Sri Indu Institute of Engineering & Technology

Recognized Under 2(f) of UGC Act 1956
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Affiliated to JNTUH, Hyderabad.

COURSE FILE

ON

DATA MINING

Course Code - CS702PC

IV B.Tech I-SEMESTER

A.Y.: 2022-2023

Prepared by

Mr. K. VEERA KISHORE
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Academic Year	2022-2023
Course Title	DATA MINING
Course Code	CS702PC
Programme	B.Tech
Year & Semester	IV Year I-Semester
Branch & Section	CSE-B
Regulation	R18
Course Faculty	Mr. K. Veera Kishore, Associate Professor

Index of Course File

S. No.	Name of the content
1	Institute vision and mission
2	Department vision and mission /PEO
3	POs /PSOs
4	Course Syllabus with Structure
5	Course Outcomes (CO)
6	Mapping CO with PO/PSO; Course with PO/PSO with Justification
7	Academic Calendar
8	Time table - highlighting your course periods including tutorial
9	Lesson plan with number of hours/periods, TA/TM, Text/Reference book
10	Web references
11	Lecture notes
12	List of Power point presentations / Videos
13	University Question papers
14	Internal Question papers, Key with CO and BT
15	Assignment Question papers mapped with CO and BT
16	Result Analysis to identify weak and advanced learners - 3 times in a semester
17	Result Analysis at the end of the course
18	Remedial class for weak students - schedule and evidences
19	Advance Learners - Engagement documentation
20	CO, PO/PSO attainment sheets
21	Attendance register (Theory/Tutorial/Remedial) - Teacher/Course delivery record; Continuous evaluation
22	Course file (Digital form)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INSTITUTE VISION AND MISSION

Vision:

To become a premier institute of academic excellence by providing the world class education that transforms individuals into high intellectuals, by evolving them as empathetic and responsible citizens through continuous improvement.

Mission:

IM1: To offer outcome-based education and enhancement of technical and practical skills.

IM2: To continuous assess of teaching-learning process through institute-industry Collaboration.

IM3: To be a centre of excellence for innovative and emerging fields in technology development with state-of-art facilities to faculty and students fraternity.

IM4: To create an enterprising environment to ensure culture, ethics and social responsibility among the stakeholders

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT VISION AND MISSION

Vision:

To become a prominent knowledge hub for learners, strive for educational excellence with innovative and industrial techniques so as to meet the global needs.

Mission:

DM1 : To provide ambience that enhances innovations, problem solving skills, leadership qualities, decision making, team-spirit and ethical responsibilities.

DM2 : To impart quality education with professional and personal ethics, so as to meet the challenging technological needs of the industry and society.

DM3 : To provide academic infrastructure and develop linkage with the world class organizations to strengthen industry-academia relationships for learners.

DM4 : To provide and strengthen new concepts of research in the thrust area of Computer Science and Engineering to reach the needs of Government and Society.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To develop trained graduates with strong academic and technical skills of modern computer science and engineering.

PEO2: To promote trained graduates with leadership qualities and the ability to solve real time problems using current techniques and tools in interdisciplinary environment.

PEO3: To motivate the graduates towards lifelong learning through continuing education and professional development.

PROGRAM SPECIFIC OUTCOMES

PSO1 : **Professional Skills:** To implement computer programs of varying complexity in the areas related to Web Design, Cloud Computing, Network Security and Artificial Intelligence.

PSO2: **Problem-Solving Skills**: To develop quality products using open ended programming environment.

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PROGRAMME OUTCOMES (POs)

PO1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: **Design/development of solutions:**Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6: **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech. in COMPUTER SCIENCE AND ENGINEERING

COURSE STRUCTURE & SYLLABUS (R18)

ApplicableFrom2018-19AdmittedBatch

IV YEAR I SEMESTER

S.No.	Course Code	CourseTitle	L	T	P	Credits
1	CS701PC	Cryptography & Network Security	3	0	0	3
2	CS702PC	Data Mining	2	0	0	2
3		Professional Elective-IV	3	0	0	3
4		Professional Elective-V	3	0	0	3
5		Open Elective-II	3	0	0	3
6	CS703PC	Cryptography& Network Security Lab	0	0	2	1
7	CS704PC	Industrial Oriented Mini Project / Summer Internship	0	0	0	2*
8	CS705PC	Seminar	0	0	2	1
9	CS706PC	Project Stage-I	0	0	6	3
		Total Credits	14	0	10	21

IV YEAR II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	SM801MS	Organizational Behavior	3	0	0	3
2		Professional Elective-VI	3	0	0	3
3		Open Elective-III	3	0	0	3
4	CS802PC	Project Stage-II	0	0	14	7
		Total Credits	**9**	**0**	**14**	**16**

CS702PC: DATA MINING (PC)

IV Year B.Tech. CSE I-Sem **L T P C**

200 2

Pre-Requisites:

- A course on "Database Management Systems"
- Knowledge of probability and statistics

Course Objectives:

- It presents methods for mining frequent patterns, associations, and correlations.
- It then describes methods for data classification and prediction and data–clustering approaches.
- It covers mining various types of data stores such as spatial, textual , multimedia, streams.

Course Outcomes:

- Ability to understand the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system.
- Apply pre processing methods for any given raw data.
- Extract interesting patterns from large amounts of data.
- Discover the role played by data mining in various fields.
- Choose and employ suitable data mining algorithms to build analytical applications
- Evaluate the accuracy of supervised and unsupervised models and algorithms.

UNIT-I

Data Mining: Data–Types of Data–, Data Mining Functionalities– Interestingness Patterns– Classification of DataMiningsystems–DataminingTaskprimitives–IntegrationofDataminingsystem with a Data warehouse–Major issues in Data Mining–Data Preprocessing.

UNIT-II

Association Rule Mining: Mining Frequent Patterns–Associations and correlations – Mining Methods– Mining Various kinds of Association Rules– Correlation Analysis– Constraint based Association mining. Graph Pattern Mining, SPM.

UNIT-III

Classification: Classification and Prediction – Basic concepts–Decision tree induction–Bayesian classification, Rule–based classification, Lazy learner.

UNIT-IV

Clustering and Applications: Cluster analysis–Types of Data in Cluster Analysis–Categorization of Major Clustering Methods– Partitioning Methods, Hierarchical Methods– Density–Based Methods, Grid–Based Methods, Outlier Analysis.

UNIT-V

Advanced Concepts: Basic concepts in Mining data streams–Mining Time–series data—Mining sequence

patterns in Transactional databases– Mining Object– Spatial– Multimedia–Text and Web data – Spatial Data mining– Multimedia Data mining–Text Mining– Mining the World Wide Web.

TEXTBOOKS:

1. Data Mining–Concepts and Techniques–Jiawei Han &MichelineKamber,3rd Edition Elsevier.
2. Data Mining Introductory and Advanced topics–Margaret H Dunham, PEA.

REFERENCEBOOK:

Ian H. Witten and Eibe Frank, Data Mining: Practical Machine Learning Tools and Techniques (Second Edition), Morgan Kaufmann, 2005.

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COs and Mapping with PO/PSO

Course: DATA MINING (C412) **Class: IV CSE-B**

After completing this course the student will be able to:

C412.1 Understand the various data warehouse principle, concepts, association rule mining, supervised and unsupervised learning algorithm in data mining. (Knowledge)

C412.2 Apply the different processing and preprocessing techniques to process the data (Application)

C412.3 Analyze the data warehouse architecture and its components (Analysis)

C412.4 Evaluate the performance matrices using classification and clustering algorithm over the complex data objects (Evaluation)

C412.5 Create skill in selecting the appropriate data mining algorithm for solving practical problems (Synthesis)

C412.6 Ability to understand clustering Concepts in the real world and apply Various clustering techniques.(Application)

Mapping of course outcomes with program outcomes:

High -3 Medium -2 Low-1

PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C412.1	2	3	-	-	2	-	-	-	-	-	-	3	3	-
C412.2	3	3	3	-	3	-	2	-	-	-	-	2	-	-
C412.3	2		3	-	2	-	-	-	-	-	-	-	3	-
C412.4	2	2	1	-	-	-	-	-	-	-	-	2	-	2
C412.5	3	-	-	-	-	-	3	-	3	-	-	2	2	2
C412.6	2	-	-	-	1	-	-	-	2	-	-	-	3	-
AVG	2.3	2.7	2.7	-	2.3	-	2.5	-	2.5	-	-	2.3	2.75	2

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CO – PO / PSO Mapping Justification

Course: DATA MINING (C412) Class: IV B.Tech – I SEM – B – Sec

PROGRAMME OUTCOMES (POs):

PO1: **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: **Problem analysis:** Identify, formulate, review research literature, and analyses complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: **Design/development of solutions:**Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO5: **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO7: **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO9: **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO12: **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1 **Professional Skills:** The ability to implement computer programs of varying complexity in the areas related to web design, cloud computing and networking.

