Symbiosis Institute of Technology, Pune
Bachelor of Technology (Artificial Intelligence and Machine Learning)
Programme Structure 2024-2028

<table>
<tr><td>1.</td><td>OBJECTIVE</td><td colspan="4">To generate competent manpower in the emerging areas of Artificial Intelligence 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 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">180</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>20</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, 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</td></tr>
</table>

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		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 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**	Annexure A: Bachelor of Technology (Artificial Intelligence and Machine Learning) Students may pursue optional 'Minor' specialization in one of the specialization areas by completing additional 20 credits in Semester: 5, 6 and 7 as specified in Annexure C for Minor in the respective specialization area. Annexure C: Optional 'Minor' specialization area 1.Computing 2.Security and Privacy 3.Aerial Robotics and Drone Technology 4.Automobile Engineering with Hybrid and Autonomous Technology 5.Computer Vision 6.Embedded Systems 7.Smart Cities and Urban Analytics			
10.	**FEE**		**Academic Fee p.a**	**Institute Deposit**	**Total**

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	Indian Students (Amount in INR)		330000	20000	350000
	International Students	**NRI/ PIO/ OCI Category (Amount in US$)**	6300	275	6575
		Foreign National Category (Amount in US$)	1300	275	1575
11.	**ASSESSMENT**	The courses will have 40% Continuous Assessment and 60% 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 (Artificial Intelligence and Machine Learning) OR Bachelor of Technology (Artificial Intelligence and Machine Learning) with Minor in Computing/ Security and Privacy/ Aerial Robotics and Drone Technology/ Automobile Engineering with Hybrid and Autonomous Technology / Computer Vision/ Embedded Systems / Smart Cities and Urban Analytics will be awarded at the end of semester 8 examination by taking into consideration the performance of all semester examinations after obtaining minimum 4.00 CGPA out of 10.00 CGPA.			

14. CLASSIFICATION OF CREDITS

Semester	Generic Core	Generic Elective	Specialisation Core	Specialisation Elective	Open Elective	Mandatory Non-Credit Course/s	Non-Credit Audit Course/s	Total
1	20	0	0	0	0	0	As per the student's choice	20
2	19	0	0	0	0	1 *		19
3	20	1	0	0	0	1 *		21
4	21	2	0	0	0	1 *		23
5	23	0	0	0	3	1 *		26
6	12	10	0	0	3	0		25
7	12	10	0	0	0	0		22
8	14	0	0	0	0	0		14
Total	**141**	**23**	**0**	**0**	**6**	**0**		**170**
Optional Additional Courses (Minor)								
Total	**0**	**0**	**0**	**20/17**	**0/3**	**0**	**0**	**20**
							Grand Total	**190**

* Satisfactory completion of non credit courses 'Health and Wellness Module I', 'Health and Wellness Module II', '*Vasudhaiva Kutumbakam*' and 'Environmental Science' is mandatory for award of degree.

