

## School of Artificial Intelligence

<b>Scheme For Bachelor of Science (B.Sc) Artificial Intelligence In Healthcare AI and Bioinformatics</b>											
<b>Semester – I</b>											
S.No .	Code	Title	L	T	P	S	H	C	Category		
1		Computational Thinking with Python	2	0	1	0	4	3	SEC		
2		Mathematics for Intelligent System	3	0	0	0	3	3	IDC		
3		Database Management System	3	0	1	0	5	4	DSM		
4		Foundation of Artificial Intelligence	3	0	1	0	5	4	DSC		
5		Data Preprocessing and Exploratory Data Analysis	1	0	1	0	3	2	VAC		
6		Communication Skills	2	0	0	0	2	2	AEC		
7		Innovation Lab	0	0	2	0	4	2	VAC		
	Credits in Semester-I		1	0	6	0	2	20			
			4				6				
<b>Semester – II</b>											
S.No .	Code	Title	L	T	P	S	H	C			
1		Problem Solving using C programming	3	0	1	0	5	4	DSM		
2		Machine Learning	3	0	1	0	5	4	DSC		
3		Fundamentals of Operating Systems	2	0	1	0	4	3	IDC		
4		Next Generation application Lab	0	0	2	0	4	2	AEC		
5		Environment and Sustainability	2	0	0	0	2	2	VAC		
6		Statistics for Data Science	2	0	1	0	4	3	SEC		
7		Indian Knowledge system	2	0	0	0	2	2	VAC		
	Credits in Semester-II		1	0	6	0	2	20			
			4				6				
Note: Students who choose to exit after the second semester and have earned 40 credits will be eligible for the award of a “Certificate in Artificial Intelligence”, subject to successful completion of an additional 4-credit vocational course offered during the summer term.											
<b>Semester – III</b>											
S.No .	Code	Title	L	T	P	S	H	C			
1		Problem Solving using Data Structures	3	0	1	0	5	4	DSC		
2		Deep Learning	3	0	1	0	5	4	DSC		
3		Natural Language Processing	2	0	1	0	4	3	DSC		
4		General Elective 1	2	0	1	0	4	3	SEC		
5		Specialization Core 1	3	0	1	0	5	4	DSC		

6	Ethics, Patents, Copyrights and IPR	2	0	0	0	2	2	AEC
	Credits in Semester-III	1 5	0	5	0	2 5	20	
<b>Semester – IV</b>								
S.No .	Code	Title	L	T	P	S	H	C
1		Generative AI	3	0	1	0	5	4
2		Cloud Computing fundamentals for AI	3	0	1	0	5	4
3		Design and Analysis of Algorithms	3	0	1	0	5	4
4		General Elective 2	2	0	1	0	4	3
5		Specialization Core 2	3	0	1	0	5	4
6		Industry Certification	0	0	0	1	2	1
	Credits in Semester-IV	1 4	0	5	2	2 6	20	

Students exiting at the end of the fourth semester and earning 80 credits will be awarded a “Diploma in Artificial Intelligence,” provided they successfully complete the additional 4 credits of vocational courses offered during the summer term.

<b>Semester – V</b>								
S.No .	Code	Title	L	T	P	S	H	Cr
1		MLOPs	3	0	1	0	5	4
2		Computer Network	2	0	1	0	4	3
3		Comptitive Programming	2	0	1	0	4	3
4		Specialization Elective 1	3	0	1	0	5	4
5		Specialization Elective 2	3	0	1	0	5	4
6		Summer Internship	0	0	0	2	4	2
	Credits in Semester-V	1 3	0	5	2	2 7	20	

#### Semester – VI

S.No .	Code	Title	L	T	P	S	H	Cr
1		Industrial Project/R&D Project/Start-up Project	0	0	5	5	1 0	10
2		Specialization Elective 3	3	0	1	0	5	4
3		Open Elective 1	2	0	1	0	4	3
4		Open Elective 2	2	0	1	0	4	3
	Credits in Semester-VI		7	0	8	0	2 3	20

Students exiting at the end of the sixth semester and earning 120 credits will be awarded a “Bachelor of Science (Artificial Intelligence)” degree.