PSO2 **Problem-Solving Skills:** The ability to develop quality products using open ended programming environment.

C412.1	Understand the various data warehouse principle, concepts, association rule mining, supervised and unsupervised learning algorithm in data mining. (Knowledge)
	Justification
PO1	Understanding data warehouse principles and concepts requires knowledge of database management, data modeling, and integration. This enhances engineering knowledge by providing a foundation for designing and implementing data warehouses.(level 2)
PO2	Data mining techniques, including association rule mining and supervised/unsupervised learning, are crucial for problem analysis. Students learn to identify patterns, relationships, and trends in large datasets, contributing to effective problem analysis.(level 3)
PO5	Data warehousing and mining often involve the use of modern tools and technologies. Students gain proficiency in using tools for database management, data visualization, and mining, aligning with the modern tool usage outcome.(Level 2)
PO12	The dynamic nature of data mining and data warehousing necessitates a commitment to continuous learning. Students, by understanding these concepts, are prepared for lifelong learning, keeping up with advancements in data management and analysis.
PSO1	Analyzing data warehouse principles and employing data mining techniques contribute to the ability to design and implement solutions for data management. This knowledge is particularly relevant in the context of designing secure and efficient storage and retrieval systems for large datasets.

C412.2	Apply the different processing and preprocessing techniques to process the data (Application)
	Justification
PO1	Applying processing and preprocessing techniques requires a strong foundation in engineering knowledge. Students learn various methods to transform, clean, and manipulate data, gaining practical skills in handling datasets effectively.(level 3)
PO2	Processing and preprocessing techniques are integral to problem analysis in data science. Students must identify data issues, such as missing values or outliers, and choose appropriate techniques to preprocess data before analysis.(level 3)
PO3	Designing solutions for data analysis involves selecting and applying processing techniques to extract meaningful information. Students learn to design workflows that encompass data preprocessing and processing stages for effective analysis.(Level 3)
PO5	Processing and preprocessing often involve the use of modern tools and software for data manipulation. Students gain proficiency in using tools like Python, R, or data processing libraries to apply various techniques.(Level 3)
PO7	Efficient data processing contributes to the sustainable use of resources. Students, by learning to optimize data processing workflows, align with the principles of environmental and resource sustainability.(Level 2)
PO12	Data processing techniques evolve, and students, by learning how to apply them, are prepared for lifelong learning. They understand the importance of staying updated with new methods and tools in the dynamic field of data science.(Level 2)

C412.3	Analyze the data warehouse architecture and its components (Analysis)
	Justification
PO1	Analyzing the data warehouse architecture requires a deep understanding of database management, data modeling, and integration. Students gain knowledge about the engineering aspects of designing, implementing, and managing data warehouses.(level 2)
PO3	Understanding the components of data warehouse architecture contributes to the ability to design solutions for efficient data storage, retrieval, and analysis. This knowledge is crucial for developing effective solutions in data management.(Level 3)
PO5	Data warehouse architecture often involves the use of modern database management systems and tools. Analyzing these components enhances proficiency in using contemporary tools for managing and analyzing large datasets.(Level 2)
PSO1	Analyzing data warehouse architecture is directly related to the ability to analyze and design computer networks. Data warehouses often involve distributed systems, and understanding their architecture contributes to designing effective solutions for networked data storage.(level 3)

C412.4	Evaluate the performance matrices using classification and clustering algorithm over the complex data objects (Evaluation)
	Justification
PO1	Evaluating performance metrics in classification and clustering involves a deep understanding of the underlying algorithms, statistical methods, and data representation. Students gain knowledge about the engineering principles behind these evaluation processes.(level 2)
PO2	Performance evaluation requires a detailed analysis of the effectiveness of classification and clustering algorithms. Students learn to assess the suitability of these algorithms for specific problem domains through rigorous analysis of their performance metrics.(level 2)
PO3	Evaluating performance metrics contributes to the ability to design effective solutions. Students learn to select, implement, and optimize classification and clustering algorithms based on their performance on complex data objects.(Level 1)
PO12	Performance evaluation in data analysis is an ongoing process. Students, by understanding how to assess the effectiveness of algorithms, are prepared for continuous learning and adaptation to new methods throughout their professional careers.(Level 2)
PSO2	Evaluating classification and clustering algorithms involves applying domain knowledge to assess the relevance of the results in real-world scenarios. It enables students to bridge the gap between theoretical knowledge and practical applications in diverse domains.(Level 2)

C412.5	Create skill in selecting the appropriate data mining algorithm for solving practical problems (Synthesis)
	Justification
PO1	The skill of selecting the appropriate data mining algorithm requires a strong foundation in engineering knowledge. Students must understand the principles, strengths, and limitations of various algorithms to make informed decisions based on the characteristics of practical problems.(level 3)
PO7	Efficiently selecting appropriate data mining algorithms contributes to the sustainable use of resources. By choosing algorithms tailored to problem requirements, students promote efficiency in data analysis processes, aligning with environmental and resource sustainability.(level 3)
PO9	The skill involves collaboration, as selecting the right algorithm often requires input from team members with different expertise. This promotes effective teamwork in addressing practical problems through data mining.(Level 3)
PO12	The skill of algorithm selection is dynamic and requires continuous learning. Students, by developing this skill, are prepared for lifelong learning, adapting to new algorithms and techniques that emerge in the evolving field of data mining.(Level 2)
PSO1	Selecting appropriate data mining algorithms is relevant to analyzing and designing solutions for computer networks and security. The skill enables students to apply data mining techniques to enhance network and security solutions.(Level 2)
PSO2	The skill involves applying domain knowledge to select the most suitable data mining algorithm for specific real-world problems. Students learn to integrate their domain-specific expertise into the data analysis process.(Level 2)

C412.6	Ability to understand clustering Concepts in the real world and apply Various clustering techniques.(Application)
	Justification
PO1	Understanding clustering concepts and techniques requires a solid foundation in engineering knowledge. Students gain insights into the principles behind clustering algorithms, such as how data is grouped based on similarities, fostering a deep understanding of data analysis.(level 2)
PO5	The application of clustering techniques often involves the use of modern tools and software. Students learn to use tools like Python, R, or specialized clustering libraries to apply algorithms and analyze the results.(level 1)
PO9	Applying clustering techniques often involves collaboration within a team. Students learn to work individually and as part of a team to analyze data, select appropriate clustering algorithms, and interpret results for effective problem-solving.(Level 2)
PSO1	Clustering has applications in network analysis, anomaly detection, and security solutions. Students, by understanding and applying clustering techniques, enhance their ability to analyze and design computer networks and security solutions.(Level 3)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

ACADEMIC CALENDAR 2022-23

B. Tech./B. Pharm. IV YEAR I & II SEMESTERS

I SEM

S. No	Description	Duration	
		From	To
1	Commencement of I Semester classwork	**29.08.2022**	
2	1st Spell of Instructions (including Dussehra Recess)	29.08.2022	31.10.2022 (9 Weeks)
3	Dussehra Recess	03.10.2022	08.10.2022 (1 Week)
4	First Mid Term Examinations	01.11.2022	07.11.2022 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	12.11.2022	
6	2nd Spell of Instructions	09.11.2022	03.01.2023 (8 Weeks)
7	Second Mid Term Examinations	04.01.2023	10.01.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	11.01.2023	19.01.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	17.01.2023	
10	End Semester Examinations	*20.01.2023*	02.02.2023(2 Weeks)

