INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES
DEVI AHILYA UNIVERSITY, INDORE

M.C.A. (6 Years)

X SEMESTER

Jan. 2018 – May 2018

Sub. Code	Sub. Name	Credit
IC-1001B	Data Mining and Warehousing	4
IC-1002A	Parallel Processing & Distributed Computing	4
IC-1003A	Enterprise Computing Technique	4
IC-1004B	Managerial Economics	4
IC-1005B	Multimedia Computing	4
IC-1009	Enterprise Computing Technique Lab	2
IC-1006	Comprehensive Viva	4

INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES, DAVV, INDORE
MCA (6 Years) X SEMESTER
IC-1001B: Data Mining and Warehousing

Aim of Course: To understand data warehouses and data Mining with recent trends and development and trends in the field.

Objectives:

The course is designed to make students:

- Understand basic concepts of data warehousing and data mining.
- To make students understand On Line Analytical Processing (OLAP)
- To learn data mining techniques and understand various algorithms.
- To get familiarize with data mining tools and ETL tools.

Course Contents:

UNIT I

Data Warehouse, Evolution, Definition, Very large database, Application, Multidimensional Data Model, OLTP V/s Data Warehouse, Warehouse Schema, Data Warehouse Architecture. Data Warehouse Server, Data Warehouse Implementation, Metadata, Data Warehouse Backend Process: Data Extraction, Data Cleaning, Data Transformation, Data Reduction, Data loading and refreshing. ETL and Data warehouse, Metadata.

UNIT II

Structuring/Modeling Issues, Derived Data, Schema Design, Dimension Tables, Fact Table, Star Schema, Snowflake schema, Fact Constellation, De-normalization, Data Partitioning, Data Warehouse and Data Marts. OLAP, Strengths of OLAP, OLTP V/s OLAP, Multidimensional Data, Slicing and Dicing, Roll-up and Drill Down, OLAP queries, Successful Warehouse, Data Warehouse Pitfalls, DW and OLAP Research Issues, Tools.

UNIT III

Fundamentals of data mining, Data Mining definitions, KDD V/s Data Mining, Data Mining Functionalities, From Data Warehousing to Data Mining, DBMS V/s DM, Issues and challenges in Data Mining. Data Mining Primitives, Data Mining Query Languages. Data Mining applications-Case studies.

UNIT IV

Association rules: Methods to discover association rules. Various algorithms to discover association rules like A Priori, partition, Pincer search, Dynamic Itemset Counting Algorithm and more.

UNIT V

Classification Technique: Decision Trees, Web Mining, Web content mining, Web Structure mining, Text mining, Temporal Mining and Spatial Data Mining.

Text Books:

1. ARUN K PUJARI, Data Mining Techniques, University Press
2. JIAWEI HAN & MICHELINE KAMBER, Data Mining – Concepts and Techniques, Harcourt India

Reference Books:

1. W. H. Inmon, Building the Data Warehouse, Wiley Dreamtech India Pvt. Ltd
2. RALPH KIMBALL, The Data Warehouse Life cycle Tool kit, WILEY STUDENT EDITION

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IC-1002A: Parallel Processing & Distributed Computing

Course Objective:

The course is designed to make students:

- To understand the concepts of design hardware of a Parallel systems and its components.
- Learn concept of parallel processing.
- Understand various model of parallel computing.
- To understand distributed computing systems.

Unit I	Introduction
	Parallel Computing, Parallel Architecture, Architectural Classification Scheme, Classification Based on Grain Size, Bernstein Conditions for Detection of Parallelism, Performance Metrics for Processors
Unit II	Design aspect of pipelining, ways to improve performance of pipeling, Job sequencing and collision, MAL, Advance pipelining techniques, SIMD Architecture and Programming Principles, SIMD Parallel Algorithms, Data Mapping and memory in array processors, interconnection network for SIMD, Memory interleaving, Case studies of SIMD parallel Processors.
Unit III	Multiprocessor Architectures, Study and Comparison of loosely and tightly coupled multiprocessors.
	Crossbar switch, Multiport Memory Model, Memory contention and arbitration techniques, Cache coherency and bus snooping.
Unit IV	Introduction to Distributed Systems
	Definition, Issues, Goals, Types of distributed systems, Distributed System Models, Hardware concepts, Software Concept, Models of Middleware, Services offered by middleware, Client Server model.
Unit V	Desirable Features of global Scheduling algorithm, Task assignment approach, Load balancing approach, load sharing approach, Introduction to process management, process migration, Threads, Virtualization, Code Migration.

Text Books

1. Computer Architecture and Parallel Processing – Kai Hwang and Faye A. Briggs, McGraw-Hill
2. Andrew S. Tanenbaum and Maarten Van Steen, "Distributed Systems: Principles and Paradigms, 2nd edition, Pearson Education, Inc., 2007, ISBN: 0-13-239227-5.

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MCA (6 Years) X SEMESTER
IC-1004B: Managerial Economics

Aim of Course: To provide students with a basic understanding of the economic theory that will have application in their professional life**.**
Objectives:
Management students are expected to understand and apply the concept of economics, especially for decision making of firm, with reference to various functional area of modern management.
Course Contents:
UNIT I
Introduction - Managerial economics – Meaning, definitions, importance, Significance, scope of managerial economics. Related disciplines & managerial economics.