<b>Semester – VII ( Hounors)</b>								
S.No .	Code	Title	L	T	P	S	H	Cr
1		Reinforcement Learning Concepts and Applications	3	0	1	0	5	4
2		AI for Computer Vision	3	0	1	0	5	4

3	Intelligent Model Design using AI	3	0	1	0	5	4	DSC
4	Emerging Topics in Artificial Intelligence	4	0	0	0	4	4	DSC
5	Seminar on Emerging AI Technology for Society	2	0	0	2	6	4	DSM
	Credits in Semester-VII	1 5	0	3	2	2 5	20	

#### Semester – VIII

S.No	Code	Title	L	T	P	S	H	Cr	
1		Capstone Project / Professional Internship	0	0	0	1 2	2 4	12	Project/ Internship
2		AI for Agriculture	4	0	0	0	4	4	DSC
3		AI for Healthcare	4	0	0	0	4	4	DSC
		Credits in Semester-VIII	8	0	0	2 0	4 0	20	

Total credits from semester I to VIII

160

#### Semester – VII ( Hounors with Reseach )

S.No	Code	Title	L	T	P	S	H	Cr	
1		Undergraduate Research in Artificial Intelligence	0	0	0	6	1 2	6	DSC
2		Research Methodology	4	0	0	0	4	4	DSC
3		AI in Healthcare	3	0	0	0	3	3	DSC
4		AI for Society	3	0	0	0	3	3	DSC
5		Seminar on Emerging AI Technology for Society	4	0	0	0	4	4	DSM
		Credits in Semester-VII	1 4	0	0	6	2 6	20	

#### Semester – VIII

S.No	Code	Title	L	T	P	S	H	Cr	
1		Research Project	0	0	0	1 2	2 4	12	Research
2		AI for Agriculture	4	0	0	0	4	4	DSC
3		AI for Robotics	4	0	0	0	4	4	DSC
		Credits in Semester-VIII	8	0	4 0	1 2	3 2	20	

Total Credits at the end of Fourth year for Bachelor of Science (Artificial Intelligence)-Honours – 160

1	<b>Specilization- Digital Twin and XR ( Extended Reality)</b>								
	<b>Course</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>S</b>	<b>H</b>	<b>C</b>		
	1	Foundations of Digital Twin Systems	3	0	1	0	5	4	CORE1