Note: No. of Working/instructional days: 94

II SEM

S. No	Description	Duration	
		From	To
1	Commencement of II Semester classwork	**03.02.2023**	
2	1st Spell of Instructions	03.02.2023	31.03.2023 (8 Weeks)
3	First Mid Term Examinations	01.04.2023	08.04.2023 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	15.04.2023	
5	2nd Spell of Instructions	10.04.2023	17.06.2023 (10 Weeks)
6	**Summer Vacation**	15.05.2023	27.05.2023 (2 Weeks)
7	Second Mid Term Examinations	19.06.2023	24.06.2023 (1 Week)
8	Preparation Holidays and Practical Examinations	26.06.2023	01.07.2023 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	01.07.2023	
10	End Semester Examinations	03.07.2023	15.07.2023 (2 Weeks)

Note: No. of Working/ instructional days: 91

REGISTRAR

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TIME TABLE FOR A.Y 2022-23

Class: IV B. Tech CSE -B **Semester: I** **LH. NO: A-108** **W.E.F: 29-08-2022**

Period/ Day	1 9:40-10:30	2 10:30-11:20	3 11:20-12:10	4 12:10-1:00	1:00-1:30	5 1:30-2:20	6 2:20-3:10	7 3:10-4:00
Monday	RTS	RTS	CC	POE	LUNCH	INT	DM	C&NS
Tuesday	C&NS	MINIPROJECT				DM	CO-C/SS/DAA	
Wednesday	DM	POE	LIB	C&NS		C&NS LAB(BATCH-I)/SEMINAR(BATCH-II)		
Thursday	POE	MAJOR PROJECT STAGE-I				MAJOR PROJECT STAGE-I		
Friday	DM	CC	C&NS	RTS		C&NS	COUN	RTS
Saturday	SEMINAR(BATCH-I) /C&NS LAB(BATCH-II)			DM		CC	CC	SPORTS

(T) – Tutorial (concern faculty)

Subject Code	Subject Name	Name of the Faculty	Subject Code	Subject Name	Name of the Faculty
CS701PC	Cryptography& Network Security	Mrs.B.S.Swapna Shanthi	CS705PC	Seminar Coordinator	Dr D.Maria manuel vianny /Dr Sasi Kumar / Mrs.N.Shilpa
CS702PC	Data Mining	Mr.K.Veera Kishore		CO-C/SS/DAA	Mrs.B.S.Swapna Shanthi
CS714PE	Cloud Computing (PE-IV)	Mrs.S.Akhila	Sports	Sports	Mr.P.Sriramulu
CS722PE	Real Time Systems (PE-V)	Mrs.V.Divya	Internet	Internet	Mrs.S.Akhila
	Principles of Entrepreneurship (OE-II)	Mr.N.B.C.Sidhhu	LIB	Library	Mrs.V.Divya
CS703PC	Cryptography& Network Security Lab	Mrs.B.S.Swapna Shanthi / Mr.P.Sriramulu/ Ms.K.Mounika	COUN	Counselling	Mr.K.Veera Kishore
CS704PC	Mini Project Coordinator	Dr Sathya Raj/Mrs.E.Rupa/ Mrs. K.Anusha	CS706PC	Major Project (Stage-I)	Mrs.V.Divya / Mrs.B.S.Swapna Shanthi/ Dr D.Maria manuel vianny
Class In-Charge : Mrs.B.S.Swapna Shanthi		**Mentor 1 :** Mrs.B.S.Swapna Shanthi		**Mentor 2:** Mrs.V.Divya	

Class In-Charge HOD PRINCIPAL

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Lesson Plan

Course Title	Data Mining
Course Code	CS702PC
Programme	B.Tech
Year & Semester	IV-Year I-semester
Regulation	R18
Course Faculty	Mr. K Veera Kishore, Assistant Professor, CSE

LESSON PLAN

S. No.	Unit	TOPIC	Number of Sessions Planned	Teaching method/Aids	Reference
1.	1	Data–Types of Data	1	BLACK BOARD	T1
2.		Data Mining Functionalities	1	BLACK BOARD,PPT	T1
3.		Interestingness Patterns	1	BLACK BOARD	T1
4.		Classification of Datamining Systems	1	BLACK BOARD	T1
5.		DataminingTaskprimitives	2	BLACK BOARD	T1
6.		IntegrationofDataminingsystem with a Data warehouse	1	BLACK BOARD	T1
7.		Major issues in Data Mining	1	BLACK BOARD	T1
8.		Data Preprocessing	3	BLACK BOARD	T1,W1
9.	2	Mining Frequent Patterns	1	BLACK BOARD	T1

10.		Associations and correlations	1	BLACK BOARD	T1
11.		Mining Methods	1	BLACK BOARD	T2
12.		Mining Various kinds of Association Rules	1	BLACK BOARD	T2,W2
13.		Correlation Analysis	1	BLACK BOARD	T1
14.		Constraintbased Association mining	1	BLACK BOARD	T1
15.		Graph Pattern Mining	1	BLACK BOARD	T1
16.		SPM	1	BLACK BOARD	T1
17.	3	Classification and Prediction	1	BLACK BOARD	T1
18.		Basic concepts	1	BLACK BOARD	T1
19.		Decision tree induction	1	BLACK BOARD,PPT	T1,W3
20.		Bayesian classification	2	BLACK BOARD	T1
21.		Rule–based classification	2	BLACK BOARD	T1
22.		Lazy learner	1	BLACK BOARD	T1
23.	4	Cluster analysis	1	BLACK BOARD,PPT	T1,W4
24.		Types of Data in Cluster Analysis	1	BLACK BOARD	T1
25.		Categorization of Major Clustering Methods	1	BLACK BOARD	T1
26.		Partitioning Methods	1	BLACK BOARD	T1
27.		Hierarchical Methods	1	BLACK BOARD	T1
28.		Density	1	BLACK BOARD	T1
29.		Based Methods	1	BLACK BOARD	T1
30.		Grid–Based Methods	1	BLACK BOARD,PPT	T1
31.		Outlier Analysis	1	BLACK BOARD	T1
32.	5	Basic concepts in Mining data streams	1	BLACK BOARD	T1

33.		Mining Time–series data	1	BLACK BOARD,PPT	T1
34.		Mining sequence patterns in Transactional databases	1	BLACK BOARD,PPT	T1
35.		Mining Object	1	BLACK BOARD	T1
36.		Spatial	1	BLACK BOARD	T2
37.		Multimedia	1	BLACK BOARD	T2
38.		Text and Web data	1	BLACK BOARD	T2
39.		Spatial Data mining	1	BLACK BOARD	T2
40.		Multimedia Data mining	2	BLACK BOARD,PPT	T2
41.		Text Mining	1	BLACK BOARD	T2,W5
42.		Mining the World Wide Web	1	BLACK BOARD	T2

TEXTBOOKS:

1.Data Mining–Concepts and Techniques–Jiawei Han &MichelineKamber,3rd Edition Elsevier.

2.Data Mining Introductory and Advanced topics–Margaret H Dunham, PEA.

REFERENCEBOOK:

Ian H. Witten and Eibe Frank, Data Mining: Practical Machine Learning Tools and Techniques (Second Edition), Morgan Kaufmann, 2005.

WEB REFERENCES

W1:https://www.geeksforgeeks.org/data-preprocessing-in-data-mining/

W2:https://www.javatpoint.com/apriori-algorithm

W3:https://www.tutorialspoint.com/data_mining/dm_dti.htm

W4:https://www.geeksforgeeks.org/data-mining-cluster-analysis/

W5:https://www.geeksforgeeks.org/text-mining-in-data-mining/

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LECTURE NOTES

UNIT-1

https://drive.google.com/file/d/1zDfQvkIK9duqvkL5JULOu-GZHXyxu7Rw/view?usp=sharing

UNIT-2

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UNIT-3

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UNIT-4

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UNIT-5

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POWER POINT PRESENTATIONS

UNIT-1

https://docs.google.com/presentation/d/17bhRPy-Fxwej8HJTxP9ydXPy0OXwPsCj/edit?usp=sharing&ouid=105612764787140148664&rtpof=true&sd=true

UNIT-2

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UNIT-3

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UNIT-4

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UNIT-5

https://docs.google.com/presentation/d/1fIg4TI_noHJPvbwWesWRGWVIgBV59Rj8/edit?usp=sharing&ouid=105612764787140148664&rtpof=true&sd=true

JNTUH PREVIOUS PAPERS

R18

Code No: 157BC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, July/August - 2022
DATA MINING
(Common to CSE, IT)

