Bridge Course in Artificial Intelligence (AI)

COURSE OUTLINE

S. No	Topic		Min No. of Hours	
			Theory	Online/e-Labs
1	Data Science and Programming Tools		14	20
	1.1	Python Data Types and Language Basics, Python Functions, Modules and Packages, Object Oriented Programming in Python		
	1.2	Introduction to Database Management System & SQL, Database Interaction in Python		
	1.3	Structured and Unstructured Data		
	1.4	Descriptive Statistics		
	1.5	Probability Distribution Function		
	1.6	Data Visualization - Types of Graphs		
	1.7	Data Analysis & Visualization - Using Popular Python Packages		
	1.8	Data Preprocessing		
2	Machine Learning		10	16
	2.1	Supervised, Unsupervised and Semisupervised Learning		
	2.2	Classification, Regression & Clustering		
	2.3	Linear Algebra		
	2.4	Machine Learning Algorithms		
	2.4.1	Linear Regression		
	2.4.2	KNN		
	2.4.3	K Means		
	2.4.4	Logistic Regression		
	2.4.5	Support Vector Machine		
	2.4.6	Decision Tree		
	2.4.7	Naïve Bayes, etc		
	2.5	Ensemble Methods - Random Forest, Boosting and Optimization, etc. Model Evaluation Metrics		
	2.6	Overview of reinforcement learning		
	2.7	Overview of active learning		
3	Deep Learning & Natural Language Processing		12	18
	3.1	Deep Learning Concepts		
	3.1.1	Artificial Neural Network		
	3.2	Deep Neural Networks		
	3.2.1	Convolutional Neural Network		
	3.2.2	Recurrent Neural Network		
	3.2.3	OpenCV		
	3.3	Natural Language Processing Methods		
	3.3.1	Basics of Text Processing		
	3.3.2	Lexical Processing		
	3.3.3	Parts of Speech Tagging		
	3.3.4	NLP Applications		
4	Project		12	18
		The participants will be doing an industry relevant project using real data		
	Total Hours		48	72
			120	