The revised programme structure supersedes the previously approved programme structure dated 11/02/2026 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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Symbiosis Institute of Technology, Pune
Bachelor of Technology (Artificial Intelligence and Machine Learning)
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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													
TE7697	0701260101	Linear Algebra	BS		2	1	0	0	0	30	45	3	75
TE7545	0701260102	Chemistry	BS		2	0	0	0	0	20	30	2	50
TE7695	0701260103	Chemistry Lab	BS		0	0	2	10	15	0	0	1	25
T7540	0701260104	Basic Electrical and Electronics Engineering	ES		3	0	0	0	0	30	45	3	75
T7593	0701260105	Basic Electrical and Electronics Engineering Lab	ES		0	0	2	10	15	0	0	1	25
TEE7093	0701260106	Introduction to Artificial Intelligence and Python Programming	ES		3	0	0	0	0	30	45	3	75
TEE7092	0701260107	Introduction to Artificial Intelligence and Python Programming Lab	ES		0	0	2	10	15	0	0	1	25
T6732	0701260108	Critical Thinking	HS		1	0	0	0	0	25	0	1	25
TEE7098	0701260109	Cyber Security	PC		2	0	0	0	0	50	0	2	50
T2646	0701260110	Entrepreneurship Venture	HS		1	0	0	0	0	25	0	1	25
TE7300	0701260111	Tinker Lab	ES		0	0	4	50	0	0	0	2	50
				Total	**14**	**1**	**10**	**80**	**45**	**210**	**165**	**20**	**500**
Semester : 2													
Generic Core Courses													
TE7543	0701260201	Calculus	BS		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		
TE7540	0701260202	Physics	BS		2	0	0	0	0	20	30	2	50
TE7687	0701260203	Physics Lab	BS		0	0	2	10	15	0	0	1	25
TE7288	0701260204	Programming in C	ES		3	0	0	0	0	30	45	3	75
TE7289	0701260205	Programming in C Lab	ES		0	0	2	10	15	0	0	1	25
T7383	0701260206	Communication Skills	HS		2	0	0	0	0	20	30	2	50
T7384	0701260207	Communication skills lab	HS		0	0	2	10	15	0	0	1	25
T6873	0701260208	Creative Thinking	HS		1	0	0	0	0	25	0	1	25
TE7690	0701260209	Statistics for Data Science	BS		3	1	0	0	0	40	60	4	100
TE7748	0701260210	Software Tools for Artificial Intelligence and Machine Learning	BS		0	0	2	25	0	0	0	1	25
TE7188	0701260211	Environmental Science *			0	0	0	0	0	0	0	0	0
				Total	**13**	**2**	**8**	**55**	**45**	**165**	**210**	**19**	**475**
GIP													
G7004	0701260213	Global Immersion Programme			0	0	0	0	0	0	100	4	100

Note: For students under Global Immersion Programme (0701260213), courses "Communication Skills" (0701260206),"Communication skills lab" (0701260207),"Creative Thinking" (0701260208) will be waived off.

Semester : 3

Generic Core Courses

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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		
TE7699	0701260301	Probability and Random Processes	BS		2	1	0	0	0	30	45	3	75
TE7544	0701260302	Data Structures and Algorithms	PC		3	0	0	0	0	30	45	3	75
TE7546	0701260303	Data Structures and Algorithms Lab	PC		0	0	4	20	30	0	0	2	50
TEE7034	0701260304	Data Preprocessing and EDA Lab	PC		0	0	4	20	30	0	0	2	50
TEE7029	0701260305	Database Concepts for Data Science	ES		2	0	0	0	0	20	30	2	50
TEE7030	0701260306	Database Concepts for Data Science Lab	ES		0	0	4	20	30	0	0	2	50
T6749	0701260307	Design Thinking	HS		2	0	0	0	0	50	0	2	50
F7092	0701260308	Operating Systems	PC		3	0	0	0	0	75	0	3	75
F7093	0701260309	Operating Systems Lab	PC		0	0	2	25	0	0	0	1	25
TH4788	0701260310	Health and Wellness Module I *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					**12**	**1**	**14**	**85**	**90**	**205**	**120**	**20**	**500**
Generic Elective Courses Group (Choose any one course)													
T6872	0701260311	Foundation of Ethics	GE		1	0	0	0	0	25	0	1	25
T6760	0701260312	Introduction to Indian Philosophy	GE		1	0	0	0	0	25	0	1	25
Total Required Credits								**0**	**0**	**25**	**0**	**1**	**25**
Semester : 4													

