DEPARTMENT OF COMPUTER APPLICATIONS

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	Master of Computer Applications		
Course Title	Data Mining Lab		
Course Code	CA 721	No. of Credits	2
Course Code of Pre-requisite subject(s)	-		
Session	July 2023	Section (If applicable)	-
Name of Faculty	Ms. K. Bakiya	Department	Computer Applications
E-mail	405121051@nitt.edu	Mobile No.	8248473706
PAC Chairperson	Dr. Sindhia Lingaswamy		
E-mail	sindhia@nitt.edu	Telephone No.	9940220299
Course Type	Core course		

SYLLABUS (approved in BoS)

Exercises to implement

- Understand the datasets and data preprocessing using ETL tools.
- Demonstrate the working of algorithms for data mining tasks such as association rule mining, classification, regression and, clustering.

COURSE OBJECTIVES

- To understand fundamental concepts and techniques of various Data mining algorithms, classification, clustering and Regression techniques using python and ETL Tools.

COURSE OUTCOMES (CO)

Course Outcomes	**Aligned Programme Outcomes (PO)**
Students will be able to:	
1. Work with ETL Tools	1, 2, 3
2. Demonstrate the classification, clustering and other mining techniques in large datasets	4, 5
3. Ability to add mining algorithms as a component to the existing tools	2, 4, 5
4. Ability to apply mining techniques for real time data	1, 3, 5

COURSE PLAN – PART II

COURSE OVERVIEW

The Course helps the students to acquire knowledge and skills of Data mining algorithms with machine learning libraries and Weka Tool.

COURSE TEACHING AND LEARNING ACTIVITIES			
S. No.	**Week/ Contact Hours**	**Topic**	**Mode of Delivery**
1	Week 1	Introduction on basic preprocessing techniques (Using Pandas & Scikit Learn)	Python
2	Week 2	Frequent Pattern Mining Algorithms Apriori Algorithm	Python
3	Week 3	FP-growth Algorithm	Python
4	Week 4	Classification using (i) Naïve baye's algorithm (ii) Random forest algorithm	Python/Weka Tool
5	Week 5	Assessment - 1	Exam/Demo
6	Week 6	Classification using (i) SVM (ii) Decision Tree – ID3 algorithm	Python/Weka Tool
7	Week 7	Classification based on Ensemble Model	Python/Weka Tool
8	Week 8	Prediction based on clustering using (i) K-means clustering (ii) Hierarchical clustering	Python/Weka Tool
9	Week 9	Outlier detection & Handling in datasets	Python
10	Week 10	Assessment - 2	Exam/Demo
11	Week 11	Dimensionality reduction techniques using PCA	Python
12	Week 12	(i) Split Dataset into train and test using Scikit learn (ii) K-Fold cross validation	Python

COURSE ASSESSMENT METHODS

S.No	Mode of Assessment	Week/Date	Duration	Weightage%
1	Assessment 1	Week 5	2hrs 30mins	20%
2	Assessment 2	Week 10	2hrs 30mins	20%
3	VIVA-VOCE & maintenance of Lab Observation note book	Every Week	-	10%
4*	Compensation Assessment	As per academic schedule	2hrs 30mins	20%
5	Final Assessment	As per academic schedule	3 Hours	50%

COURSE EXIT SURVEY

- The students may give their feedback at any time to the course teacher.
- The students may also give their feedback during Class Committee Meetings.

COURSE POLICY

- **Exam Policy:** Each student is required to take all exams at the scheduled times. All exceptions must be cleared with the professors prior to the exam time. Exams missed for insufficient reason and without being cleared with the professor (prior to the exam time) will be assigned a score of zero mark.
- **Compensation Assessment: One compensation assessment will be conducted to the absentees is mandatory. Only genuine cases of absence shall be considered.**

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- 75% of attendance has to be maintained..
- 10% shall be allowed under on duty category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' Grade.

ACADEMIC DISHONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another students, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.
- The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

1. **Nptel Resource: Introduction to Machine Learning by Prof. Sudesana Sarkar, IITKGP available at https://onlinecourses.nptel.ac.in/noc23_cs87/unit?unit=32&lesson=33**

2. **Download Weka Tool from https://sourceforge.net/projects/weka/**

FOR APPROVAL

Course Faculty	PAC Chairperson	HOD
(Ms. K. Bakiya)	(Dr. Sindhia Lingaswamy)	(Dr. Michael Arock)