Type of course: Core

Prerequisite: Knowledge of Python

Rationale: With the usage of Internet and World Wide Web increasing day by day, the field of AI and its techniques are being used in many areas which directly affect human life. Various Algorithms are used for classification and regression to solve real world problems. Various learning for classify and prediction of data is important such as supervised learning & unsupervised learning .To improve the performance of system ensemble learning is also important in the field of ML.

Teaching and Examination Scheme:

Teaching Scheme		Credits		Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	2	2	-	-	30	20	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Experiments to be covered based on the theory covered in class

Content:

Sr. No.	Content	Teaching Hrs.	% Weightage
1	Implement Principal Component Analysis. (PCA).	2	15
2	Implement Linear regression on any dataset.	4	15
3	Implement Logistic Regression on any dataset.	4	15
4	Implement a Decision Tree Algorithm for cancer dataset.	4	15
5	Implement Random Forest on cancer dataset	4	10
6	Implement SVM Classification on cancer dataset.	4	10
7	Implement k-means clustering algorithm.	2	10
8	Implement KNN Algorithm.	4	10
	Total	28	100

Reference Books:

1. Saroj Kaushik, Artificial Intelligence, Cengage Learning, 1st Edition 2011.
2. Anindita Das Bhattacharjee, "Practical Workbook Artificial Intelligence and Soft Computing forbeginners, Shroff Publisher-X team Publisher.
3. Yuxi (Hayden) Liu, "Python Machine Learning by Example", Packet Publishing Limited, 2017.
4. Tom Mitchell, Machine Learning, McGraw Hill, 2017.
5. Christopher M. Bishop, Pattern Recognition and Machine Learning, Springer, 2011.
6. T. Hastie, R. Tibshirani, J. Friedman, The Elements of Statistical Learning, 2e, 2011.

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand and Apply the knowledge of Dimensionality reduction	10
CO-2	Understand and Apply the knowledge to implement regression problems.	20
CO-3	Understand the concepts of supervised learning to classify real world problem.	45
CO-4	Understand and Apply the knowledge of ensemble learning to implement basic classification algorithm.	15
CO-5	Understand and Apply the knowledge of unsupervised algorithms.	10

List of Open Source Software/learning website:

Students must refer to following sites to enhance their learning ability.

- https://www.datacamp.com
- https://www.edx.org/
- https://medium.com/
- https://www.ibm.com/topics/machine-learning