w.e.f.2010-2011 academic year

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA - 533 003, Andhra Pradesh, India

COMPUTER SCIENCE ENGINEERING

COURSE STRUCTURE

IV YEAR SEMESTER **I**

S. No.	Subject	T	P	Credits
1	Cryptography and Network Security	4	-	4
2	UML & Design Patterns	4	-	4
3	Data Ware Housing and Data Mining	4	-	4
4	Mobile Computing	4	-	4
5	**Open Elective** i. MATLAB ii.Web Services iii. Open Source Software iv.Cyber Laws	4	-	4
6	**Elective –I:** i. Computer Forensics ii. Cloud Computing iii. Software Project Management iv. Machine Learning v. Distributed Databases	4	-	4
7	UML & Design Patterns Lab	-	3	2
8	Mobile Application Development Lab	-	3	2
	Total			**28**

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

CRYPTOGRAPHY AND NETWORK SECURITY

UNIT-I:

Introduction: Security Attacks, Security Services, Security Mechanisms, and a Model for Network Security, Non-Cryptographic Protocol Vulnerabilities - DoS, DDoS, Session Hijacking and Spoofing, Software Vulnerabilities - Phishing, Buffer Overflow, Format String Attacks, SQL Injection, Basics of Cryptography - Symmetric Cipher Model, Substitution Techniques, Transportation Techniques, Other Cipher Properties - Confusion, Diffusion, Block and Stream Ciphers.

UNIT-II:

Secret Key Cryptography: Data Encryption Standard(DES), Strength of DES, Block Cipher Design Principles and Modes of Operations, Triple DES, International Data Encryption algorithm, Blowfish, CAST-128, AES

UNIT-III:

Number Theory: Prime and Relatively Prime Numbers, Modular Arithmetic, Fermat's and Euler's Theorems, the Chinese Remainder Theorem, Discrete Logarithms.

UNIT-IV:

Public Key Cryptography: Principles of Public Key Cryptosystems, RSA Algorithm, Diffie-Hellman Key Exchange, Introduction to Elliptic Curve Cryptography.

UNIT-V:

Cryptographic Hash Functions: Applications of Cryptographic Hash Functions, Secure Hash Algorithm, Message Authentication Codes - Message Authentication Requirements and Functions, HMAC, Digital signatures, Digital Signature Schemes, Authentication Protocols, Digital Signature Standards.

UNIT-VI:

Authentication Applications: Kerberos, Key Management and Distribution, X.509 Directory Authentication service, Public Key Infrastructure, Electronic Mail Security: Pretty Good Privacy, S/MIME.

UNIT-VII:

IP Security: Overview, Architecture, Authentication Header, Encapsulating Security Payload, Combining security Associations, Internet Key Exchange, Web Security: Web Security Considerations, Secure Sockets Layer and Transport Layer Security, Electronic Payment.

UNIT-VIII:

System Security: Intruders, Intrusion Detection, Password Management, Malicious Software - Types, Viruses, Virus Countermeasures, Worms, Firewalls - Characteristics, Types of Firewalls, Placement of Firewalls, Firewall Configuration, Trusted systems.

TEXT BOOKS:

1. Cryptography and Network Security: Principles and Practice, 5th Edition, William Stallings, Pearson Education, 2011.
2. Network Security and Cryptography, Bernard Menezes, Cengage Learning, 2011.
3. Cryptography and Network, 2nd Edition, Behrouz A. Fourouzan and Debdeep Mukhopadhyay, McGraw-Hill, 2010.

REFERENCE BOOKS:

1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
2. Principles of Information Security, Whitman, Thomson.
3. Introduction to Cryptography, Buchmann, Springer.
4. Applied Cryptography, 2nd Edition, Bruce Schneier, Johnwiley & Sons.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

UML AND DESIGN PATTERNS

UNIT-I:
Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-II:
Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams. Advanced classes, advanced relationships, Object diagrams: common modeling techniques.

UNIT-III:
Behavioral Modeling: Interactions, Interaction diagrams. Use cases, Use case Diagrams, Activity Diagrams.,Events and signals, state machines, state chart diagrams.