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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		
Generic Core Courses													
T6774	0701260401	Principles of Economics	HS		2	0	0	0	0	50	0	2	50
F7119	0701260402	Programming Logic with Java	PC		3	0	0	0	0	75	0	3	75
F7120	0701260403	Programming Logic with Java Lab	PC		0	0	2	25	0	0	0	1	25
TE7499	0701260404	Supervised Machine Learning	PC		4	0	0	0	0	40	60	4	100
TE7500	0701260405	Supervised Machine Learning Lab	PC		0	0	4	20	30	0	0	2	50
TE7760	0701260406	Unsupervised Learning	PC		3	0	0	0	0	30	45	3	75
TE7761	0701260407	Unsupervised Learning Lab	PC		0	0	2	10	15	0	0	1	25
TE7290	0701260408	Project Based Learning -I	PIS		0	0	4	50	0	0	0	2	50
TE7542	0701260409	Discrete Mathematics	BS		2	1	0	0	0	30	45	3	75
TH4789	0701260410	Health and Wellness Module II *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
				Total	**14**	**1**	**12**	**105**	**45**	**225**	**150**	**21**	**525**
Generic Elective Courses Group (Choose any one course)													
T6184	0701260411	Basic German I	GE		2	0	0	0	0	50	0	2	50
T6186	0701260412	Basic French I	GE		2	0	0	0	0	50	0	2	50
T6188	0701260413	Basic Spanish I	GE		2	0	0	0	0	50	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 Required Credits								**0**	**0**	**50**	**0**	**2**	**50**
Semester : 5													
Generic Core Courses													
T8000	0701260501	Service Learning	HS		0	0	8	100	0	0	0	4	100
F7134	0701260502	Foundations of Agentic AI	PC		3	0	0	0	0	75	0	3	75
TE7753	0701260503	Deep Learning	PC		3	0	0	0	0	30	45	3	75
TE7754	0701260504	Deep Learning Lab	PC		0	0	2	10	15	0	0	1	25
TEE7101	0701260505	Natural Language Processing	PC		3	0	0	0	0	30	45	3	75
TEE7100	0701260506	Natural Language Processing Lab	PC		0	0	2	10	15	0	0	1	25
TE7663	0701260507	Data Visualization Lab	PC		0	0	4	20	30	0	0	2	50
TE7483	0701260508	Applications and use cases of Machine Learning	PC		0	0	4	20	30	0	0	2	50
TEE7033	0701260509	AI Ethics	PC		1	0	0	0	0	25	0	1	25
T7908	0701260510	Computer Networks	PC		3	0	0	0	0	30	45	3	75
SMC001	0701260511	*Vasudhaiva Kutumbakam* *			0	0	0	0	0	0	0	Mandatory Non-Credit Course	0
Total					**13**	**0**	**20**	**160**	**90**	**190**	**135**	**23**	**575**

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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		
Open Elective Courses Group (Choose any one course)													
TE7677	0701260512	Financial Mathematics	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7700	0701260513	Smart Materials	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7223	0701260514	Smart Urban Planning	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7240	0701260515	Water Resource Planning and Management	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7948	0701260516	Introduction to Cloud Computing	OE	Computer Science and Engineering	3	0	0	0	0	30	45	3	75
TE7952	0701260517	User Interface and Experience Design	OE	Computer Science and Engineering	3	0	0	0	0	30	45	3	75
TEE7018	0701260518	Engineering Simulation and Modeling Tools	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75
TE7428	0701260519	Introduction to Image Processing	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75
TE7810	0701260520	Industrial Revolution and Introduction of Industry 5.0	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
T7650	0701260521	Six Sigma	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
				Total Required Credits				**0**	**0**	**30**	**45**	**3**	**75**
Semester : 6													
Generic Core Courses													