Time: 3 Hours **Max.Marks:75**

Answer any five questions
All questions carry equal marks
- - -

1.a)	Write short notes on data mining task primitives.	
b)	Discuss in detail about data preprocessing.	[7+8]
2.	Explain the following: a) Integration of data mining system with a data warehouse. b) Classification of data mining systems.	[7+8]
3.a)	How do you find frequent patterns in data mining? Explain.	
b)	Explain constraint based association mining.	[7+8]
4.a)	What are the measures of association rule mining? Explain.	
b)	Write short notes on SPM.	[8+7]
5.a)	Compare the methods of classification and prediction.	
b)	How to evaluate performance of classification model? Explain.	[7+8]
6.	Discuss in detail about rule-based classification.	[15]
7.a)	Explain K-means algorithm with an example.	
b)	What are the key issues in hierarchical clustering?	[9+6]
8.	Explain the following: a) Spatial data mining. b) Mining sequence patterns in transactional databases.	[7+8]

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Code No: 157BC

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, January/February - 2023

DATA MINING

(Common to CSE, IT, ITE)

Time: 3 Hours **Max. Marks: 75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What is data warehouse?	[2]
b)	List out the applications of data mining.	[3]
c)	What is meant by association rule mining?	[2]
d)	Write a short note on SPM algorithm?	[3]
e)	Why are decision trees useful?	[2]
f)	List the advantages of using decision trees.	[3]
g)	Discuss the two approaches to improve quality of hierarchical clustering.	[2]
h)	List the applications of cluster analysis.	[3]
i)	Define data stream mining.	[2]
j)	Give the taxonomy of web mining.	[3]

PART – B

(50 Marks)

2.a) Explain how to integrate data mining system with a data warehouse.
b) "Data preprocessing is necessary before data mining process". Justify your answer. [5+5]

OR

3.a) Differentiate between data mining and data warehouse.
b) Discuss the major issues in data mining. [5+5]

4.a) Write a short notes on constraint based association mining.
b) Describe various types of association rules. [5+5]

OR

5. Explain in detail about frequent pattern mining in data mining. [10]

6. Describe Bayesian Belief Network with an example. [10]

OR

7.a) Briefly explain classification problems and general approaches to solve them.
b) Explain the merits and de-merits of the lazy learning method. [5+5]

8. Explain the following.
   a) Cluster analysis.
   b) Grid–based methods. [5+5]

OR

9.a) How density based method is used for clustering?
b) Illustrate K-mean algorithm with an example. [4+6]

10. Explain the following.
   a) Spatial data mining.
   b) Text mining. [5+5]

OR

11. Discuss various kinds of patterns to be mined from web/server logs in web usage mining. [10]

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Sri Indu Institute of Engineering & Technology

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I-Sem, I - Mid Examinations, Nov-2022

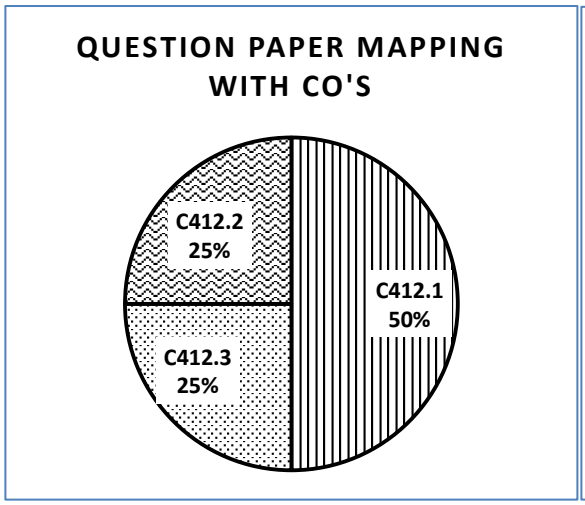
Set-I

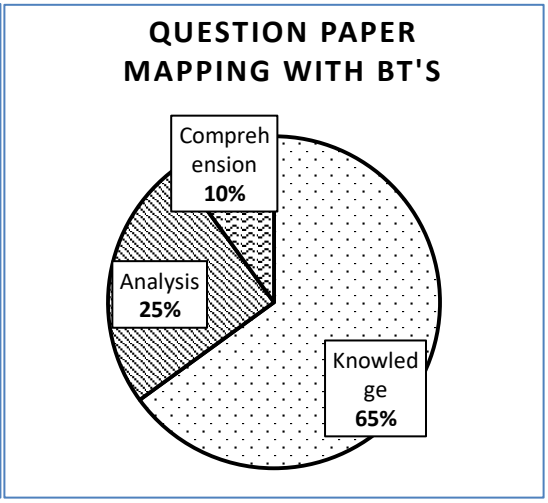
Year &Branch: IV-CSE A,B & C Date:01/11/2022

Subject: DM Max. Marks: 10 Time: 60 MIN

Answer any TWO Questions. All Question Carry Equal Marks 2 * 5 = 10 marks

1. Define KDD Process in data mining with brief explanation (C412.2)(Knowledge)
2. What is Data Mining?Explain architecture of data mining system (C412.3)(Analysis)
3. What are the Major Issues in Data Mining (C412.1)(Knowledge)
4. a)Define Association analysis Rules in Data Mining (C412.1)(Knowledge)
   b)Explain Applications of Association analysis in Data Mining(C412.1)(Comprehension)





Sri Indu Institute of Engineering & Technology

Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510

I-Sem, I - Mid Examinations, Nov-2022

Set-II

Year &Branch: IV-CSE-A,B& C — Date:01 /11/2022

Subject:DM — Max. Marks: 10 — Time: 60 MIN

Answer any TWO Questions. All Question Carry Equal Marks — 2 * 5 = 10 marks

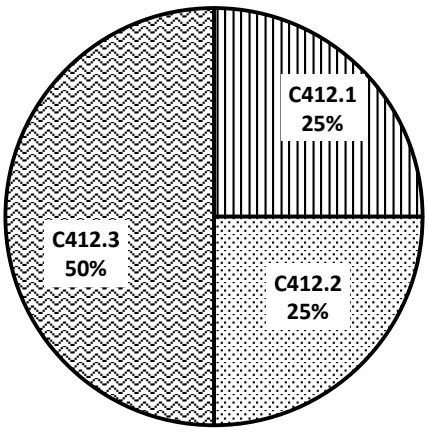
1 Define Functionalities of Data Mining (C412.1)(Comprehension)

2. What is data warehouse and Different types of data warehouse? (C412.3)(Analysis)

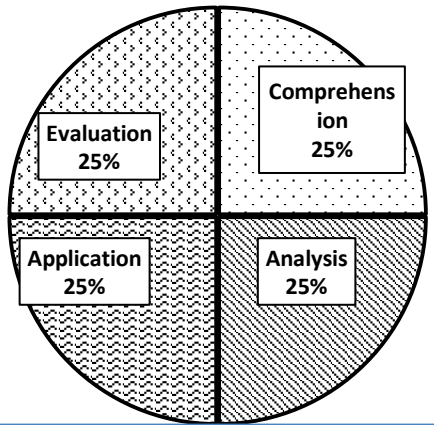
3. Write a short note on (C412.2)(Application)
   a) Data Pre-processing b) Data Discretization
   c) Missing Data d) Data Reduction

4. What is Item Set and Explain Different types of ItemSets? (C412.3)(Evaluation)

QUESTION PAPER MAPPING WITH CO'S



QUESTION PAPER MAPPING WITH BT'S



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Sheriguda (V), Ibrahimpatnam (M), R.R.Dist-501 510
I-Sem, I-Mid Nov-2022

DATA MINING-OBJECTIVE PAPER

Student Name: **Hall Ticket No:**

Answer the following multiple-choice Questions.
All Questions Carry Equal Marks. **10*0.5=5marks**

1.The classification or mapping of a class using a predefined class or group is called: [ ]

A) Data Sub Structure B) Data Set C) Data Discrimination D) Data Characterization

2. The total categories of functions that are involved in Data Mining are: [ ]

A)5 B)4 C)3 D)1

3. The initial steps concerned in the process of knowledge discovery is: [ ]

A) Data Selection B) Data Integration C) Data Cleaning D) Data Transformation

4. Multiple numbers of data sources get combined in which step of the Knowledge Discovery [ ]

A) Data Transformation B) Data Selection C) Data Integration D) Data Cleaning

5. The classification of the Data Mining System consists of: [ ]

A) Machine Learning B) Information Science C) Database Technology D) All of the above

6. The class under study in Data Characterization is known as: [ ]

A) Final Class B) Target Class C) Initial Class D) Study Class

7. Out of the following, which one is the proper application of data mining: [ ]

A) Fraud Detection B) Risk Management & Corporate Analysis

C) Market Management and Analysis D) All of the above

8. Data can be store, retrieve and updated in [ ]

A) SMTOP B) OLTP C) FTP D) OLAP

9. _____is a sequence of patterns that frequently occur is called as: [ ]

A) Frequent Subsequence B) Frequent Substructure

C) Frequent Item Set D) All of the above

10. _____are the data objects that don't comply with the general model or behavior

of the availabledata [ ]

A) Evolution Analysis B)Outlier Analysis C)Classification D) Prediction

II. Fillin the blanks 10*0.5=5 marks

11. _____refers to the sequence of patterns that occurs frequently.

