STUDENT KIT

Master of Computer Application (Integrated)-IV Semester

Jan-May 2015

Devi Ahilya Vishwavidyalaya

School of Computer Science & IT

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SCHOOL OF COMPUTER SCIENCE & IT
DEVI AHILYA VISWAVIDYALAYA
Takshashila Campus, Khandwa Road, Indore – 452017
Tel. (0731) – 2438518, 2438530 Fax : (0731) – 2761358
Email: head.scs@dauniv.ac.in

School of Computer Science & IT, DAVV, Indore

Scheme-Jan-May 2015 onwards

MCA (Integrated)- IV Semester

Sub. Code	Subject Name	L	T	P	C	Internal	Practical /Project	End Sem	Total
CS-5308	IT Project Management	3	1	2	5	30	20	50	100
CS-5617	Internet & Web Technology	3	1	4	6	30	20	50	100
CS-5701	Artificial Intelligence	3	1	0	4	40	-	60	100
CS-5413	Data Mining and Warehousing	3	1	4	6	30	20	50	100
IC-3912	Professional and Social Issues in IT	1	0	0	1	40	-	60	100
CS-5805B	Project				6			100	100
CS-5809B	Comprehensive Viva				4			100	100
Total					**32**				

Note:

Proposed Scheme can be changed/amended/improved according to necessity and requirement.

MCA - IV

CS-5308 Information Technology Project Management

UNIT I

Introduction to Project Management

Project, Project Management, Role of the Project Manager, Project Management and Information Technology Context, A system view of Project Management, Understanding the Organization, Stakeholder Management, Project Phases and the Project Life Cycle, Context of Information Technology Projects, Project Management Process Groups, Mapping Process Groups to Knowledge Areas.

UNIT II

Project Integration Management, Strategic Planning and Project Selection, Preliminary Scope Statements, Project Scope Management, Scope Planning and Scope Management Plan, Scope Definition and the Project Scope Statement.

UNIT III

Project Time Management, Activity Definition and Sequencing, Activity Resource and Duration Estimating, Schedule Development and Control, Project Cost Management, Cost Estimating, Cost Budgeting, Cost Control.

UNIT IV

Project Quality Management, Quality Planning, Quality Assurance , Quality Control, Project Human Resource Management, Keys to Managing People, Human Resource Planning, Acquiring the Project Team, Developing the Project Team, Managing the Project Team.

UNIT V

Project Communication Management, Communication Planning, Information Distribution, Performance Reporting, Managing Stakeholders, Project Risk Management, Risk Management Planning, Risk Response Planning ,Risk Monitoring and Control, Project Procurement Management, Planning Purchasing and Acquisitions, Planning Contracting, Requesting Seller Responses, Selecting Sellers, Administering the Contract, Closing the Contract

Text Book:

1. Information Technology Project Management, Kathy Schwalbe, 5th Edition, Thomson Course Technology.

CS-5617 Internet and Web Technology

UNIT-I

Introduction to HTTP, web Server and application Servers, Installation of Application servers, Config files, Web.xml. Java Servlet, Servlet Development Process, Deployment Descriptors, The Generic Servlet, Lifecycle of Servlet. Servlet Packages, Classes, Interfaces and Methods, Handling Forms with Servlet.

UNIT -II

Various methods of Session Handling, various elements of Deployment Descriptor. Java Database Connectivity: various steps in process of connection to the Database, various types of JDBC Drivers.

UNIT -III

JSP Basics: JSP lifecycle, Directives, scripting elements, standard actions, implicit objects.

UNIT -IV

Connection of JSP and Servlet with different database viz. Oracle, MS-SQL Server, MySQL. java.sql Package. Querying a database, adding records, deleting records and modifying records. Types of Statement.

UNIT -V

Separating Business Logic and Presentation Logic, Building and using JavaBean. Session handling in JSP, types of error and exception handling. MVC Architecture, introduction to Web Services.

Text Book(s) :

1. K. Mukhar, “Beginning Java EE 5: From Novice to Professional”, Wrox Press.

Reference Books :

1. M. Hall, L. Brown, “Core Servlets and Java Server Pages”, 2nd edition, Pearson Education
2. G. Franciscus, “Struts Recipes”, Manning Press
3. C. Bauer, G. King, “Hibernate in Action”, Manning Press
4. B. Basham, K. Sierra, B. Bates, “Head First Servlet and JSP”, 2nd Edition, O'Reilly Media.

CS-5701 Artificial Intelligence

UNIT I

Introduction: Intelligence v/s Artificial Intelligence, Knowledge and related issues, Applications of AI. Knowledge Management: Representation, organization, manipulation, acquisitions and maintenance of knowledge. Role of intelligent behavior.

UNIT II

Knowledge Representation Techniques: Symbolic Approaches, Representation of knowledge using prepositional logic (PL), First Order Predicate Logic (FOPL), Conversion to clausal form, Inference Rules, The Resolution principle, non-deductive inference methods, associative networks, frames, Conceptual dependencies and Scripts.

UNIT III

Introduction to LISP and PROLOG: Basic programming in LISP / PROLOG.

Problem solving in AI: Introduction, Problem characteristics, state space representation, Classical AI problems: The Eight Puzzle, Traveling Salesman Problem.

UNIT IV

Search and Control Strategies: Uninformed and Informed search techniques.