UNIT-IV:
Advanced Behavioral Modeling: Architectural Modeling: Components, Deployment, Component diagrams and Deployment diagrams, Common modeling techniques for component and deployment diagrams

UNIT-V:
Introduction: What Is a Design Pattern?, Design Patterns in Smalltalk MVC, Describing Design Patterns, The Catalog of Design Patterns, Organizing the Catalog, How Design Patterns Solve Design Problems, How to Select a Design Pattern, How to Use a Design Pattern.

UNIT-VI:
Creational Patterns: Abstract Factory, Builder, Factory Method, Prototype, Singleton,

UNIT-VII:
Structural Patterns: Adapter, Bridge, Composite, Decorator, Façade, Flyweight, Proxy.

UNIT-VIII:
Behavioral Patterns: Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, Strategy, Template Method, What to Expect from Design Patterns

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TEXT BOOKS:

1. The unified Modeling language user guide by Grady Booch, James Rumbaugh , Ivar Jacobson, PEA
2. Design Patterns By Erich Gamma, Pearson Education

REFERENCE BOOK:

1. Satzinger: Object Oriented Analysis and Design, CENGAGE

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

DATA WAREHOUSING AND DATA MINING

Unit-I:
Introduction to Data Mining: What is data mining, motivating challenges, origins of data mining, data mining tasks, Types of Data-attributes and measurements, types of data sets, Data Quality (Tan)

Unit-II:
Data preprocessing, Measures of Similarity and Dissimilarity: Basics, similarity and dissimilarity between simple attributes, dissimilarities between data objects, similarities between data objects, examples of proximity measures: similarity measures for binary data, Jaccard coefficient, Cosine similarity, Extended Jaccard coefficient, Correlation, Exploring Data : Data Set, Summary Statistics (Tan)

Unit-III:
Data Warehouse: basic concepts:, Data Warehousing Modeling: Data Cube and OLAP, Data Warehouse implementation : efficient data cube computation, partial materialization, indexing OLAP data, efficient processing of OLAP queries. (H & C)

Unit-IV:
Classification: Basic Concepts, General approach to solving a classification problem, Decision Tree induction: working of decision tree, building a decision tree, methods for expressing attribute test conditions, measures for selecting the best split, Algorithm for decision tree induction.
Model over fitting: Due to presence of noise, due to lack of representation samples, evaluating the performance of classifier: holdout method, random sub sampling, cross-validation, bootstrap. (Tan)

Unit-V:
Classification-Alternative techniques: Bayesian Classifier: Bayes theorem, using bayes theorm for classification, Naïve Bayes classifier, Bayes error rate, Bayesian Belief Networks: Model representation, model building (Tan)

Unit-VI:
Association Analysis: Problem Definition, Frequent Item-set generation- The Apriori principle , Frequent Item set generation in the Apriori algorithm, candidate generation and pruning, support counting (eluding support counting using a Hash tree) , Rule generation, compact representation of frequent item sets, FP-Growth Algorithms. (Tan)

Unit-VII:
Overview- types of clustering, Basic K-means, K –means –additional issues, Bisecting k-means, k-means and different types of clusters, strengths and weaknesses, k-means as an optimization problem.

Unit-VIII:
Agglomerative Hierarchical clustering, basic agglomerative hierarchical clustering algorithm, specific techniques, DBSCAN: Traditional density: center-based approach, strengths and weaknesses (Tan)

TEXT BOOKS:

1. Introduction to Data Mining : Pang-Ning tan, Michael Steinbach, Vipin Kumar, Pearson
2. Data Mining ,Concepts and Techniques, 3/e, Jiawei Han , Micheline Kamber , Elsevier

REFERENCE BOOKS:

1. Introduction to Data Mining with Case Studies 2nd ed: GK Gupta; PHI.
2. Data Mining : Introductory and Advanced Topics : Dunham, Sridhar, Pearson.
3. Data Warehousing, Data Mining & OLAP, Alex Berson, Stephen J Smith, TMH
4. Data Mining Theory and Practice, Soman, Diwakar, Ajay, PHI, 2006.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

MOBILE COMPUTING

UNIT I: Mobile Communications: Mobile Communication, Mobile Computing, Architecture, Mobile Devices, Mobile System Networks, Data Dissemination, Mobility Management and Security. **Mobile Devices and Systems:** Cellular Networks and Frequency Reuse, Mobile Smart Phones, Smart Mobiles and Systems, Handheld Pocket Computers, Handheld Devices, Smart Systems, Limitations of Mobile Devices, Automotive Systems.

