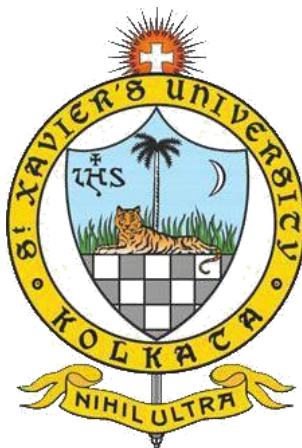St. Xavier's University, Kolkata

Curriculum for

**B. Tech. in Computer Science and Engineering with
Artificial Intelligence and Machine Learning (CSE AI-ML)**

S.No	Course Type	Course Title	Hours per week			Credits
		Semester I	L	T	P	
1.	BSC	Chemistry	3	1	2	5
2.	BSC	Mathematics-I	3	1	0	4
3.	ESC	Programming and Problem solving	3	0	2	4
4.	PCC	Computer Organization & Architecture	3	0	4	5
5.	HSMC	Universal Human Values: Understanding Harmony and Ethical Human Conduct	2	1	0	3
6.	HSMC	Design Thinking	0	0	2	1
		Total		27		22

S.No	Course Type	Course Title	Hours per Week			Credits
		Semester II	L	T	P	
1.	BSC	Physics	3	1	2	5
2.	BSC	Mathematics-II	3	1	0	4
3.	ESC	Mathematical Concepts for Artificial	3	1	0	4

		Intelligence				
4.	PCC	Discrete Mathematics	3	0	0	3
5.	PCC	Data Structure and Algorithms	3	0	4	5
6.	HSMC	Communicative English	2	0	2	3
Total				28		24

Semester III						
S.No	**Course Type**	**Course Title**	**Hours per Week**			**Credits**
			L	**T**	**P**	
1.	PCC	Design and Analysis of Algorithm	3	0	2	4
2.	PCC	Operating Systems	3	0	2	4
3.	PCC	Software Engineering	2	0	2	3
4.	PCC	Introduction to Database System	3	0	2	4
5.	PCC	Soft Computing	2	0	2	3
6.	PCC	Artificial Intelligence	3	0	2	4
Total				28		22

Semester IV						
S.No	**Course Type**	**Course Title**	**Hours per Week**			**Credits**
			L	**T**	**P**	
1.	PCC	Computer Network	3	0	2	4
2.	PCC	Machine Learning	3	0	2	4
3.	PCC	Theory of Computation	3	1	0	4
4.	PCC	Microcontroller and Embedded System	3	0	2	4
5.	PCC	Object Oriented Programming using Java	3	0	4	5
6.	HSMC	Organization Behavior	3	0	0	3
Total				29		24

Semester V

S.No	Course Type	Course Title	L	T	P	Credits
			Hours per Week			
1.	PCC	Advanced Machine Learning	3	0	2	4
2.	PCC	Natural Language Processing	3	0	2	4
3.	PCC	Data and Visual Analytics in Artificial Intelligence / Optimization Techniques in Machine Learning	2	0	2	3
4.	PEC	Big Data Analytics / Statistical Thinking for Data Science	3	0	2	4
5.	MC	Constitution of India / Introduction to Indian Knowledge System	0	0	0	0
Total			19			15

Semester VI

S.No	Course Type	Course Title	L	T	P	Credits
			Hours per Week			
1.	PCC	Deep Learning	3	0	2	4
2.	PEC	Machine Learning for Data Science / Data Visualization	3	0	2	4
3.	PEC	Artificial Intelligence in Health Care / Bio Informatics	2	0	2	3
4.	OEC	Robotics / Internet of Things	3	0	2	4
3.	OEC	Statistical Analysis using Python / Basic Quantum Computing	1	0	4	3
6.	PROJ	MOOC Course	0	0	0	4
Total			24			22

Semester VII

S.No	Course Type	Course Title	L	T	P	Credits
			Hours per Week			
1.	PEC	Deep Learning for Computer Vision	3	0	2	4
2.	PROJ	Project I	0	0	14	7
3.	PROJ	Industry/Research Lab	0	0	0	8
Total			19			19

Semester VIII

S.No	Course Type	Course Title	L	T	P	Credits
			Hours per Week			
1.	PEC	Pattern Recognition	2	0	2	3
2.	PROJ	General Viva Voce	0	0	0	2
3.	PROJ	Project II	0	0	18	9
4.	PROJ	Industry/Research Lab	0	0	0	6
5.	PROJ	Technical Seminar	0	0	0	2
Total			22			22