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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		
TE7484	0701260601	Computer Vision	PC		3	0	0	0	0	30	45	3	75
TE7485	0701260602	Computer Vision Lab	PC		0	0	2	10	15	0	0	1	25
TE7565	0701260603	Reinforcement Learning	PC		3	0	0	0	0	30	45	3	75
TE7496	0701260604	Reinforcement Learning Lab	PC		0	0	2	10	15	0	0	1	25
T7802	0701260605	Capstone Course	PC		2	0	0	0	0	50	0	2	50
TE7291	0701260606	Project Based Learning-II	PIS		0	0	4	50	0	0	0	2	50
Total					**8**	**0**	**8**	**70**	**30**	**110**	**90**	**12**	**300**
Generic Elective Courses Group - I (Choose any one Group 'A' to 'C') Generic Elective Courses Group- A													
TE7490	0701260607	Generative Adversarial Networks	PE		3	0	0	0	0	30	45	3	75
TE7491	0701260608	Generative Adversarial Networks Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group- B													
TE7261	0701260609	Internet of Things	PE		3	0	0	0	0	30	45	3	75
TE7262	0701260610	Internet of Things Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group- C													
TEE7031	0701260611	Optimization Techniques for Machine Learning	PE		3	0	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		
TEE7032	0701260612	Optimization Techniques for Machine Learning Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group - II (Choose any one Group 'D' to 'F') Generic Elective Courses Group - D													
TE7562	0701260613	Speech Systems	PE		3	0	0	0	0	30	45	3	75
TE7563	0701260614	Speech Systems Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group- E													
TE7943	0701260615	Full Stack Development	PE		3	0	0	0	0	30	45	3	75
TE7942	0701260616	Full Stack Development Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group- F													
TE7536	0701260617	Embedded AI	PE		3	0	0	0	0	30	45	3	75
TE7535	0701260618	Embedded AI Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group - III (Choose any one course)													
T2585	0701260619	Organizational Behaviour	GE		2	0	0	0	0	50	0	2	50
TE7438	0701260620	History of Science and Technology	GE		2	0	0	0	0	50	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 Required Credits								**0**	**0**	**50**	**0**	**2**	**50**
Open Elective Courses Group (Choose any one course)													
TE7698	0701260621	Nanotechnology	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7676	0701260622	Executive Corporate Communication For Impact	OE	Applied Science	3	0	0	0	0	30	45	3	75
TE7195	0701260623	GIS Applications	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7203	0701260624	Intelligent Transportation Management	OE	Civil Engineering	3	0	0	0	0	30	45	3	75
TE7297	0701260625	Software Testing Tools	OE	Computer Science and Engineering	3	0	0	0	0	30	45	3	75
TE7756	0701260626	Open Source Technologies	OE	Computer Science and Engineering	3	0	0	0	0	30	45	3	75
T7584	0701260627	Printed Circuit Board (PCB) Design	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75
TE7334	0701260628	Introduction to Mechatronics	OE	Electronics and Telecommunication Engineering	3	0	0	0	0	30	45	3	75
TEE7044	0701260629	Data Modelling and Analytics for Battery Energy Storage Systems	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
TE7351	0701260630	3D Printing and Prototyping	OE	Mechanical Engineering	3	0	0	0	0	30	45	3	75
Total Required Credits								**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		
Semester : 7													
Generic Core Courses													
T7804	0701260701	B.Tech Project	PIS		0	0	8	40	60	0	0	4	100
TE7493	0701260702	Multimodal AI	PC		3	0	0	0	0	30	45	3	75
TE7494	0701260703	Multimodal AI Lab	PC		0	0	2	10	15	0	0	1	25
TE7552	0701260704	Big Data Analytics	PC		3	0	0	0	0	30	45	3	75
TE7554	0701260705	Big Data Analytics Lab	PC		0	0	2	10	15	0	0	1	25
		Total			**6**	**0**	**12**	**60**	**90**	**60**	**90**	**12**	**300**
Generic Elective Courses Group- I (Choose any one course)													
TE7534	0701260706	Healthcare informatics	PE		3	0	0	0	0	30	45	3	75
TEE7094	0701260707	Graph Neural Networks	PE		3	0	0	0	0	30	45	3	75
TE7551	0701260708	Block chain Technologies	PE		3	0	0	0	0	30	45	3	75
		Total Required Credits						**0**	**0**	**30**	**45**	**3**	**75**
Generic Elective Courses Group - II (Choose any one group A to C) **Generic Elective Courses Group - A**													
TE7564	0701260709	AI in Wireless Communications	PE		3	0	0	0	0	30	45	3	75
TE7561	0701260710	AI in Wireless Communications Lab	PE		0	0	2	10	15	0	0	1	25
		Total Required Credits						**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group - B													