UNIT II: GSM, CDMA, 2G, 3G and 4G Communications: GSM Services and System Architecture, Radio Interface of GSM, Protocols of GSM, Localizations, Call Handling, Handover, Security, New Data Services, General Packet Radio Service, High Speed Circuit Switched Data, Code Division Multiple Access, 3G Wireless Communication Standards, OFDM, High Speed Packet Access 3G Network, Wi Max IEEE 802.16e, Broadband Wireless Access, 4G Networks, Mobile Satellite Communication Networks

UNIT III: Mobile IP Network Layer: IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunnelling and Encapsulation, Route Optimization, Dynamic Host Configuration Protocol, VoIP, IPSec.

UNIT IV: Mobile Transport Layer: Conventional TCP/IP Transport Layer Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Methods of Mobile TCP Layer Transmission, TCP over 2.5G/3G Mobile Networks.

UNIT VI: Databases and Mobile Computing: Data Organization, Database Transaction Models, Query Processing, Data Recovery Process, Database Hoarding Techniques, Data Cashing, Client-Server Computing for Mobile Computing, Adaptation Software for Mobile Computing, Power Aware Mobile Computing, Context Aware Mobile Computing

UNIT VII: Data Dissemination and Broadcasting Systems: Communication Asymmetry, Classification of Data Delivery Mechanisms, Data Dissemination Broadcast Models, Selective Tuning and Indexing Techniques, Digital Audio Broadcasting, Digital Video Broadcasting, Data Synchronization in Mobile Computing Systems.

UNIT VIII: Mobile Application Languages: Mobile Application Development, XML, Java, J2ME, JavaCard, **Mobile Application Development Platforms:** Operating Systems, Windows Mobile and CE, Windows Phone7, Android, Symbian.

TEXT BOOKS:

1. Mobile Computing, Raj Kamal, 2nd Edition, Oxford University Press, 2012.
2. Mobile Computing: Technology, Applications and Service Creation, 2nd Edition, Asoke K Talukder, Hasan Ahmed, Roopa R Yavagal, Tata McGraw Hill, 2010.
3. Mobile Computing: Theoty and Practice, Kumkum Garg, Pearson Education, 2010.

REFERENCE BOOKS:

1. Mobile Communications, Jochen Schiller, Pearson Education, Second Edition, 2008.
2. Wireless Communications and Networks, 2nd Edition, William Stallings, Person Education, 2007.
3. Handbook of Wireless Networks and Mobile Computing, Ivan Stojmenovic, Wiley, 2007.
4. Wireless and Mobile Networks: Concepts and Protocols, Dr. Sunilkumar, et al, Wiley India
5. Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML, Reza Behravanfar, Cambridge University Press, 2004.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

COMPUTER FORENSICS

Unit-I:
Computer Forensics and Investigations: Understanding Computer Forensics, Preparing for Computer Investigations, Taking A Systematic Approach, Procedure for Corporate High-Tech Investigations, Understanding Data Recovery Workstations and Software,

Unit-II:
Investor's Office and Laboratory: Understanding Forensics Lab Certification Requirements, Determining the Physical Requirements for a Computer Forensics Lab, Selecting a Basic Forensic Workstation

Unit-III:
Data Acquisition: Understanding Storage Formats for Digital Evidence, Determining the Best Acquisition Method, Contingency Planning for Image Acquisitions, Using Acquisition Tools, Validating Data Acquisition, Performing RAID Data Acquisition, Using Remote Network Acquisition Tools, Using Other Forensics Acquisition Tools

Unit-IV:
Processing Crime and Incident Scenes: Identifying Digital Evidence, Collecting the Evidence in Private-Sector Incident Scenes, Processing law Enforcement Crime Scenes, Preparing for a Search, Securing a Computer Incident or Crime Scene, Sizing Digital evidence at the Scene, Storing Digital evidence, obtaining a Digital Hash.

