	Audit	Total
1	26	0	0	0	0	1*	26
2	22	4	0	0	0	1*	26
3	14	0	0	0	0	1*	14
4	14	0	0	0	0	0	14
<b>Total</b>	<b>76</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>80</b>
* Satisfactory completion of the non letter grade courses 'Integrated Disaster Management', 'Research Publication' 'Certificate in COVID-19 Care for the Community' is mandatory for award of degree.							
The revised programme structure supersedes the previously approved programme structure dated 14/03/2022 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.**

**Head - 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>												
TE7495	0701490101	Programming in Python	PC	0	0	4	60	40	0	0	2	100
TE7492	0701490102	Maths for Data Science	PC	2	0	0	0	0	60	40	2	100
TE7499	0701490103	Supervised Machine Learning	PC	4	0	0	0	0	120	80	4	200
TE7500	0701490104	Supervised Machine Learning Lab	PC	0	0	4	60	40	0	0	2	100
TE7489	0701490105	Exploratory Data Analysis Lab	PC	0	0	4	60	40	0	0	2	100
TE7501	0701490106	Unsupervised Learning	PC	3	0	0	0	0	90	60	3	150
TE7502	0701490107	Unsupervised Learning Lab	PC	0	0	2	30	20	0	0	1	50
TE7109	0701490108	Research Methodology in engineering	PC	2	0	0	0	0	60	40	2	100
TE7487	0701490109	Deep Learning	PC	3	0	0	0	0	90	60	3	150
TE7488	0701490110	Deep Learning Lab	PC	0	0	2	30	20	0	0	1	50
TE7486	0701490111	Data Visualization Lab	PC	0	0	4	60	40	0	0	2	100
TE7483	0701490112	Applications and use cases of Machine Learning	PC	0	0	4	60	40	0	0	2	100
TH4272	0701490113	Certificate in COVID-19 Care for the Community *		0	0	0	0	0	0	0	Non Letter Grade	0
<b>Total</b>				<b>14</b>	<b>0</b>	<b>24</b>	<b>360</b>	<b>240</b>	<b>420</b>	<b>280</b>	<b>26</b>	<b>1300</b>
<b>Semester : 2</b>												
<b>Generic Core Courses</b>												
T7674	0701490201	Cyber Security	PC	2	0	0	0	0	100	0	2	100
F7037	0701490202	Advanced Research Techniques in Deep Learning	PC	4	0	0	0	0	200	0	4	200
TE7490	0701490203	Generative Adversarial Networks	PC	3	0	0	0	0	90	60	3	150
TE7491	0701490204	Generative Adversarial Networks Lab	PC	0	0	2	30	20	0	0	1	50
TE7276	0701490205	Natural Language Processing	PC	3	0	0	0	0	90	60	3	150
TE7277	0701490206	Natural Language Processing Lab	PC	0	0	2	30	20	0	0	1	50
TE7484	0701490207	Computer Vision	PC	3	0	0	0	0	90	60	3	150
TE7485	0701490208	Computer Vision Lab	PC	0	0	2	30	20	0	0	1	50
TE7659	0701490209	Technical Communication Skills	PC	2	0	0	0	0	100	0	2	100
TE7557	0701490210	Optimization Techniques for Machine Learning	PC	2	0	0	0	0	60	40	2	100



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				L	T	Lab	CA	ESE	CA	ESE			
T4005	0701490211	Integrated Disaster Management *		0	0	0	0	0	0	0	Non Letter Grade	0	
<b>Total</b>				<b>19</b>	<b>0</b>	<b>6</b>	<b>90</b>	<b>60</b>	<b>730</b>	<b>220</b>	<b>22</b>	<b>1100</b>	
<b>Generic Elective Courses Group</b>													
TE7565	0701490212	Reinforcement Learning	PE	3	0	0	0	0	90	60	3	150	
TE7497	0701490213	Responsible AI	PE	3	0	0	0	0	90	60	3	150	
TE7493	0701490214	Multimodal AI	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>Generic Elective Courses Group</b>													
TE7496	0701490215	Reinforcement Learning Lab	PE	0	0	2	30	20	0	0	1	50	
TE7498	0701490216	Responsible AI Lab	PE	0	0	2	30	20	0	0	1	50	
TE7494	0701490217	Multimodal AI Lab	PE	0	0	2	30	20	0	0	1	50	
<b>Total Required Credits</b>							<b>30</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>50</b>	
<b>Semester : 3</b>													
<b>Generic Core Courses</b>													
T7710	0701490301	Dissertation Phase 1	PIS	0	0	20	300	200	0	0	10	500	
F7050	0701490302	Full Stack Development and Applications	PC	4	0	0	0	0	200	0	4	200	
T0100	0701490303	Research Publication *		0	0	0	0	0	0	0	Non Letter Grade	0	
<b>Total</b>				<b>4</b>	<b>0</b>	<b>20</b>	<b>300</b>	<b>200</b>	<b>200</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>700</b>
<b>Semester : 4</b>													
<b>Generic Core Courses</b>													
T7714	0701490401	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>	



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**Annexure A**

**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



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Semester	Internal Credits	External Credits	Total Credits	Total Marks
Semester 1	0	26	26	1300
Semester 2	8	18	26	1300
Semester 3	4	10	14	700
Semester 4	0	14	14	700
<b>Total</b>	<b>12</b>	<b>68</b>	<b>80</b>	<b>4000</b>