12.Handling the rational and complex types of data comes under the _____ category.

13._____ is used as the first step in the knowledge discovery process.

14. The self-organizing maps can be considered as _____.

15. KDD stands for _____.

16. _____ is referred to as the Class study in data cauterization.

17. The knowledge discovery process in which several data are combined _____.

18. _____ generally used by the E-R model to represent the weak entities?

19. _____ must be considered before investing in data mining.

20.The full form of DMQL is _____.

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MID-1 KEY

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OBJECTIVE ANSWER KEY FOR MID – 1

I Objective:

1. C
2. D
3. C
4. C
5. D
6. B
7. D
8. B
9. A
10. B

II Fill in the Blanks:

11. Frequent sub-sequence
12. Diverse data type
13. Data cleaning
14. **S**upervised learning
15. Knowledge Discovery in Data
16. Target class
17. Data Integration
18. Doubly outlined rectangle
19. Functionality and compatibility
20. Data Mining Query Language

Sri Indu Institute of Engineering & Technology

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I-Sem,II - Mid Examinations, Jan-2023

Set-I

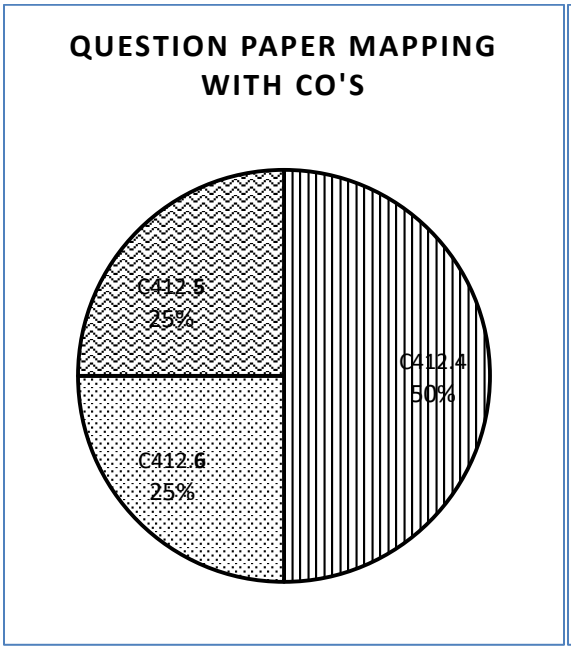
Year &Branch: IV-CSE A,B & C Date:04/01/2023

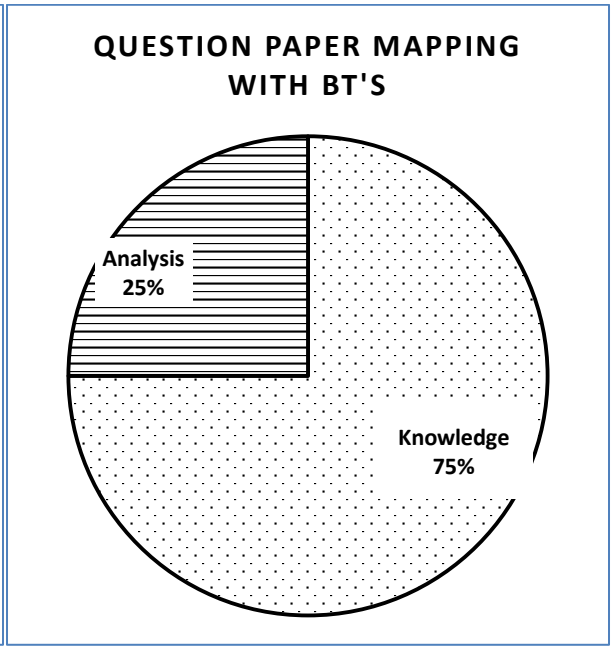
Subject: DM Max. Marks: 10 Time: 60 MIN

Answer any TWO Questions. All Question Carry Equal Marks 2 * 5 = 10 marks

1. What is Decision Trees and Decision tree Construction Methods? (Analysis)(C412.4)
2. Describe the Web and Text Mining? (Knowledge)(C412.6)
3. Write a short note on (Knowledge)(C412.5)

   a) K-Means Algorithm b) PAM Algorithm
4. Define General Approaches to solving a classification problem? (Knowledge)(C412.4)





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I-Sem, II - Mid Examinations, Jan-2023

Set-II

Year &Branch: IV-CSE-A,B & C — Date:04/01/2023

Subject:DM — Max. Marks: 10 — Time: 60 MIN

Answer any TWO Questions. All Question Carry Equal Marks — 2 * 5 = 10 marks

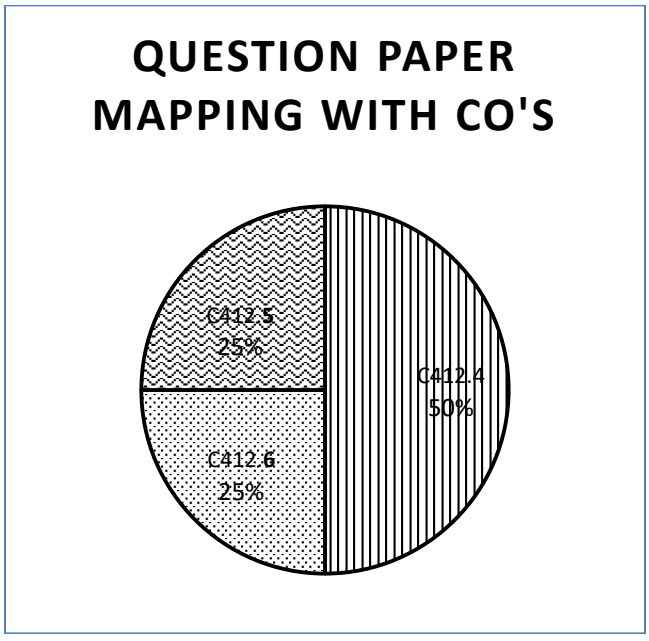
1. Write a short note on (Knowledge)(C412.4)
   a) Hierarchical Clustering Agglomerative Methods and divisive methods
   b) Hierarchical Clustering Algorithm, Specific techniques, key issues?