Unit-V:
Current Computer Forensics Tools: Evaluating Computer Forensics Toll Needs, Computer Forensics Software Tools, Computer Forensics Hardware Tools, Validating and Testing Forensics Software

Unit-VI:
Computer Forensics Analysis and Validation: Determining What Data to Collect and Anlyze, Validating Forensic Data, Addressing Data-Hiding Techniques, Performing Remote Acquisition

Unit-VII:

Recovering Graphics and Network Forensics: Recognizing a Graphics File, Understanding Data Compression, Locating and Recovering Graphics Files, Understanding Copyright Issues with Graphics, Network Forensic, Developing Standard Procedure for Network Forensics, Using Network Tools, Examining Hiney Project

Unit-VIII:

E-mail Investigations Cell Phone and Mobile Device Forensics: Exploring the Role of E-mail in Investigations, Exploring the Role of Client and Server in E-mail, Investigating E-mail Crimes and Violations, Understanding E-mail Servers, Using Specialized E-mail Forensics Tools, Understanding Mobile Device Forensics, Understanding Acquisition Procedure for Cell Phones and Mobile Devoices

TEXT BOOK:

1. Nelson, Phillips Enfinger,Steuart, " Computer Forensics and Investigations, Cengage Learning.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

CLOUD COMPUTING

UNIT–I:
Introduction to virtualization and virtual machine, Virtualization in Cluster /grid context Virtual network, Information model & data model for virtual machine, Software as a Service (SaaS), SOA, On Demand Computing.

UNIT–II:
Cloud computing: Introduction, What it is and What it isn't, from Collaborations to Cloud, Cloud application architectures, Value of cloud computing, Cloud Infrastructure models, Scaling a Cloud Infrastructure, Capacity Planning, Cloud Scale.

UNIT–III:
Data Center to Cloud: Move into the Cloud, Know Your Software Licenses, The Shift to a Cloud Cost Model, Service Levels for Cloud Applications

UNIT IV: Security: Disaster Recovery, Web Application Design, Machine Image Design, Privacy Design, Database Management, Data Security, Network Security, Host Security, Compromise Response

UNIT–V:
Defining Clouds for the Enterprise- Storage-as-a-Service, Database-as-a-Service, Information-as-a-Service, Process-as-a-Service, Application-as-a-Service,

UNIT-VI:
Platform-as-a-Service, Integration-as-a-Service, Security-as-a-Service, Management/Governance-as-a-Service, Testing-as-a-Service Infrastructure-as-a-Service

UNIT–VII:
Disaster Recovery, Disaster Recovery, Planning, Cloud Disaster Management

UNIT-VIII:
Case study: Types of Clouds, Cloudcentres in detail, Comparing approaches, Xen OpenNEbula , Eucalyptus, Amazon, Nimbus

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TEXT BOOKS:

1. Cloud Computing – Web Based Applications That Change the way you Work and Collaborate Online – **Michael Miller**, Pearson Education.
2. Cloud Application Architectures, 1st Edition by **George Reese** O'Reilly Media.

REFERENCE BOOK:

1. Cloud Computing and SOA Convergence in Your Enterprise: A Step-by-Step Guide **David S. Linthicum** Addison-Wesley Professional.
2. Distributed & Cloud Computing from Parallel Processing to the internet of Things by Kai Hwang. Geoffrey C.Fox.Jack J.Dongarra.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

SOFTWARE PROJECT MANAGEMENT

UNIT–I:
Conventional Software Management: The waterfall model, conventional software Management performance.
Evolution of Software Economics: Software Economics, pragmatic software cost estimation.

UNIT–II:
Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.
The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT–III:
Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.
Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT–IV:
Model based software architectures: A Management perspective and technical perspective.
Work Flows of the process: Software process workflows, Iteration workflows.

UNIT–V:
Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.
Iterative Process Planning: Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT–VI:
Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.
Process Automation: Automation Building blocks, The Project Environment.

UNIT–VII:

Project Control and Process instrumentation : The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

Tailoring the Process: Process discriminants.

UNIT–VIII:

Future Software Project Management: Modern Project Profiles, Next generation Software economics, modern process transitions.

TEXT BOOK:

1. Software Project Management, Walker Royce: Pearson Education, 2005.

REFERENCE BOOKS:

1. Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry, Pearson Education.
3. Software Project Management in practice, Pankaj Jalote, Pearson

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

MACHINE LEARNING

UNIT-I:
Introduction: Well-posed learning problems, designing a learning system, Perspectives and issues in machine learning.

UNIT-II:
Concept Learning: Concept learning and the general to specific ordering, Introduction, A concept learning task, Concept learning as search, Find-S: finding a maximally specific hypothesis, Version spaces and the candidate elimination algorithm, Remarks on version spaces and candidate elimination, Inductive bias.

