RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Information Technology, V-Semester

Open Elective IT- 504 (A) Artificial Intelligence

Course Objectives

- To present an overview of artificial intelligence (AI) principles and approaches
- Develop a basic understanding of the building blocks of AI

Unit I:

Meaning and definition of artificial intelligence, Production systems, Characteristics of production systems, Study and comparison of breadth first search and depth first search techniques, other Search Techniques like hill Climbing, Best first Search. A* algorithm, AO* algorithms etc, and various types of control strategies.

Unit II:

Knowledge Representation, Problems in representing knowledge, knowledge representation using propositional and predicate logic, comparison of propositional and predicate logic, Resolution, refutation, deduction, theorem proving, inferencing, monotonic and non-monotonic reasoning.

Unit III:

Probabilistic reasoning, Baye's theorem, semantic networks, scripts, schemas, frames, conceptual dependency, fuzzy logic, forward and backward reasoning.

Unit IV:

Game playing techniques like minimax procedure, alpha-beta cut-offs etc, planning, Study of the block world problem in robotics, Introduction to understanding, natural language processing.

Unit V:

Introduction to learning, Various techniques used in learning, Introduction to neural networks, applications of neural networks, common sense, reasoning, some example of expert systems.

References:-

1 Rich E and Knight K, "Artificial Intelligence", TMH, New Delhi.

2 Nelsson N.J., "Principles of Artificial Intelligence", Springer Verlag, Berlin.

Course Outcomes:
Upon successful completion of this course the students will:

- Be familiar with terminology used in this area

- Explain what constitutes "Artificial" Intelligence and how to identify systems with Artificial Intelligence.
- Know how to build simple knowledge-based systems
- Have ability to apply knowledge representation, reasoning, and machine learning techniques to real-world problems

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Information Technology, V-Semester

Open Elective IT- 504 (B) E Commerce & Governance

Course Objectives

- Discuss fundamentals of e-commerce, types and applications.
- Evaluate the role of the major types of information systems in a business environment and their relationship to each other
- Assess the impact of the Internet and Internet technology on business electronic commerce and electronic business
- Identify the major e management challenges for building and using information systems and learn how to find appropriate solutions to those challenges.
- Learn strategies for e-commerce, e government, Wireless Application Protocol, WAP technology and electronic payment system.

Unit I: Introduction
Definition of Electronic Commerce, Brief history of Ecommerce, e, E-Commerce: technology and prospects, incentives for engaging in electronic commerce, needs of E-Commerce, advantages and disadvantages, , Inter Organizational E-Commerce Intra Organizational E-Commerce, and Consumer to Business Electronic Commerce, Architectural framework ,Impact of E-commerce on business, E-Commerce Models.

Unit II: Network Infrastructure for E- Commerce
Internet and Intranet based E-commerce- Issues, problems and prospects, Network Infrastructure, Network Access Equipments, Broadband telecommunication (ATM, ISDN, FRAME RELAY). Mobile Commerce: Introduction, Wireless Application Protocol, WAP technology, Mobile Information device. Emerging Client Server Security Threats, firewalls & Network Security.

Unit III: E-Marketplaces, e Procurement and e Payment Systems
Define e-Marketplace and Describe their Functions, Explain e-Marketplace types and their features, Describe the various types of auctions and list their characteristics, Discuss the benefits, limitations and impacts of auctions, E-Commerce in the wireless environment, Competition in the DE and impact on industry, Integration and e-Business suits, ERP, eSCM, CRM, e-Procurement definition, processes, methods and benefits , e-Payment, Discuss the categories and users of smart cards, Describe payment methods in B2B EC

Unit IV: Electronic Payment System
Electronic Payments Overview of Electronics payments, Overview, The SET protocol, Payment Gateway, Digital Token based Electronics payment System, magnetic strip card, E-Checks, Smart Cards, Credit Card, Debit Card based EPS, Emerging financial Instruments, Home Banking, Online Banking.