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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		
TE7497	0701260711	Responsible AI	PE		3	0	0	0	0	30	45	3	75
TE7498	0701260712	Responsible AI Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group - C													
TE7941	0701260713	MLOps	PE		3	0	0	0	0	30	45	3	75
TE7940	0701260714	MLOps Lab	PE		0	0	2	10	15	0	0	1	25
Total Required Credits								**10**	**15**	**30**	**45**	**4**	**100**
Generic Elective Courses Group - III (Choose any one course)													
TE7560	0701260715	Robotic Process Automation	PE		3	0	0	0	0	30	45	3	75
TE7532	0701260716	Smart Society	PE		3	0	0	0	0	30	45	3	75
TE7533	0701260717	AI for Banking and Finance	PE		3	0	0	0	0	30	45	3	75
Total Required Credits								**0**	**0**	**30**	**45**	**3**	**75**
Semester : 8													
Generic Core Courses													
T7912	0701260801	Internship	PIS		0	0	24	120	180	0	0	12	300
T7802	0701260802	Seminar	PIS		0	0	4	20	30	0	0	2	50
Total					**0**	**0**	**28**	**140**	**210**	**0**	**0**	**14**	**350**

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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	6	14	20	500
Semester 2	2	17	19	475
Semester 3	7	14	21	525
Semester 4	10	13	23	575
Semester 5	8	18	26	650
Semester 6	6	19	25	625
Semester 7	0	22	22	550
Semester 8	0	14	14	350
Total	**39**	**131**	**170**	**4250**

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Optional 'Minor' Specialization

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													
Computing Specialisation Core Courses													
TE7248	0701260522	Cloud Computing	PC		3	0	0	0	0	30	45	3	75
TE7250	0701260523	Cloud Environment in Public Model	PC		3	0	0	0	0	30	45	3	75
		Total			**6**	**0**	**0**	**0**	**0**	**60**	**90**	**6**	**150**
Semester : 5													
Security and Privacy Specialisation Core Courses													
TE7296	0701260524	Software Security	PC		3	0	0	0	0	30	45	3	75
TE7301	0701260525	Usable Security	PC		3	0	0	0	0	30	45	3	75
		Total			**6**	**0**	**0**	**0**	**0**	**60**	**90**	**6**	**150**
Semester : 5													
Aerial Robotics and Drone Technology Specialisation Core Courses													
TE7850	0701260526	Introduction to Aerial Robotics and Drones	PC		3	0	0	0	0	30	45	3	75
TE7864	0701260527	Motion Planning and Control	PC		2	0	0	0	0	20	30	2	50
TE7865	0701260528	Motion Planning and Control lab	PC		0	0	2	10	15	0	0	1	25

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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	**5**	**0**	**2**	**10**	**15**	**50**	**75**	**6**	**150**
Semester : 5													
Automobile Engineering with Hybrid and Autonomous Technology Specialisation Core Courses													
TE7355	0701260529	Basics of Automotive Engineering	PE		3	0	0	0	0	30	45	3	75
TE7665	0701260530	Automotive Electronics and Instrumentation	PE		2	0	0	0	0	50	0	2	50
TE7666	0701260531	Automotive Vehicle Dynamics and NVH Lab	PE		0	0	2	10	15	0	0	1	25
				Total	**5**	**0**	**2**	**10**	**15**	**80**	**45**	**6**	**150**
Semester : 5													
Computer Vision Specialisation Core Courses													
TE7328	0701260532	Image Processing	PC		3	0	0	0	0	30	45	3	75
TE7329	0701260533	Image Processing Lab	PC		0	0	2	10	15	0	0	1	25
T3560	0701260534	Computer Vision	PC		3	0	0	0	0	30	45	3	75
				Total	**6**	**0**	**2**	**10**	**15**	**60**	**90**	**7**	**175**
Semester : 5													
Embedded Systems Specialisation Core Courses													

