

Semester		
Course	Minor – ARTIFICIAL INTELLIGENCE	
Paper Code		
Paper Title	Machine Learning	
No. of Credits	4	
Theory/ Practical / Composite	Composite	
Minimum no. of preparatory hours per week a student have to devote	5	
Number of Modules	One	
Syllabus	<ol style="list-style-type: none"> 1. Introduction to Machine Learning: Definitions; Types of learning. 2. Data Preprocessing: Overview; Data cleaning; Data Integration; Data Reduction. 3. Associative Rule Mining: Mining Frequent Patterns: Frequent itemset, Closed itemset, Association rules; Apriori algorithm. 4. Regression: Linear regression; Logistic regression; Polynomial regression; Applications. 5. Classification: Introduction; Decision Tree; Naive Bayes classifier; Error Estimation Metrics 6. Clustering: Introduction to Partitioning methods and its variants 7. Practical: Using Python 	
Learning outcomes	<p>After completing this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Understand the fundamentals of machine learning, including its definitions and different types of learning paradigms. 2. Apply data preprocessing techniques such as cleaning, integration, and reduction to prepare datasets for analysis. 3. Implement associative rule mining techniques, including frequent itemset generation and the Apriori algorithm, for pattern discovery. 4. Develop regression and classification models using techniques such as linear regression, logistic regression, decision trees, and Naïve Bayes. 5. Utilize Python to implement clustering methods, classification algorithms, and regression techniques for real-world data analysis. 	
Reading / Reference List	<ol style="list-style-type: none"> 1. Introduction to Machine Learning by Ethem Alpaydin. 2. Machine Learning by Tom M. Mitchell. 3. Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow, Aurélien Géron, O'Reilly Media 	
Evaluation	Theory CIA: 12 Attendance: 3 Semester Exam: 45	Practical CA: 38 Attendance: 2
Paper Structure for Theory Semester Exam	Answer 3 out of 5 of 15 marks each	