	2	Extended Reality (XR) Technologies and Applications	3	0	1	0	5	4	CORE2
	3	IoT and Edge Computing for Digital Twins	3	0	1	0	5	4	Elective 1
	4	3D Modelling and Simulation for XR	3	0	1	0	5	4	Elective 1
	5	Unity/Unreal Engine for XR Development	3	0	1	0	5	4	Elective 2
	6	AI and Machine Learning for Predictive Digital Twins	3	0	1	0	5	4	Elective 2
	7	Human-Computer Interaction in Immersive Environments	3	0	1	0	5	4	Elective 3
	8	Ethics, Privacy, and Security in XR and Digital Twin Systems	3	0	1	0	5	4	Elective 3
2	<b>Specilization- Agentic AI</b>								
	1	Foundations of Agentic AI Systems	3	0	1	0	5	4	CORE1
	2	Design and Development of Autonomous Agents	3	0	1	0	5	4	CORE2
	3	Multi-Agent Systems and Collaboration	3	0	1	0	5	4	Elective 1
	4	Cognitive Architectures for Intelligent Agents	3	0	1	0	5	4	Elective 1
	5	Reinforcement Learning for Agentic Behavior	3	0	1	0	5	4	Elective 2
	6	Human-Agent Interaction and Trustworthy AI Agents	3	0	1	0	5	4	Elective 2
	7	Agentic AI in Digital Twins and Simulated Environments	3	0	1	0	5	4	Elective 3
	8	Ethics, Governance, and Regulation of Autonomous Agents	3	0	1	0	5	4	Elective 3
3	<b>Specialization: Robotics and Intelligent Systems</b>								
	1	Microcontroller & Robot Operation System	3	0	1	0	5	4	CORE1
	2	Artificial Intelligence for Robotics	3	0	1	0	5	4	CORE2
	3	Mobile Robots	3	0	1	0	5	4	Elective 1
	4	Humanoid Robots	3	0	1	0	5	4	Elective 1
	5	Cognitive Robotics	3	0	1	0	5	4	Elective 2
	6	Bio-Inspired Robotics	3	0	1	0	5	4	Elective 2
	7	Robot Vision and Perception	3	0	1	0	5	4	Elective 3
	8	Assistive Robotics	3	0	1	0	5	4	Elective 3
4	<b>Specialization : Data Science and Advanced Analytics</b>								
	1	Data Visualization and Dashboards	3	0	1	0	5	4	CORE1
	2	Time Series Analysis	3	0	1	0	5	4	CORE2
	3	Big Data Analytics and Business Intelligence	3	0	1	0	5	4	Elective 1
	4	Optimization Theory	3	0	1	0	5	4	Elective 1
	5	Data Analytics using R	3	0	1	0	5	4	Elective 2
	6	Geo-Spatial Data Analysis	3	0	1	0	5	4	Elective 2
	7	Social Network Analysis	3	0	1	0	5	4	Elective 3

	8	Cloud Platforms for Data Science	3	0	1	0	5	4	Elective 3
5	<b>Specialization : Agritech and Smart Farming</b>								
	1	AI for Precision Agriculture	3	0	1	0	5	4	CORE1
	2	IoT and Remote Sensing in Agriculture	3	0	1	0	5	4	CORE2
	3	Climate-Smart Agriculture	3	0	1	0	5	4	Elective 1
	4	Data Analytics for Crop Yield Prediction	3	0	1	0	5	4	Elective 1
	5	Blockchain and Supply Chain Management in Agritech	3	0	1	0	5	4	Elective 2
	6	Agri-Biotech and AI Applications	3	0	1	0	5	4	Elective 2
	7	Financial Technologies (Fintech) in Agriculture	3	0	1	0	5	4	Elective 3
	8	Agricultural Robotics and Automation	3	0	1	0	5	4	Elective 3
6	<b>Specialization : Healthcare AI and Bioinformatics</b>								
	1	AI for Medical Diagnosis and Decision Support	3	0	1	0	5	4	CORE1
	2	Healthcare Data Analytics and Informatics	3	0	1	0	5	4	CORE2
	3	Medical Imaging and Computer Vision	3	0	1	0	5	4	Elective 1
	4	Wearable Devices and Remote Patient Monitoring	3	0	1	0	5	4	Elective 1
	5	Natural Language Processing in Healthcare	3	0	1	0	5	4	Elective 2
	6	AI in Drug Discovery and Personalized Medicine	3	0	1	0	5	4	Elective 2
	7	Robotics in Surgery and Rehabilitation	3	0	1	0	5	4	Elective 3
	8	Ethical, Legal, and Regulatory Aspects in Healthcare AI	3	0	1	0	5	4	Elective 3
<b>General Electives:</b>									
S.No .	Code	Title	L	T	P	S	H	Cr	
		Soft Computing	2	0	1	0	4	3	Elective 1
		Prompt Engineering	2	0	1	0	4	3	Elective 1
		Advances in AI	2	0	1	0	4	3	Elective 2
		Image and Video Processing	2	0	1	0	4	3	Elective 2
		Big Data Analytics and Business Intelligence	2	0	1	0	4	3	Elective 3
		AI and Society	2	0	1	0	4	3	Elective 3
<b>School's Open Elective : (Other schools' students can opt )</b>									
		Applications of AI	3	0	0	0	3	3	Open Elective
		AI Tools for society	3	0	0	0	3	3	Open Elective