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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		
TEE7047	0701260535	Microcontrollers and Embedded C Programming	PC		3	0	0	0	0	30	45	3	75
TEE7046	0701260536	Microcontrollers and Embedded C Programming Lab	PC		0	0	2	10	15	0	0	1	25
TE7991	0701260537	Automotive Embedded System	PC		3	0	0	0	0	30	45	3	75
				Total	**6**	**0**	**2**	**10**	**15**	**60**	**90**	**7**	**175**
Semester : 5													
Smart Cities and Urban Analytics Specialisation Core Courses													
TE7206	0701260538	IOT for Smart Cities	PC		3	0	0	0	0	30	45	3	75
TE7220	0701260539	Smart Cities : Context Policy and Governance	PC		3	0	0	0	0	30	45	3	75
TE7207	0701260540	IOT for Smart Cities Lab	PC		0	0	2	10	15	0	0	1	25
				Total	**6**	**0**	**2**	**10**	**15**	**60**	**90**	**7**	**175**
Semester : 6													
Computing Specialisation Core Courses													
TE7246	0701260631	Block Chain	PC		4	0	0	0	0	40	60	4	100
TE7249	0701260632	Cloud Computing Platforms	PC		3	0	0	0	0	30	45	3	75
				Total	**7**	**0**	**0**	**0**	**0**	**70**	**105**	**7**	**175**

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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		
Semester : 6													
Security and Privacy Specialisation Core Courses													
TE7252	0701260633	Cryptography	PC		4	0	0	0	0	40	60	4	100
TE7258	0701260634	Hardware Security	PC		3	0	0	0	0	30	45	3	75
		Total			**7**	**0**	**0**	**0**	**0**	**70**	**105**	**7**	**175**
Semester : 6													
Aerial Robotics and Drone Technology Specialisation Core Courses													
TE7884	0701260635	Robotics Mobility and Perception	PC		3	0	0	0	0	30	45	3	75
TE7883	0701260636	Robotics Estimation and Learning	PC		2	0	0	0	0	20	30	2	50
TE7866	0701260637	Navigation and Communication Lab	PC		0	0	4	20	30	0	0	2	50
		Total			**5**	**0**	**4**	**20**	**30**	**50**	**75**	**7**	**175**
Semester : 6													
Automobile Engineering with Hybrid and Autonomous Technology Specialisation Core Courses													
TE7669	0701260638	Hybrid Technology	PE		2	0	0	0	0	20	30	2	50
F0002	0701260639	Flexi-Credit Course	PE		2	0	0	0	0	50	0	2	50
TE7435	0701260640	Automotive Engine and Transmission System	PE		3	0	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	**7**	**0**	**0**	**0**	**0**	**100**	**75**	**7**	**175**
Semester : 6													
Computer Vision Specialisation Core Courses													
TEE7065	0701260641	Artificial Intelligence/Machine Learning based Computer Vision Techniques	PC		3	0	0	0	0	30	45	3	75
TEE7063	0701260642	Artificial Intelligence/Machine Learning based Computer Vision Techniques Lab	PC		0	0	2	10	15	0	0	1	25
TEE7064	0701260643	Object Detection and Tracking	PC		3	0	0	0	0	30	45	3	75
				Total	**6**	**0**	**2**	**10**	**15**	**60**	**90**	**7**	**175**
Semester : 6													
Embedded Systems Specialisation Core Courses													
TEE7042	0701260644	Model Based Design	PC		3	0	0	0	0	30	45	3	75
TEE7048	0701260645	Embedded Cyber Security	PC		3	0	0	0	0	30	45	3	75
TEE7040	0701260646	Model Based Design Laboratory	PC		0	0	2	10	15	0	0	1	25
				Total	**6**	**0**	**2**	**10**	**15**	**60**	**90**	**7**	**175**
Semester : 6													

