

5. Course Outcome (CO)	Aligned Programme Outcome (PO)											
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
Describe the the basic concepts and techniques of Data Mining.		L	H					M				
Solve the practical problems using recent data mining softwares.	L			M		H						
Doing independent study and research using the experience gained during the course.		H			L				M			

L-Low M-Medium H-High

6. Course Teaching and Learning Activities			
Week	No. of Classes	Topic Covered	Mode of Delivery
1	Class-I	Data mining – Motivation – Importance	Chalk and Talk , Power Point Presentation
	Class-II	DM Vs KDD - DM Architecture	Chalk and Talk , Power Point Presentation
	Class-III	Data Types – DM Tasks –DM System Classification - Primitives of DM	Chalk and Talk , Power Point Presentation
2	Class-I	Data Mining Query Language	Chalk and Talk , Power Point Presentation
	Class-II	DM Metrics - DM Applications	Chalk and Talk , Power Point Presentation
	Class-III	DM Issues – Social Implications of DM	Chalk and Talk , Power Point Presentation
3	Class-I	Data Preprocessing: Summarization	Chalk and Talk , Power Point Presentation
	Class-II	Data cleaning	Chalk and Talk , Power Point Presentation
	Class-III	Data Integration and Transformation	Chalk and Talk , Power Point Presentation
4	Class-I	Data Reduction	Chalk and Talk , Power Point Presentation
	Class-II	Discretization and Concept Hierarchy Generation	Chalk and Talk , Power Point Presentation
	Class-III	Discretization and Concept Hierarchy Generation	Chalk and Talk , Power Point Presentation
5	Class-I	Mining Frequent Patterns – Frequent Itemset Mining Methods.	Chalk and Talk , Power Point Presentation
	Class-II	Classification: Classification by Decision Tree Induction	Chalk and Talk , Power Point Presentation
	Class-III	Bayesian Classification	Chalk and Talk , Power Point Presentation
6	Class-I	Rule based Classification	Chalk and Talk , Power

			Point Presentation
	Class-II	Prediction	Chalk and Talk , Power Point Presentation
	Class-III	Accuracy and Error Measures	Chalk and Talk , Power Point Presentation
7	Class-I	Cluster Analysis – Types of Data in Cluster Analysis – Categorization of clustering Methods	Chalk and Talk , Power Point Presentation
	Class-II	Partition Methods	Chalk and Talk , Power Point Presentation
	Class-III	Outlier Analysis	Chalk and Talk , Power Point Presentation
8	Class-I	Mining Data Streams	Chalk and Talk , Power Point Presentation
	Class-II	Social Network Analysis	Chalk and Talk , Power Point Presentation
	Class-III	Mining the World Wide Web	Chalk and Talk , Power Point Presentation
9	Class-I	Data Warehousing: OLTP Vs OLAP	Chalk and Talk , Power Point Presentation
	Class-II	Multidimensional Data Model	Chalk and Talk , Power Point Presentation
	Class-III	DW Architecture Efficient Processing of OLAP queries	Chalk and Talk , Power Point Presentation
10	Class-I	Metadata repository	Chalk and Talk , Power Point Presentation
	Class-II	DWH Implementation - OLAM	Chalk and Talk , Power Point Presentation
	Class-III	BigData Mining	Chalk and Talk , Power Point Presentation

7. Course Assessment Methods – Theory

Sl. No.	Mode of Assessment	Week/Date	Duration	Weightage(%)
1.	Cycle Test –1	6 th week	60 mins	20
2.	Cycle Test –2	12 th week	60 mins	20
3.	Assignment	7 th and 10 th week	7 days	10
4.	End Semester Exam	-	180 mins	50
Total				100

8. Essential Readings (Textbooks, Reference books, Websites, Journals, etc.)

REFERENCES:

1. Jiawei Han, Micheline Kamber, "Data Mining: Concepts and Techniques", 2nd Edition, Elsevier India Private Limited, 2008.
2. Margaret H. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education, 2012.
3. K.P. Soman, Shyam Diwakar, V. Ajay, "Insight into Data Mining Theory & Practice, Prentice Hall India, 2012,
4. G.H. Gupta, "Introduction to Data Mining with Case Studies", 2nd Edition, PHI.

9. Course Exit Survey (mention the ways by which the feedback about the course is assessed and indicate the attainment level)

1. The students through the class rep may give their feedback at any time to the course co-ordinator which will be duly addressed.
2. The students may also give their feedback during Class Committee meeting.
3. 'Course Outcome Survey' form will be distributed on the last working day to all the students and the feedback on various rubrics will be analyzed.
4. The COs will be computed after arriving at the final marks.

10. Course Policy (including plagiarism, academic honesty, attendance, etc.)

• **Plagiarism**

The students are expected to come out with their original code for problems given assignments during the class work, and tests/examinations. If found to copy from internet/other students, zero marks will be assigned and action will be taken.

• **Attendance**

100% is a must. However, relaxation will be given for leave on emergency requirements (medical, death, etc.) and representing institute events. Minimum 75% is required.


• **Academic Honesty**

- i. Possession of any electronic device, if any, found during the test or exam, the student will be debarred for 3 years from appearing for the exam and this will be printed in the Grade statement/Transcript.
- ii. Tampering of MIS records, if any, found, then the results of the student will be with held and the student will not be allowed to appear for the Placement interviews conducted by the Office of Training & Placement, besides (i).

11. Additional Course Information

- The students can get their doubts clarified at any time with their faculty member with prior appointment.

For Senate's Consideration


1. Dr. S. Nickolas Course Faculty
2. Dr. U. S Reddy
Dr. P.J. Alphonse Class Committee Chairperson
S.R. Balasundaram
Dr. S. R. Balasundaram HOD



Department of Computer Science and Engineering National Institute of Technology Tiruchirappalli

1.Course Outline			
Course Title	Data Mining Techniques		
Course Code	CA721		
Department	CA	No. of Credits	3
Pre-requisites Course Code	NIL	Faculty Name	1.. Dr. S. Nickolas 2 . Dr. U. Srinivasulu Reddy
PAC Chairman	Dr.P.J.Alphones		
E-mail	usreddy@nitt.edu nickolas@nitt.edu	Telephone No.	+91-431-2503739 +91-431-2503746
Course Type	Core Course		

2. Course Overview

Data Mining studies algorithms and computational paradigms that allow computers to find patterns and regularities in databases, perform prediction and forecasting, and generally improve their performance through interaction with data. It is currently regarded as the key element of a more general process called Knowledge Discovery that deals with extracting useful knowledge from raw data. The knowledge discovery process includes data selection, cleaning, coding, using different statistical and machine learning techniques, and visualization of the generated structures. The course will cover all these issues and will illustrate the whole process by examples. Special emphasis will be give to the Machine Learning methods as they provide the real knowledge discovery tools. Important related technologies, as data warehousing and on-line analytical processing (OLAP) will be also discussed.

3. Course Objectives

- Ability to understand Data Mining techniques and usage of data mining and data warehousing tools for analysis of data.

4. Course Outcomes (CO)

Student will be able to:

- Describe the the basic concepts and techniques of Data Mining.
- Solve the practical problems using recent data mining softwares.
- Doing independent study and research using the experience gained during the course.