Unit V: e-Government
Definition of e-Governments, theoretical background of e-governance, issues in e-governance applications, evolution of e-governance, Implementation, E-Government Services, Challenges and Opportunities, E-Government Benefits, e-governance models- broadcasting, critical flow, comparative analysis, mobilization and lobbying, interactive services / G2C2G.

Reference Books

1. Ravi Kalakota, Andrew Winston, "Frontiers of Electronic Commerce", Addison Wesley.
2. Pete Lohsin , John Vacca "Electronic Commerce", New Age International
3. Goel, Ritendra "E-commerce", New Age International
4. Laudon, "E-Commerce: Business, Technology, Society", Pearson Education
5. Bajaj and Nag, "E-Commerce the cutting edge of Business", TMH
6. Turban, "Electronic Commerce 2004: A Managerial Perspective", Pearson Education
7. Denieal Amor, " The E-Business Revolution", Addision Wesley
8. Diwan, Sharma, "E-Commerce" Excel
9. J. Satyanarayan, "E-government: The science of the possible", PHI Learning Private Limited
10. C.S.R. Prabhu, "E-governence: concept and case study", PHI Learning Private Limited

Course Outcomes

Upon successful completion of this course the student will be able to:

- understand the e-business concepts.
- understand the e-business models and infrastructure.
- learn how e-business concepts are applied to different fields, such as: education, banking, tourism and so on.
- willcome up with online business ideas and will be motivated to apply what they learned.

Open Elective IT- 504 (C) Java Programming

Course Objective:
- To learn the basic concepts and techniques which form the object oriented programming paradigm
- To identify Java language components and how they work together in applications.
- To design and program stand-alone Java applications.
- To learn how to use exception handling in Java applications.
- To learn Java Event Handling

UNIT-I

The Java Environment: Java Development Kit (JDK) , Java virtual machine, Java programming environment(compiler, interpreter, applet viewer, debugger), Java Applications Programming Interface(API),Basic idea of application and applet. Java as an object oriented language: objects, classes, encapsulation, inheritance and software reuse, polymorphism, abstract classes and abstract methods,: defining an interface, implementing & applying interfaces, variables in interfaces, extending interfaces, Packages,scopeandlifetime;Accessspecifies;Constructors;Copyconstructor;this pointer; finalize() method; arrays; Memory allocation and garbage collection

UNIT- II

AWT: Containers and components, AWT classes, window fundamentals: Component, Container, Panel, Window, Frame, Canvas, AWT Controls, Layout Managers and Menus: adding and removing control, Labels, Button, Check Box, Radio Button, Choice, menu, Text area, Scroll list, Scrollbar; Frame; Layout managers- flow layout, Grid layout, Border layout, Card layout. Java Event Handling Model: Java's event delegation model –Ignoring the event, Self-contained events, Delegating events; The event class hierarchy; There lationship between interface, methods called, parameters and event source; Adapter classes; Event classes action Event, Adjustment Event, Container Event, Focus Event, Item Event, Eye Event, Mouse Event, Text Event,Window Event. Applets: Applet security restrictions; the class hierarchy for applets; Life cycle of applet; HTMLTags for applet Introduction to Swing: swing library, Building application susing Swings

UNIT-III

Multithreading and Exception Handling: Overview of simple threads, Basic idea of multi threaded programming, Thread synchronization: Locks, synchronized methods, synchronized block,Thread scheduling,Producer-consumerrelationship,Daemon thread,Basicidea ofexception handling,stack basedexecutionandexceptionpropagation,Exception types: Exception Handling:Try,Catch,Finally,Throw statement,Assertions

UNIT-IV

Input/Output:ExploringJavaI/O.,Directories,streamclassesTheBytestream:Inputstream,outputstream,file input stream, file output stream, print stream, Randomaccess file, the character streams, Buffered reader, buffered writer, print writer, serialization. JDBC: JDBC-ODBCbridge; The connectivity model; The driver manager; Navigating there sult set object contents; java.sql Package; The JDBCexception classes; Connecting to Remote database.