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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		
Smart Cities and Urban Analytics Specialisation Core Courses													
T7802	0701260647	Specialization Project	PIS		0	0	4	50	0	0	0	2	50
T7802	0701260648	Specialization Seminar	PIS		0	0	4	50	0	0	0	2	50
TE7177	0701260649	Application of Sensor Technology to Smart Cities	PE		3	0	0	0	0	30	45	3	75
				Total	**3**	**0**	**8**	**100**	**0**	**30**	**45**	**7**	**175**
Semester : 7													
Computing Specialisation Core Courses													
T7805	0701260718	Specialization Project	PC		0	0	10	50	75	0	0	5	125
T7802	0701260719	Specialization Seminar	PIS		0	0	4	20	30	0	0	2	50
				Total	**0**	**0**	**14**	**70**	**105**	**0**	**0**	**7**	**175**
Semester : 7													
Security and Privacy Specialisation Core Courses													
T7805	0701260718	Specialization Project	PIS		0	0	10	50	75	0	0	5	125
T7802	0701260719	Specialization Seminar	PIS		0	0	4	20	30	0	0	2	50
				Total	**0**	**0**	**14**	**70**	**105**	**0**	**0**	**7**	**175**

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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		
Semester : 7													
Aerial Robotics and Drone Technology Specialisation Core Courses													
T7805	0701260718	Specialization Project	PIS		0	0	10	50	75	0	0	5	125
T7802	0701260719	Specialization Seminar	PIS		0	0	4	20	30	0	0	2	50
		Total			**0**	**0**	**14**	**70**	**105**	**0**	**0**	**7**	**175**
Semester : 7													
Automobile Engineering with Hybrid and Autonomous Technology Specialisation Core Courses													
T7805	0701260718	Specialization Project	PIS		0	0	10	50	75	0	0	5	125
T7802	0701260719	Specialization Seminar	PIS		0	0	4	20	30	0	0	2	50
		Total			**0**	**0**	**14**	**70**	**105**	**0**	**0**	**7**	**175**
Semester : 7													
Computer Vision Specialisation Core Courses													
T7802	0701260720	Specialization Project	PIS		0	0	4	20	30	0	0	2	50
T7804	0701260721	Specialization Seminar	PIS		0	0	8	40	60	0	0	4	100
		Total			**0**	**0**	**12**	**60**	**90**	**0**	**0**	**6**	**150**

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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		
Semester : 7													
Embedded Systems Specialisation Core Courses													
T7802	0701260720	Specialization Project	PIS		0	0	4	20	30	0	0	2	50
T7804	0701260721	Specialization Seminar	PC		0	0	8	40	60	0	0	4	100
				Total	**0**	**0**	**12**	**60**	**90**	**0**	**0**	**6**	**150**
Semester : 7													
Smart Cities and Urban Analytics Specialisation Core Courses													
T7803	0701260722	Specialization Project	PIS		0	0	6	30	45	0	0	3	75
				Total	**0**	**0**	**6**	**30**	**45**	**0**	**0**	**3**	**75**
Specialisation Elective : Smart Cities and Urban Analytics (Choose any one course)													
TE7234	0701260723	Urban Hydrology and Hydraulics	PE		3	0	0	0	0	30	45	3	75
TE7205	0701260724	Intelligent Transportation Systems	PE		3	0	0	0	0	30	45	3	75
				Total Required Credits				**0**	**0**	**30**	**45**	**3**	**75**

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Semester	Continuous Assessment	Term End Examination	Total Credits	Total Marks
Computing				
Semester 5	0	6	6	150
Semester 6	0	7	7	175
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**
Security and Privacy				
Semester 5	0	6	6	150
Semester 6	0	7	7	175
Semester 7	0	7	7	175
Total	**0**	**20**	**20**	**500**
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**
Automobile Engineering with Hybrid and Autonomous Technology				
Semester 5	2	4	6	150
Semester 6	2	5	7	175
Semester 7	0	7	7	175
Total	**4**	**16**	**20**	**500**
Computer Vision				
Semester 5	0	7	7	175
Semester 6	0	7	7	175

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Semester 7	0	6	6	150
Total	**0**	**20**	**20**	**500**
Embedded Systems				
Semester 5	0	7	7	175
Semester 6	0	7	7	175
Semester 7	0	6	6	150
Total	**0**	**20**	**20**	**500**
Smart Cities and Urban Analytics				
Semester 5	0	7	7	175
Semester 6	4	3	7	175
Semester 7	0	6	6	150
Total	**4**	**16**	**20**	**500**