UNIT-III:
Decision Tree learning: Decision tree representation, Appropriate problems for decision tree learning, The basic decision tree learning algorithm, Hypothesis space search in decision tree learning, Inductive bias in decision tree learning, Issues in decision tree learning

UNIT-IV:
Bayesian learning: Bayes theorem, Bayes theorem and concept learning, Maximum likelihood and least squared error hypotheses, Maximum likelihood hypotheses for predicting probabilities, Bayes optimal classifier, Naïve bayes classifier, An example learning to classify text, Bayesian belief networks.

UNIT-V:
Computational learning theory-1: Probability learning an approximately correct hypothesis, Sample complexity for Finite Hypothesis Space, Sample Complexity for infinite Hypothesis Spaces, The mistake bound model of learning - Instance-Based Learning- Introduction.

UNIT-VI:
Computational learning theory-2: k -Nearest Neighbor Learning, Locally Weighted Regression, Radial Basis Functions, Case-Based Reasoning, Remarks on Lazy and Eager Learning

UNIT-VII:
Learning Sets of Rules: Introduction, Sequential Covering Algorithms, Learning Rule Sets: Summary, Learning First Order Rules, Learning Sets of First Order Rules: FOIL, Induction as Inverted Deduction, Inverting Resolution

UNIT-VIII:
Analytical Learning: Learning with Perfect Domain Theories: Prolog-EBG Remarks on Explanation-Based Learning, Explanation-Based Learning of Search Control Knowledge

TEXT BOOK:

1. Machine Learning, Tom M. Mitchell, MGH

REFERENCE BOOK:

1. Introduction to machine learning, 2nd ed, Ethem Alpaydin, PHI

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

DISTRIBUTED DATABASES

UNIT–I:
Features of Distributed versus Centralized Databases, Principles Of Distributed Databases , Levels Of Distribution Transparency, Reference Architecture for Distributed Databases , Types of Data Fragmentation, Integrity Constraints in Distributed Databases.

UNIT–II:
Translation of Global Queries to Fragment Queries, Equivalence Transformations for Queries, Transforming Global Queries into Fragment Queries, Distributed Grouping and Aggregate Function Evaluation, Parametric Queries.

UNIT–III: Optimization of Access Strategies, A Framework for Query Optimization, Join Queries, General Queries.

UNIT–IV:
The Management of Distributed Transactions, A Framework for Transaction Management , Supporting Atomicity of Distributed Transactions, Concurrency Control for Distributed Transactions, Architectural Aspects of Distributed Transactions.

UNIT–V:
Concurrency Control, Foundation of Distributed Concurrency Control, Distributed Deadlocks, Concurrency Control based on Timestamps, Optimistic Methods for Distributed Concurrency Control.

UNIT–VI:
Reliability, Basic Concepts, Nonblocking Commitment Protocols, Reliability and concurrency Control, Determining a Consistent View of the Network, Detection and Resolution of Inconsistency, Checkpoints and Cold Restart, Distributed Database Administration, Catalog Management in Distributed Databases, Authorization and Protection

UNIT–VII:

Architectural Issues, Alternative Client/Server Architectures, Cache Consistency Object Management, Object Identifier Management, Pointer Swizzling, Object Migration, Distributed Object Storage, Object Query Processing, Object Query Processor Architectures, Query Processing Issues, Query Execution , Transaction Management, Transaction Management in Object DBMSs , Transactions as Objects.

UNIT–VIII:

Database Integration, Scheme Translation, Scheme Integration, Query Processing Query Processing Layers in Distributed Multi-DBMSs, Query Optimization Issues. Transaction Management Transaction and Computation Model Multidatabase Concurrency Control, Multidatabase Recovery, Object Orientation And Interoperability Object Management Architecture CORBA and Database Interoperability Distributed Component Model COM/OLE and Database Interoperability, PUSH-Based Technologies

TEXT BOOKS:

1. Distributed Database Principles & Systems, Stefano Ceri, Giuseppe Pelagatti McGraw-Hill

REFERENCE BOOK:

1. Principles of Distributed Database Systems, M.Tamer Ozsu, Patrick Valduriez – Pearson Education.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