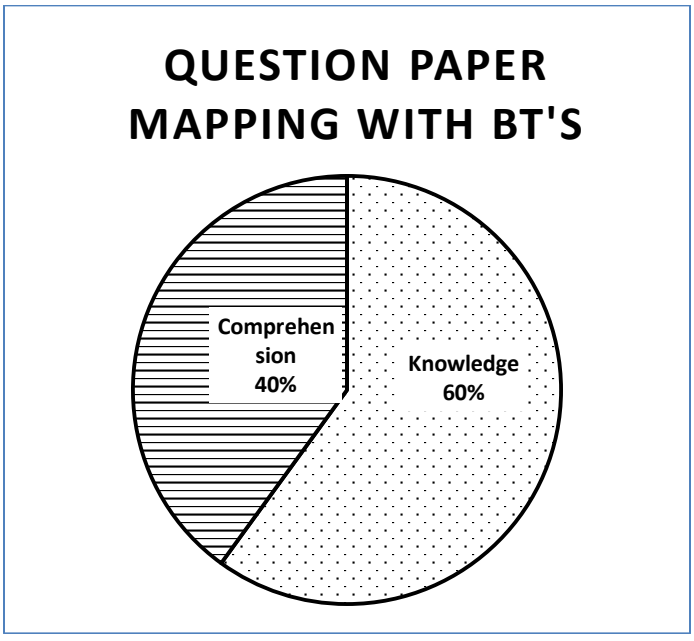
2. Explain Naïve – Bayes Classifier and Bayesian Belief Networks? (Comprehension)(C412.5)

3. Describe the Web and Text Mining? (Knowledge)(C412.6)

4. a)Write Algorithm for Decision tree Induction? (Knowledge)(C 412.4)

b) Explain K-Nearest neighbourClassification-Algorithm and Characteristics? (Comprehension)(C412.4)





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I-Sem, II-Mid Jan-2023

DATA MINING-OBJECTIVE PAPER

Student Name: **Hall Ticket No:**

Answer the following multiple-choice Questions.
All Questions Carry Equal Marks. **10*0.5=5marks**

1. ……Analysis divides data into groups that are meaningful, useful, or both. [ ]

a) Cluster b) Association c) Classification d)Relation

2. Assume you want to perform supervised learning and to predict number of newborns according to size of storks' population (http://www.brixtonhealth.com/storksBabies.pdf), it is an example of[ ]

a) Classificationb) Regression c) Clustering d) Structural equation modeling

3. Clustering is also called: [ ]

a) Segmentation b) Compression c) Partitions with similar objects d) All the above

4. Which of the following techniques are concerned about user navigation accessing? [ ]

a) Web structural miningb) Web usage miningc) Web content miningd) Web data mining

5. Classification is**.** [ ]

a) A subdivision of a set of examples into a number of classes

b) A measure of the accuracy, of the classification of a concept that is given by a certain

Theory

c) The task of assigning a classification to a set of examples

d) None of these

6. Which of the following is the data mining tool [ ]

a) Borland C. b) Weka. c) Borland C++. d) Visual C

7. Classification and regression are the properties of… [ ]

a) Data analysis b) Data manipulation c) Data mining d) None of these

8. Group of similar objects that differ significantly from other objects is named as … [ ]

a) Classification b) Cluster c) Community d) None of these

9. .....is the process of finding a model that describes and distinguishes data classes or concepts. [ ]

a) Data Characterization b)Data Classification c) Data discrimination d) Data selection

10. Refers to the process of deriving high-quality information from text. [ ]

a) Text Mining. b) Image Mining .c) Database Mining .d) Multimedia Mining.

II. Fill in the blanks: **10*0.5=5 marks**

11. Facts, numbers, or text is called _____

12 A Decision Tree is a _____ model.

13 Clustering may also be considered as _____

14. Clustering is a form of learning by observation rather than _____

15. In the K-means algorithm for partitioning, each cluster is represented by the _____ of objects in the cluster.

16. Data classification is a _____ step process.

17. _____files are frequently used in sequential mining.

18. Web data is _____.

19. The _____ Web mining involves the development of Sophisticated Artificial Intelligence systems.

20. The basic algorithm for decision tree induction is a _____ algorithm.

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MID-2 KEY

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OBJECTIVE KEY FOR MID – 2

I Objective:

1.	A
2.	B
3.	D
4.	A
5.	A
6.	B
7.	A
8.	A
9.	B
10.	A

II Fill in the Blanks:

11.	Data
12.	Non parametric supervised data
13.	Data segmentation
14.	Unsupervised learning
15.	Mean value
16.	Ongoing
17.	Web log files
18.	Sharing of structured data
19.	An agent based approach
20.	Divide & conquer

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ASSIGNMENT QUESTIONS – MID-1

1. Define KDD Process in data mining with brief Explanation (C412.2)(Knowledge)
2. What is Data mining? Explain architecture of data mining system (C412.1)(Knowledge)
3. What are major issues in data mining? (C412.1)(Knowledge)
4. What is Data warehouse and different types of Data warehouse? (C412.3)(Analysis)
5. What is item set and explain different types of item sets? (C412.3)(Evaluation)

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ASSIGNMENT QUESTIONS – MID-2

1. What is Decision Trees and Decision tree Construction Methods? (Analysis)(C412.5)
2. Describe the Web and Text Mining? (Knowledge)(C412.6)
3. Explain Naïve – Bayes Classifier and Bayesian Belief Networks? (Comprehension)(C412.5)
4. Explain K-Nearest neighbour Classification-Algorithm and Characteristics? (Comprehension)(C412.4)
5. Explain briefly about Apriori algorithm? (Comprehension)(C412.4)

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ASSIGNMENT-1 KEY

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ASSIGNMENT-2 KEY

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Course Title	Data Mining
Course Code	CS702PC
Programme	B.Tech
Year & Semester	IV-Year I-Semester
Regulation	R18
Course Faculty	Mr. K Veera Kishore, Associate Professor, CSE

Slow learners:

S. No.	Roll No.	No of Backlogs	Internal-I Status	Internal-II Status
1	19X31A0561	5	15	16
2	19X31A0563	3	14	14
3	19X31A0564	5	15	16
4	19X31A0565	5	15	16
5	19X31A0571	4	18	19
6	19X31A0573	5	14	14
7	19X31A0580	5	18	19
8	19X31A0592	5	14	20
9	19X31A05A3	3	17	18
10	19X31A05A4	4	17	18
11	19X31A05A5	5	14	14
12	19X31A05B3	4	19	18

Advanced learners:

S. No.	Roll No.	GATE MATERIAL
1	19X31A0566	Data Preprocessing Association Rules Multimedia
2	19X31A0569	
3	19X31A0576	
4	19X31A0581	
5	19X31A0582	
6	19X31A0583	
7	19X31A0585	
8	19X31A0588	
9	19X31A0591	
10	19X31A0598	
11	19X31A05A0	
12	19X31A05B4	

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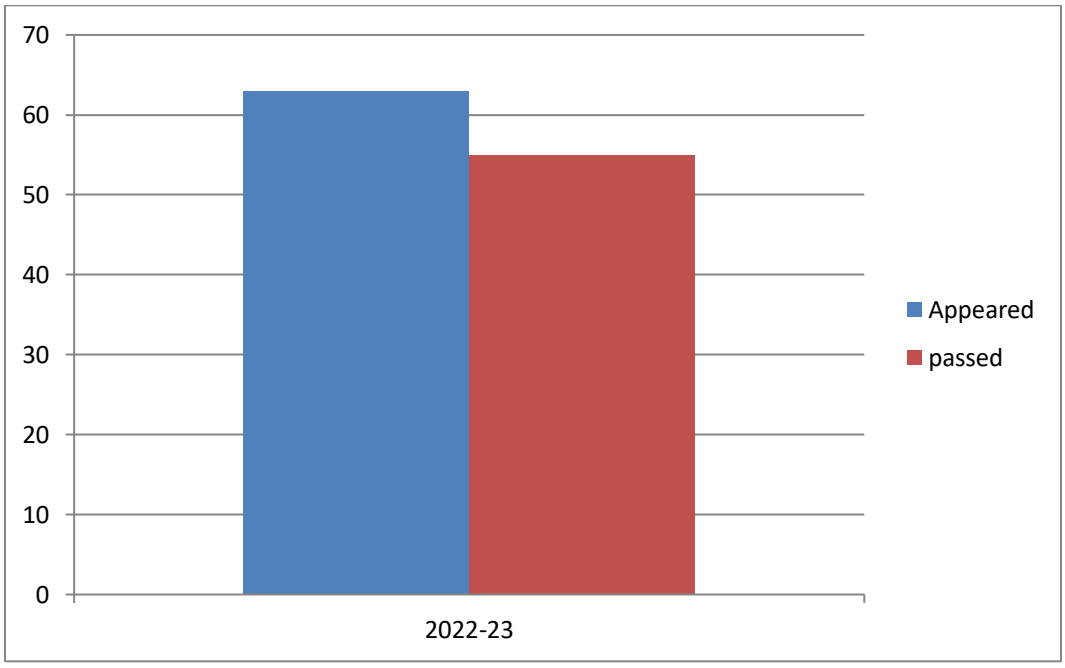
BATCH: CSE-IV B.TECH I SEM CSE-A RESULT ANALYSIS

