Text and Reference Books

1. Cryptography and Network Security: Principles and Practice, William Stallings, Prentice Hall, New Jersey, 4th Edition.
2. Introduction to cryptography, Johannes A. Buchmann, Springer, Verlag, 2001.
3. Cryptography and Network Security, Atul Kahate, TMH, 2nd Edition.
4. Cryptography, Forouzan, TMH, 2007.

Course Outcomes:

After completing the course, students will be able to:

1. Identify some of the factors driving the need for network security.
2. Identify and classify particular examples of attacks .
3. Define the terms vulnerability, threat and attack.
4. Identify physical points of vulnerability in simple networks.
5. Compare and contrast symmetric and asymmetric encryption systems and their vulnerability to attack, and explain the characteristics of hybrid systems.

BCA 506: Data Mining and Warehousing

Teaching Scheme	Examination Scheme
Lectures: 3 hrs/Week Tutorials: 1 hr/Week Credits: 4	Class Test -12Marks Teachers Assessment - 6Marks Attendance – 12 Marks End Semester Exam – 70 marks

Prerequisite: - BCA 201 Engineering Mathematics and BCA 302 Database Management Systems

Course Objectives:

1. To have an idea about data mining and its various applications.
2. To understand multidimensional behavior of data and data warehouse architectures.
3. To apply data pre-processing concepts to clean, integrate and transform different datasets, apply data mining methods to information systems and generate results for decision making systems.
4. To analyze various data mining techniques to solve problems.
5. To demonstrate data mining techniques to solve problems in other disciplines using mathematical approach.
6. To create and design intelligent program using data mining techniques.

Detailed Syllabus

Unit-1
Definition, Data Mining as the Evolution of Information Technology, Knowledge Discovery Process (KDP), Classification of Mining systems, Techniques involved.

Unit-2
Needs, Pre-processing data, Data Cleaning, Data integration and transformation, data reduction, discretization, Concept of hierarchy generation.

Unit-3
Definition, Differences between Operational Database Systems and Data Warehouses, OLTP vs. OLAP, 3 Tier Architecture of Data Warehouse, Concept of ETL.

Unit-4
Data Cube- A Multidimensional Data Model, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional Data Models, OLAP operation.

Unit-5
Introduction to Association Rule and Association Rule Mining, Classification: Decision Tree Induction and Bayesian Classification algorithm, K-nearest neighbor, Clustering: Cluster Analysis.

Unit-6
Mining Complex Data Types, Methodologies of Data Mining, Data Mining Applications, Web Mining.

Text and Reference Books

1. Data Mining -Concepts and Techniques, Han, Kamber, Harcourt India, 2006.
2. Data Mining Introductory and advanced topics, Margaret H Dunham, Pearson, 2002.
3. Data Mining Techniques, Arjun K. Pujari, University Press, 2001.