UML & DESIGN PATTERNS LAB

1. To create a UML diagram of ATM APPLICATION.
2. To create a UML diagram of LIBRARY MANAGEMENT SYSTEM.
3. To create a UML diagram of ONLINE BOOK SHOP
4. To create a UML diagram of RAILWAY RESERVATION SYSTEM
5. To create a UML diagram for BANKING SYSTEM
6. To design a Document Editor
7. Using UML design Abstract factory design pattern
8. Using UML design Builder Design pattern
9. Using UML design Facade Design pattern
10. Using UML design Bridge Design pattern
11. Using UML design Decorator Design pattern
12. User gives a print command from a word document. Design to represent this chain of responsibility design pattern

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

MOBILE APPLICATION DEVELOPMENT LAB

1. Write a J2ME program to show how to change the font size and colour.
2. Write a J2ME program which creates the following kind of menu.
    * cut
    * copy
    * past
    * delete
    * select all
    * unselect all
3. Create a J2ME menu which has the following options (Event Handling):
    - cut - can be on/off
    - copy - can be on/off
    - paste - can be on/off
    - delete - can be on/off
    - select all - put all 4 options on
    - unselect all - put all

4. Create a MIDP application, which draws a bar graph to the display. Data values can be given at int[] array. You can enter four data (integer) values to the input text field.
5. Create an MIDP application which examine, that a phone number, which a user has entered is in the given format (Input checking):
* Area code should be one of the following: 040, 041, 050, 0400, 044
* There should 6-8 numbers in telephone number (+ area code)
6. Write a sample program to show how to make a SOCKET Connection from J2ME phone. This J2ME sample program shows how to how to make a SOCKET Connection from a J2ME Phone. Many a times there is a need to connect backend HTTP server from the J2ME application. Show how to make a SOCKET connection from the phone to port 80.
7. Login to HTTP Server from a J2ME Program. This J2ME sample program shows how to display a simple LOGIN SCREEN on the J2ME phone and how to authenticate to a HTTP server. Many J2ME applications for security reasons require the authentication of

the user. This free J2ME sample program, shows how a J2ME application can do authentication to the backend server. Note: Use Apache Tomcat Server as Web Server and MySQL as Database Server.

8. The following should be carried out with respect to the given set of application domains: (Assume that the Server is connected to the well-maintained database of the given domain. Mobile Client is to be connected to the Server and fetch the required data value/information)

- Students Marks Enquiry
- Town/City Movie Enquiry
- Railway/Road/Air (For example PNR) Enquiry/Status
- Sports (say, Cricket) Update
- Town/City Weather Update
- Public Exams (say Intermediate or SSC)/ Entrance (Say EAMCET) Results Enquiry

Divide Student into Batches and suggest them to design database according to their domains and render information according the requests.

9. Write an Android application program that displays Hello World using Terminal.

10. Write an Android application program that displays Hello World using Eclipse.

11. Write an Android application program that accepts a name from the user and displays the hello name to the user in response as output using Eclipse.

12. Write an Android application program that demonstrates the following:

(i) LinearLayout
(ii) RelativeLayout
(iii) TableLayout
(iv) GridView layout

13. Write an Android application program that converts the temperature in Celsius to Fahrenheit.

14. Write an Android application program that demonstrates intent in mobile application development.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

MATLAB
(Open Elective-I)

UNIT-I:
Introduction: What is MATLAB, Basics of MATLAB, MATLAB windows, on-line help, input-output, file types.

UNIT-II:
MATLAB Basics: A Minimum MATLAB Session, Creating and Working with Arrays of Numbers, Creating and Printing Simple Plots, Creating, Saving, and Executing a Script File, Creating and Executing a Function File.

UNIT-III:
Arrays and matrices: Matrices and Vectors, Input, Indexing, Matrix manipulation, Creating vectors, Matrix and Array Operations, Arithmetic operations, Relational operations, Logical operations, Elementary math functions, Matrix functions.

UNIT-IV:
Programming basics: Relational and logical operators, if-end structure, if-else-end structure, if-elseif-else-end structure, switch-case statement, for-end loop, while-end loop, break and continue commands.

UNIT-V:
Scripts and Functions: Script Files**,** Function Files, Executing a function, Subfunctions, Nested functions.