UNIT-V

Java Networking: exploring java. Net package Networking Basics: Socket, Client server, reservedsockets,servers,Internetaddressing,TCPsockets,UDPsockets. RMI: Client/Server architecture, RMI registry services; Step sofcreating RMI Application and an example

References:
1. Naughton&Schildt"TheCompleteReferenceJava
2. TataMcGraw Hill.2.Deitel "Java-How toProgram:"PearsonEducation,Asia.
3. Horstmann&Cornell "CoreJava2" (Vol I&II) ,SunMicrosystems.
4. LvanBayross"Java2.0":BPBpublications.
5. Ivor Horton's"BeginningJava2,JDK5Ed.,WileyIndia.
6. JavaProgrammingfor theabsolutebeginnersByRussell,PHILearning

Course Outcomes

Upon successful completion of this course the student will:

- Have the knowledge of the structure and model of the Java programming language
- use the Java programming language for various programming tasks
- develop software in the Java programming language
- evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements
- propose the use of certain technologies by implementing them in the Java programming language to solve the given problem

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Information Technology, V-Semester

Departmental Lab IT-505 Advanced Java Lab

Course Objective:
• To learn Designing and developing Web applications
•Designing Enterprise based applications by encapsulating an application's business logic.
•Designing applications using pre-built frameworks.

Unit I
Java Database Connectivity(JDBC): JDBC Product, Types of Drivers, Two-Tier Client/Server Model, Three-Tier Client/Server Model, Basic Steps of JDBC, Creating and Executing SQL Statement, The Result Set Object, Working with Database MetaData Interface

Unit II
Java Servlets:Servlet Interaction & Advanced Servlets, Life cycle of Servlet, Java Servlet Development Kit, Javax.servletpackage, Reading Servlet Parameters, Reading Initialization Parameters, The javax.servlet.http Package, Handling HTTP.

Unit III
JavaServer Pages(JSP): JSP Technologies, Understanding the Client-Server Model, Understanding Web server software, Configuring the JSP Server, Handling JSP Errors, JSP Translation Time Errors, JSP Request Time Errors, Creating a JSP Error Page

Remote Method Invocation (RMI): RMI Architecture, Designing RMI application, Executing RMI application

Unit IV
Enterprise Java Beans (EJB): Types of EnterpriseJava beans, Session Bean & Entity Bean, Features of Session Bean, Life-cycle of Stateful Session Bean, Features of Entity Bean, Life-cycle of Entity Bean, Container-managed Transactions & Bean-managed Transactions, Implementing a container-managed Entity Bean

Unit V
Struts: Introduction to the Apache Struts, MVC Architecture, Struts Architecture, How Struts Works? Introduction to the Struts Controller, Introduction to the Struts Action Class, Using Struts ActionFrom Class, Using Struts HTML Tags, Introduction to Struts Validator Framework, Client Side Address Validation in Struts, Custom Validators Example, Developing Application with Struts Tiles

References

1.Java the Complete Reference, ninth edition by Herbert Schild, Publisher: McGraw Hills
2.Head First EJB 3.0 by Kathy Sierra, Bert Bates, Publisher: O'Reilly Media 3.Head First Servlets and JSP by Bryan Basham, Kathy Sierra & Bert Bates, Publisher: O'Reilly Media
4.Just Hibernate, A Lightweight Introduction to the Hibernate Framework by Madhusudhan Konda, Publisher: O'Reilly Media
5.Programming Jakarta Struts, 2nd Edition by Chuck Cavaness, Publisher: O'Reilly Medi

Course Outcomes:

Upon successful completion of this course students will be able to-

- learn to access database through Java programs, using Java Data Base Connectivity (JDBC)
- create dynamic web pages, using Servlets and JSP.
- make a resusable software component, using Java Bean.
- invoke the remote methods in an application using Remote Method Invocation (RMI)
- understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB).
- developStateful, Stateless and Entity Beans.
- use Struts frameworks, which gives the opportunity to reuse the codes for quick development.