UNIT II
Demand concept- Demand:- Concept, Types, Function, Cardinal Utility Approach, Consumer surplus, Law of Diminishing managerial utility, Elasticity of Demand, Demand Forecasting

UNIT III
Production & Cost Analysis –Supply and Law of Supply,Production Analysis, Law of variable Proportion, Return to scale, Isoquants & least cost combination of inputs, Ridge lines and Expansion Path. Cost: - Concept & Types, Short Run and Long run cost Analysis

UNIT IV
Market Structure:- Price determination under different markets: - Perfect competition, Monopoly, Monopolistic competition, Oligopoly

UNIT V
National Income and Inflation: -National Income and its variants, Measures of national products and methods used, National Income in India. Inflation and types of Inflation, inflationary Gap, Causes and consequences of inflation, Reflation, Deflation; Trends and measurement of inflation in Indian economy. Monetary & Fiscal Policies.

Reference Books:
1. Morden micro Economics - Koutsoyiannis
2. Managerial Economics: - Peterson &Levis
3. Micro Economics – Sundaram&Vaish
4. G. Mankiw: - Macro Economics
5. Dornbusch& Fischer: - Macro Econiomics

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IC-1003A: Enterprise Computing Technique

Aim of the course: To enable the students understand the concepts of EJB and build web-based and/or enterprise-based applications that incorporate EJB technology.
Objectives:
The course is designed to make students:
- Implement business-tier functionality using EJB technology
- Learn the concepts and implementation of RMI and JNDI
- Get an overview of EJB fundamentals.
- Learn the concepts and implementation of Entity and Session beans..

Course Contents:
UNIT I
RMI: Object Serialization, Developing Applications with RMI, and the RMI security manager, Parameters passing in RMI.
UNIT II
JNDI: Naming services, Directory services, Benefits of JNDI, JNDI Architecture, JNDI concepts
UNIT III
Overview & EJB Fundamentals: Motivation for EJB, Component architecture, Various roles in J2EE architecture, Type of Beans, Distributed object & Middleware, Constituents of enterprise beans: Enterprise beans class, EJB Object, Home object, Local interfaces, Deployment description, Vendor specific files.
UNIT IV
Session Beans: Stateless session beans, statefull session beans, characteristics of statefull session beans, lifecycle diagram for session beans. JMS, Integrating JMS with EJB, Developing message driver beans.
UNIT V
Entity Beans: Persistence concepts, Features of entity beans, Bean managed Persistent entity beans, and Container managed persistent entity beans, Life cycle Diagrams, BMP and CMP relationships.

Text Books:
1. Ed Roman "Mastering Enterprise Java Beans", Wiley Publishing, 2005, 3rd Edition

Reference Books:
1. P G Sarang ,Kyle Gabhart Professional EJB wrox publication
2. Richard Monson-Haefel ,Bill, Burke,Enterprise java beans 3.0,5 th Ed Developing Enterprise Java Components,O'Reilly Media
2. Ahmed "Professional JAVA server programming", SPD, 2005
3. J2EE Tutorial from www.java.sun.com

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IC-1005B : Multimedia Computing

Objective: To give exposure to the students on latest development in the field of Multimedia and related fields.
Prerequisite: Computer Graphics and fundamentals of Information Theory.

Course of Contents

Unit-I Multimedia: Introduction and Applications
Introduction to Multimedia, Motivation and Applications, Signals and Waves, Analog and Digital Data, Components of multimedia , Sampling and Quantization; Fundamentals of Information theory, Multimedia Authoring tools. Basics of Data Compression: - Run-length, Huffman, Arithmetic.

Unit-II Fundamentals of Image
Image Data Representation, Colour Models: RGB, YCbCr; Main Image File Formats: Bitmap Files; Halftonning, Dithering; Lossless Image Compression: Run-length Coding (pcx), Lossy Image Compression, Cosine Transform Based Coding (jpeg).

Unit-III Basics of Digital Audio
Introduction to Digital Audio, Representing Audio Data, WAV Audio Format, Audio Data Compression, MP3, MIDI concepts, Audio memory representation.

Unit-IV Basics of Video
Video: Digitization of video, Video capturing , Video transmission standards; EDTV, CCER, CIF, SIF, HDTV, Video formats: H-26I, H-263. MPEG Video compression. Video streaming. Study and analysis of video formats, compression and streaming.

Unit-V Multimedia Network Communication
Multimedia Communication and applications, Study of Multimedia networking, Quality of data transmission, Multimedia over IP, Media on Demand.
Applications: Media Entertainment, Media consumption, web-based applications, e-learning and education, Different Multimedia applications, Analysis and development of Multimedia application

Books Recommended:
[1] Ralf Steinmetz & Klara Nahrstedt, Multimedia: Computing, Communications & Applications, Pearson Education Asia
[2] Tay Vaughan, Multimedia: Making It Work, Mc-Graw hill, Osborne Media
[3] Jerry D. Gibson, Multimedia Communications, Directions and Innovations
[4] J.Jeffcoate, Multimedia in practice, Technology & Application, PHI 1995.
[5] Ze-Nian-Li, Fundamentals of Multimedia, Pearson Education
[6] S. Annadurai & R. Shanmugalakshmi, Fundamentals of Digital Image Processing Pearson Education