UNIT-VI:
Graphics: Basic 2-D Plots, Style options, Labels, title, legend, and other text objects, Modifying plots with the plot editor, 3-D Plots, Mesh and surface plots.

UNIT-VII:
Handle graphics: The object hierarchy, Object handles, Object properties, modifying an existing plot.

UNIT-VIII:
Graphical user interface (GUI): how a GUI works, creating and displaying a GUI.

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TEXT BOOKS:

1. Getting started with MATLAB by Rudra Pratap,Nov 2009. PHI
2. Programming in MATLAB for Engineers by Stephen J.Chapman, Cengage Learning.

REFERENCE BOOKS:

1. MATLAB: An introduction with applications by Amos Gilat, Wiley Student edition.
2. MATLAB for Engineering Explained, Gusfafsson, Fredrik, Bergmam, Niclas

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

WEB SERVICES
(Open Elective-II)

UNIT-I:
Evolution and Emergence of Web Services - Evolution of distributed computing, Core distributed computing technologies – client/server, CORBA, JAVA RMI, Micro Soft DCOM, MOM, Challenges in Distributed Computing, role of J2EE and XML in distributed computing, emergence of Web Services and Service Oriented Architecture (SOA).

UNIT-II:
Introduction to Web Services – The definition of web services, basic operational model of web services, tools and technologies enabling web services, benefits and challenges of using web services.

UNIT-III:
Web Services Architecture – Web services Architecture and its characteristics, core building blocks of web services, standards and technologies available for implementing web services, web services communication, basic steps of implementing web services, developing web services enabled applications.

UNIT-IV:
Describing Web Services – WSDL – WSDL in the world of Web Services, Web Services life cycle, anatomy of WSDL definition document, WSDL bindings, WSDL Tools, limitations of WSDL.

UNIT-V:
Core fundamentals of SOAP – SOAP Message Structure, SOAP encoding , SOAP message exchange models, SOAP communication and messaging, SOAP security.
Developing Web Services using SOAP – Building SOAP Web Services, developing SOAP Web Services using Java, limitations of SOAP.

UNIT-VI:
Discovering Web Services – Service discovery, role of service discovery in a SOA, service discovery mechanisms, UDDI – UDDI Registries, uses of UDDI Registry, Programming with UDDI, UDDI data structures, support for categorization in UDDI Registries, Publishing API, Publishing information to a UDDI Registry, searching

information in a UDDI Registry, deleting information in a UDDI Registry, limitations of UDDI.

UNIT-VII:
Web Services Interoperability – Means of ensuring Interoperability, Overview of .NET and J2EE.

UNIT-VIII:
Web Services Security – XML security frame work, XML encryption, XML digital signature, XKMS structure, guidelines for signing XML documents.

TEXT BOOKS:

1. Developing Java Web Services, R. Nagappan, R. Skoczylas, R.P. Sriganesh, Wiley India.
2. Java Web Services Architectures, Mc Goven , Tyagi, Stevens, Mathew, Elsevier
3. XML, Web Services, and the Data Revolution, F.P.Coyle, Pearson Education.
4. Developing Enterprise Web Services, S. Chatterjee, J. Webber, Pearson Education.

REFERENCE BOOKS:

1. Building Web Services with Java, 2nd Edition, S. Graham and others, Pearson Education.
2. Java Web Services, D.A. Chappell & T. Jewell, O'Reilly,SPD.
3. McGovern, et al., "Java Web Services Architecture", Morgan Kaufmann Publishers,2005.
4. J2EE Web Services, Richard Monson-Haefel, Pearson Education.

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w.e.f.2010-2011 academic year

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

OPEN SOURCE SOFTWARE
(Open Elective-III)

UNIT-I:
INTRODUCTION: Introduction to Open sources – Need of Open Sources – Advantages of Open Sources– Application of Open Sources. Open source operating systems: LINUX: Introduction – General Overview – Kernel Mode and user mode

UNIT-II:
LINUX:Process – Advanced Concepts – Scheduling – Personalities – Cloning – Signals – Development with Linux.

UNIT-III:
OPEN SOURCE DATABASE: MySQL: Introduction – Setting up account – Starting, terminating and writing your own SQL programs – Record selection Technology – Working with strings – Date and Time– Sorting Query Results – Generating Summary – Working with metadata – Usings equences – MySQL and Web.