ACADAMIC YEAR	COURSE NAME	NUMBER OF STUDENTS		QUESTION PAPER SETTING		PASS%
		APPEARED	PASSED	INTERNAL	EXTERNAL	
2022-2023	Data Mining (C412)	63	55	Course Faculty	JNTUH	87

DATAMINING(C412) RESULT ANALYSIS



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Accredited by NAAC with A+ Grade, Recognized under 2(f) of UGC Act 1956
(Approved by AICTE, New Delhi and Affiliated to JNTUH, Hyderabad)
Khalsa Ibrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

REMEDIAL CLASSES TIME TABLE

A.Y 2022-23 **SEMESTER-I**

BRANCH/ SEC	MON 4.00 PM-5.00 PM	TUE 4.00 PM-5.00 PM	WED 4.00 PM-5.00 PM	THUR 4.00 PM-5.00 PM	FRI 4.00 PM-5.00 PM
II CSE-A	A&DE	DS	C++	COA	COSM
II CSE-B	DS	A&DE	COSM	C++	COA
II CSE-C	COSM	COA	A&DE	DS	C++
III CSE-A	SE	FLAT	CN	WT	PPL
III CSE-B	WT	CN	SE	PPL	FLAT
III CSE-C	FLAT	WT	PPL	CN	SE
IVCSE-A	C&NS	DM	CC	POE	RTS
IV CSE-B	CC	RTS	C&NS	DM	POE
IV CSE-C	RTS	CC	POE	C&NS	DM

HOD
Computer Science & Engg. Dept.
SRI INDU INSTITUTE OF ENGG & TECH.
Sheriguda(V), Ibrahimpatnam(M), R.R.Dist-501 10

PRINCIPAL
PRINCIPAL
Sri Indu Institute of Engineering & Tech
Sheriguda(Vill), Ibrahimpatnam
Dist. Telangana -501 510

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer science and Engineering

Course Outcome Attainment (Internal Examination-1)

Name of the faculty : Mr.K.Veera Kishore | Academic Year: 2022-23

Branch & Section: CSE -B | Examination: I Internal

Course Name: Data Mining | Year: IV | Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Obj1	A1
Max. Marks ==>		**5**			**5**			**5**			**5**			**10**	**5**
1	17BE1A0522													4	**5**
2	18X31A0597							2						4	**5**
3	18X31A05B4	2									5			9	**5**
4	18X31A05D9	2												4	**5**
5	19X31A0561	5												10	**5**
6	19X31A0562	5												10	**5**
7	19X31A0563										4			4	**5**
8	19X31A0564	5												10	**5**
9	19X31A0565	4									3			8	**5**
10	19X31A0566	5									5			9	**5**
11	19X31A0567	5									4			10	**5**
12	19X31A0568	5									5			10	**5**
13	19X31A0569	4			5									10	**5**
14	19X31A0570	2									5			10	**5**
15	19X31A0571	5									3			10	**5**
16	19X31A0572	5						4						10	**5**
17	19X31A0573										4			4	**5**
18	19X31A0574	5									4			10	**5**
19	19X31A0575	4									4			10	**5**
20	19X31A0576	4			5									10	**5**
21	19X31A0577	4									5			10	**5**
22	19X31A0578	3									4			10	**5**
23	19X31A0579	4									2			10	**5**
24	19X31A0580	4			5									9	**5**
25	19X31A0581	5						4						10	**5**
26	19X31A0582	5									4			10	**5**
27	19X31A0583	4									5			10	**5**
28	19X31A0584	5									2			10	**5**
29	19X31A0585	5			4									10	**5**
30	19X31A0586	5									4			10	**5**
31	19X31A0587	5									4			10	**5**
32	19X31A0588	5						4			4			10	**5**
33	19X31A0589	5									4			10	**5**
34	19X31A0590	4			5									10	**5**
35	19X31A0591	5									5			10	**5**
36	19X31A0592	4												10	**5**
37	19X31A0593	5									4			10	**5**
38	19X31A0594	4									5			9	**5**
39	19X31A0595										4			4	**5**
40	19X31A0596	3									5			10	**5**
41	19X31A0597	4									5			10	**5**
42	19X31A0598	4						5						10	**5**
43	19X31A0599	4									4			10	**5**
44	19X31A05A0	5									5			10	**5**
45	19X31A05A1	5			3									10	**5**
46	19X31A05A2	5									5			10	**5**
47	19X31A05A3	2			5									10	**5**
48	19X31A05A4	3									4			10	**5**
49	19X31A05A5										4			4	**5**
50	19X31A05A6	5												10	**5**
51	19X31A05A7	5									3			10	**5**
52	19X31A05A8	3									5			10	**5**
53	19X31A05B0	5									3			10	**5**
54	19X31A05B1	5												4	**5**

55	19X31A05B2	2									5			10	**5**
56	19X31A05B3	5									4			10	**5**
57	19X31A05B4	3									5			10	**5**
58	19X31A05B5	4									4			10	**5**
59	19X31A05B6	4									4			10	**5**
60	19X31A05B7	4									5			10	**5**
61	19X31A05B8	5			4									10	**5**
62	19X31A05B9	5									3			10	**5**
63	19X31A05C0										4			4	**5**
64	20X35A0507	5									3			10	**5**
65	20X35A0508	4									3			10	**5**
66	20X35A0509										5			7	**5**
67	20X35A0510	2									5			10	**5**
68	20X35A0511	4						5						10	**5**
69	20X35A0512	5									2			10	**5**
Target set by the faculty /		3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00
Number of students		55	0	0	8	0	0	5	0	0	45	0	0	60	69
Number of students attempted		63	1	0	10	1	1	6	0	0	48	0	0	69	69
Percentage of students scored more than target		87%	0%		80%	0%	0%	83%			94%			87%	100%

CO Mapping with Exam Questions:

CO - 1	**Y**												y	y
CO - 2				**Y**			**Y**						y	y
CO - 3										**Y**			y	y
CO - 4														
CO - 5														
CO - 6														

CO Attainment based on Exam Questions:

CO - 1	87%											87%	87%
CO - 2				87%			87%					87%	87%
CO - 3										87%		87%	87%
CO - 4		#N/A		#N/A	#N/A		#N/A	#N/A					
CO - 5		#N/A		#N/A	#N/A		#N/A	#N/A				#N/A	#N/A
CO - 6		#N/A		#N/A	#N/A		#N/A	#N/A				#N/A	#N/A

CO	**Subj**	obj		Asgn	Overall	Level
CO-1	87%	87%		87%	87%	3.00
CO-2	87%	87%		87%	87%	3.00
CO-3	87%	87%		87%	87%	3.00
CO-4						
CO-5						
CO-6						

Attainment Level

1	40%	
2	50%	
3	60%	

Attainment (Internal 1 Examination) = **3.00**

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer science and Engineering

Course Outcome Attainment (Internal Examination-2)

Name of the faculty : Mr.K. Veera Kishore | Academic Year: 2022-23
Branch & Section: CSE-B | Examination: II Internal
Course Name: Data Mining | Year: IV | Semester: I