Uninformed Search: Breadth-First Search & Depth First Search;

Heuristic Search Techniques: Hill Climbing, Best first search, A* algorithm, Problem reduction, and/or graph, AO* algorithm, Constraint Satisfaction, Means-end Analysis.

UNIT V

Neural Network Computing: Introduction, basics of ANN, terminology and models of neuron, topology and basic learning laws. Activation and synaptic dynamics, learning methods, stability and convergence in ANN, Functional units of an ANN for pattern recognition.

Expert Systems: Characteristics and elements of an expert system, Building an expert system using LISP/ PROLOG.

Text Book(s):

1. Elaine Rich, Kevin Knight, Shivshankar B. Nair, *Artificial Intelligence*,3rd Edition, , Tata Mc-Graw Hill Publishing Company Ltd.,2009.
2. Dan W. Patterson, *Introduction to Artificial Intelligence and Expert Systems*, 1st edition, Prentice Hall, 1990.
3. Dan W. Patterson, *Artificial Neural Networks*, 1st edition, Prentice Hall 1998.
4. S.J. Russell & P. Norvig, *Artificial Intelligence: A Modern Approach*, Prentice Hall, 2nd edition, 2002.

Reference Book(s):

1. Elaine Rich, Kevin Knight, *Artificial Intelligence*, 2nd edition, Tata Mc-Graw-Hill

Publishing Company Ltd.,New Delhi,1991.
2. N. J. Nilsson, *Artificial Intelligence: A New Synthesis*, Morgan Kaufmann Publishers, 1998.
3. Ivan Bratko, *Prolog Programming for Artificial Intelligence*, Addison Wesley; 3rd edition, 2000.

CS-5413 Data Mining & Data Warehousing

UNIT I

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

UNIT II

Association rules: Methods to discover association rules. Various algorithms to discover association rules like A Priori Algorithm. Partition, Pincer search, Dynamic Item set Counting Algorithm etc. Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Algorithms, Hierarchical and Categorical clustering, Classification methods, Decision Trees, Neural networks, Genetic Algorithm.

UNIT III

Web Mining, Web content mining, Web Structure mining, Text mining., Temporal Data Mining, Spatial Data Mining, Data Mining tools.

UNIT IV

Introduction: Data Warehouse, Evolution, Definition, Very large database, Application, Multidimensional Data Model, OLTP vs. Data Warehouse, 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, Components of metadata.

UNIT V

Warehouse Schema, Schema Design, Database Design, Dimension Tables, Fact Table, Star Schema, Snowflake schema, Fact Constellation, De-normalization, Data Partitioning, Data Warehouse and Data Marts. SQL Extensions, PL/SQL. OLAP, Strengths of OLAP, OLTP vs OLAP, Multi-dimensional Data, Slicing and Dicing, Roll-up and Drill Down, OLAP queries, Successful Warehouse, Data Warehouse Pitfalls, DW and OLAP Research Issues, Data Warehouse Tools.

Text Book(s) :

1. Data Mining Techniques – Arun K Pujari, University Press,4th edition
2. The Data Warehouse Life cycle Tool kit – Ralph Kimball Wiley Student Edition, 2nd Edition.

Reference Book(s):

1. Data Mining – Concepts and Techniques - Jiawei Han & Micheline Kamber, Harcourt India. 2nd Edition.
2. Building the Data Warehouse- W. H. Inmon, Wiley Dreamtech India Pvt. Ltd, 3rd Edition.
3. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Education, 1st Edition.
4. Data Warehousing Fundamentals – Paulraj Ponnaiah, Wiley Student Edition, 2nd Edition.
5. Data Mining Introductory and advanced topics –Margaret H Dunham, Pearson Education, 3rd Edition.

IC-3912 Professional and Social Issues in IT

Unit I

Introduction to IT policy issues.

The Internet and the Web Freedom of expression: attempts to censor the Internet, filters, international issues, also the problem of spam.

Modern problems: Identity theft, cyberbullying, Internet addiction.

Unit II

Computer reliability, and errors and failures. Liability. Risks, importance of professionalism.

Cyber-Crime: Identity theft, malware, hackers, bots, etc.

Intellectual property issues. Who owns programs? Who owns the Web? Patent and copyright. Open source, GNU GPL/lesser GPL, Creative Commons, peculiar qualities of information goods, digital rights management - watermarking, usage tracking.

Unit III

Cybercommunities. Digital society. Democracy, access, diversity, issues of online identity

Practical and professional computer ethics. Codes of practice. Ethical programming..

Unit IV

Application of ethics in computing - case studies. DES, AES, RSA, and other cryptological products and protocols. Discussion of Public Key Infrastructure - trust models, key exchange, certificates.

Unit V

Social impacts of computing. Computers and work. Ethical and moral decisions of the past and future. Ethical issues for computing professionals.

1. Required Text(s)

Computers, Internet and New Technology Laws by kernika seth.
Cyber Law & Crimes by Barkha Bhasin, Rama Mohan Ukkalam

2. Essential References

Cyber Law Cyber Crime Internet and E-Commerce by Prof. Vimlendu Tayal.
Open Source and the Law by priti suri

3. Electronic Materials, Web Sites etc

http://www.ili.ac.in
http://www.legalindia.in/cyber-crimes-and-the-law
http://www.itlaw.in/