S.No	HT No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q2c	Q3a	Q3b	Q3c	Q4a	Q4b	Q4c	Obj2	A2
Max. Marks ==>		5			5			5			5			10	5
1	17BE1A0522										4			4	5
2	18X31A0597							4						4	5
3	18X31A05B4	5												10	5
4	18X31A05D9							4						4	5
5	19X31A0561	5			1									10	5
6	19X31A0562	4			3									10	5
7	19X31A0563				4									4	5
8	19X31A0564	4			2									10	5
9	19X31A0565	5			5									6	5
10	19X31A0566	3						5						10	5
11	19X31A0567	5			4									10	5
12	19X31A0568	5			5									10	5
13	19X31A0569	5			4									10	5
14	19X31A0570	4			5									9	5
15	19X31A0571	4			5									10	5
16	19X31A0572	5						5						10	5
17	19X31A0573							4						4	5
18	19X31A0574	3			5									10	5
19	19X31A0575	5						4						10	5
20	19X31A0576	3									5			10	5
21	19X31A0577	5									3			10	5
22	19X31A0578	5									3			10	5
23	19X31A0579	5			2									10	5
24	19X31A0580	4						5						10	5
25	19X31A0581	4			4									10	5
26	19X31A0582	5			2									10	5
27	19X31A0583	4									4			10	5
28	19X31A0584	4						2						9	5
29	19X31A0585	4						4						10	5
30	19X31A0586	5			5									10	5
31	19X31A0587	3			5									10	5
32	19X31A0588	4						4						10	5
33	19X31A0589	5									4			10	5
34	19X31A0590	5						3						10	5
35	19X31A0591	5						4						10	5
36	19X31A0592	5						5						10	5
37	19X31A0593	5			4									10	5
38	19X31A0594	5									5			10	5
39	19X31A0595							4						4	5
40	19X31A0596	5									4			10	5
41	19X31A0597	3				5								10	5
42	19X31A0598	5			5									10	5
43	19X31A0599	4									5			10	5
44	19X31A05A0	5						4						10	5
45	19X31A05A1	5			5									10	5
46	19X31A05A2	1			5									10	5
47	19X31A05A3	5			3									10	5
48	19X31A05A4	4			5									9	5
49	19X31A05A5				4									4	5
50	19X31A05A6	4						5						10	5
51	19X31A05A7	4									3			10	5
52	19X31A05A8	4			5									10	5
53	19X31A05B0	5						2						10	5
54	19X31A05B1	5									2			10	5
55	19X31A05B2	5			1									10	5
56	19X31A05B3				4						4			10	5
57	19X31A05B4	5									4			10	5
58	19X31A05B5	4			4									10	5
59	19X31A05B6	5			4									10	5
60	19X31A05B7				4						4			10	5
61	19X31A05B8	5			4									10	5
62	19X31A05B9	5			4									10	5
63	19X31A05C0										4			4	5

64	20X35A0507	5			5									9	5
65	20X35A0508	5			3									10	5
66	20X35A0509	3												10	5
67	20X35A0510	4						4						10	5
68	20X35A0511				5			5						10	5
69	20X35A0512	5						3						10	5
70	22X35A0522													10	5
Target set by the faculty / HoD		3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	3.00	0.00	0.00	6.00	3.00
Number of students performed above the target		57	0	0	29	1	0	18	0	0	14	0	0	62	70
Number of students attempted		58	0	0	35	1	0	20	0	0	15	0	0	70	70
Percentage of students scored more than target		98%			83%	100%		90%			93%			89%	100%

CO Mapping with Exam Questions:

CO - 1														
CO - 2														
CO - 3														
CO - 4	**y**	**y**											y	y
CO - 5				**y**	**y**		**y**						y	y
CO - 6										**y**			y	y

CO Attainment based on Exam Questions:

CO - 1	#N/A	#N/A			#N/A			#N/A			#N/A			
CO - 2	#N/A	#N/A			#N/A			#N/A			#N/A			
CO - 3					#N/A			#N/A			#N/A			
CO - 4	87%	0%			#N/A			#N/A			#N/A		87%	100%
CO - 5	#N/A	#N/A		80%	#N/A		83%	#N/A			#N/A		87%	100%
CO - 6	#N/A	#N/A			#N/A			#N/A		94%	#N/A		87%	100%

CO	**Subj**	obj		Asgn	Overall	Level
CO-1						
CO-2						
CO-3						
CO-4		87%		100%	93%	3.00
CO-5		87%		100%	93%	3.00
CO-6		87%		100%	93%	3.00

Attainment Level		
1	40%	
2	50%	
3	60%	

Attainment (Internal Examination-2) = **3.00**

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer science and Engineering

Course Outcome Attainment (University Examinations)

Name of the faculty : Mr.K.Veera Kishore Academic Year: 2022-23

Branch & Section: CSE -B Year / Semester: IV / I

Course Name: Data Mining

S.No	Roll Number	Marks Secured
1	17BE1A0522	A
2	18X31A0597	A
3	18X31A05B4	8
4	18X31A05D9	A
5	19X31A0561	28
6	19X31A0562	31
7	19X31A0563	A
8	19X31A0564	1
9	19X31A0565	27
10	19X31A0566	41
11	19X31A0567	34
12	19X31A0568	47
13	19X31A0569	38
14	19X31A0570	46
15	19X31A0571	13
16	19X31A0572	28
17	19X31A0573	25
18	19X31A0574	33
19	19X31A0575	33
20	19X31A0576	48
21	19X31A0577	39
22	19X31A0578	26
23	19X31A0579	31
24	19X31A0580	26
25	19X31A0581	45
26	19X31A0582	32
27	19X31A0583	29
28	19X31A0584	33
29	19X31A0585	37
30	19X31A0586	34
31	19X31A0587	40
32	19X31A0588	40
33	19X31A0589	29
34	19X31A0590	38
35	19X31A0591	41
Max Marks		75

S.No	Roll Number	Marks Secured
36	19X31A0592	11
37	19X31A0593	32
38	19X31A0594	35
39	19X31A0595	A
40	19X31A0596	39
41	19X31A0597	37
42	19X31A0598	38
43	19X31A0599	15
44	19X31A05A0	49
45	19X31A05A1	26
46	19X31A05A2	28
47	19X31A05A3	42
48	19X31A05A4	16
49	19X31A05A5	21
50	19X31A05A6	40
51	19X31A05A7	30
52	19X31A05A8	50
53	19X31A05B0	38
54	19X31A05B1	39
55	19X31A05B2	14
56	19X31A05B3	48
57	19X31A05B4	26
58	19X31A05B5	27
59	19X31A05B6	54
60	19X31A05B7	49
61	19X31A05B8	31
62	19X31A05B9	31
63	19X31A05C0	A
64	20X35A0507	45
65	20X35A0508	36
66	20X35A0509	49
67	20X35A0510	36
68	20X35A0511	46
69	20X35A0512	51
70	22X35A0522	A

Class Average mark	26
Number of students performed above the target	54
Number of successful students	66
Percentage of students scored more than target	82%
Attainment level	**3**

Attainment Level	% students
1	40%
2	50%
3	60%

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Computer science and Engineering

Course Outcome Attainment

Name of the faculty Mr.K.Veera Kishore
Branch & Section: CSE -B
Course Name: Data Mining

Academic Year: 2022-23
Examination: I Internal
Year: IV
Semester: I

Course Outcomes	1st Internal Exam	2nd Internal Exam	Internal Exam	University Exam	Attainment Level
CO1	3.00		3.00	3.00	3.00
CO2	3.00		3.00	3.00	3.00
CO3	3.00		3.00	3.00	3.00
CO4		3.00	3.00	3.00	3.00
CO5		3.00	3.00	3.00	3.00
CO6		3.00	3.00	3.00	3.00
Internal & University Attainment:			3.00	3.00	
Weightage			25%	75%	
CO Attainment for the course (Internal, University			0.75	2.25	
CO Attainment for the course (Direct Method)			3.00		

Overall course attainment level **3.00**

SRI INDU INSTITUTE OF ENGINEERING & TECHNOLOGY

Department of Electronics and Communication Engineering

Program Outcome Attainment (from Course)

Name of Faculty:	Mr.K. Veera Kishore	Academic Year:	2022-23
Branch & Section:	CSE -B	Year:	IV
Course Name:	Data Mining	Semester:	I

CO-PO mapping

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3			2							3	3	
CO2	3	3	3		3		2					2		
CO3	2		3		2								3	
CO4	2	2	1									2		2
CO5	3						3		3			2	2	2
CO6	2				1				2				3	
Course	**2.3**	**2.7**	**2.7**		**2.3**		**2.5**		**2.5**			**2.3**	2.75	2

CO	Course Outcome Attainment
CO1	3.00
CO2	3.00
CO3	3.00
CO4	3.00
CO5	3.00
CO6	3.00
Overall course attainment level	**3.00**

PO-ATTAINMENT

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO Attainment	**2.30**	**2.70**	**2.70**		**2.30**		**2.50**		**2.50**			**2.30**	**2.75**	**2.00**

CO contribution to PO - 33%, 67%, 100% (Level 1/2/3)

SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

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KhalsaIbrahimpatnam, Sheriguda (V), Ibrahimpatnam (M), Ranga Reddy Dist., Telangana – 501 510
Website: https://siiet.ac.in/

ATTENDANCE REGISTERS

https://drive.google.com/file/d/1Xm6K94WGtABfhI0oGOFxL4IMoip5if2P/view?usp=sharing