UNIT-IV:
OPEN SOURCE PROGRAMMING LANGUAGES : PHP: Introduction – Programming in web environment – variables – constants – data types – operators – Statements – Functions – Arrays – OOP – String Manipulation and regular expression – File handling and data storage

UNIT-V:
PHP and SQL database –PHP and LDAP – PHP Connectivity – Sending and receiving E-mails – Debugging and error handling – Security – Templates.

UNIT-VI:
PYTHON : Syntax and Style – Python Objects – Numbers – Sequences – Strings – Lists and Tuples – Dictionaries – Conditionals and Loops

UNIT-VII:
Files – Input and Output – Errors and Exceptions – Functions – Modules – Classes and OOP – Execution Environment.

UNIT-VIII:

PERL : Perl backgrounder – Perl overview – Perl parsing rules – Variables and Data – Statements and Control structures – Subroutines, Packages, and Modules- Working with Files –Data Manipulation.

TEXT BOOKS:

1. Remy Card, Eric Dumas and Frank Mevel, “The Linux Kernel Book”, Wiley Publications, 2003
2. Steve Suchring, “MySQL Bible”, John Wiley, 2002

REFERENCE BOOKS:

1. Rasmus Lerdorf and Levin Tatroe, “Programming PHP”, O’Reilly, 2002
2. Wesley J. Chun, “Core Phython Programming”, Prentice Hall, 2001
3. Martin C. Brown, “Perl: The Complete Reference”, 2nd Edition, Tata McGraw-Hill Publishing Company Limited, Indian Reprint 2009.
4. Steven Holzner, “PHP: The Complete Reference”, 2nd Edition, Tata McGraw-Hill Publishing Company Limited, Indian Reprint 2009.
5. Vikram Vaswani, “MYSQL: The Complete Reference”, 2nd Edition, Tata McGraw -Hill Publishing Company Limited, Indian Reprint 2009.

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w.e.f.2010-2011 academic year

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

IV Year B.Tech. Computer Science Engineering. I-Sem.

CYBER LAWS
(Open Elective-IV)

UNIT-I:
The IT Act, 2000: A Critique: Crimes in this Millennium, Section 80 of the IT Act, 2000 – A Weapon or a Farce?, Forgetting the Line between Cognizable and Non- Cognizable Officers, Arrest for "About to Commit" an Offence Under the IT Act, A Tribute to Darco, Arrest, But No Punishment.

UNIT-II:
Cyber Crime and Criminal Justice: Penalties, Adjudication and Appeals Under the IT Act, 2000: Concept of Cyber Crime and the IT Act, 2000, Hacking, Teenage Web Vandals, Cyber fraud and Cyber Cheating, Virus on Internet Deformation, Harassment and E-mail Abuse

UNIT-III:
Cyber Pornography, Other IT Offences, Monetary Penalties, Adjudication and Appeals Under IT Act 2000, Network Service Providers, Jurisdiction and Cyber Crimes, Nature of Cyber Criminality Strategies to Tackle Cyber Crime and Trends, Criminal Justice in India and Implications.

UNIT-IV:
Digital Signatures, Certifying Authorities and E-Governance: Digital Signatures, Digital Signature Certificate, Certifying Authorities and Liability in the Event of Digital Signature compromise, E-Governance in the India. A Warming to Babudom, Are Cyber Consumers Covered under the Consumer Protection, Goods and Services, Consumer Complaint Defect in Goods and Deficiency in Services Restrictive and Unfair Trade Practices

UNIT-V:
Traditional Computer Crime: Early Hacker and Theft of Components
Traditional problems, Recognizing and Defining Computer Crime, Phreakers: Yesterday's Hackers, Hacking, Computers as Commodities, Theft of intellectual Property

UNIT-VI:
Web Based Criminal Activity, Interference with Lawful Use of Computers, Malware, DoS (Denial of Service) and DDoS (Distributed Denial of Service) Attacks, Spam ,

Ransomware and Kidnapping of Information, Theft of Information, Data Manipulation, and Web Encroachment , Dissemination of Contraband or Offensive materials, Online Gambling Online Fraud, Securities Fraud and stock Manipulation, Ancillary crimes

UNIT-VII:

IDEBTITY THEFT AND IDENTITY FRAUD: Typologies of Internet Theft/Fraud, Prevalence and Victimology, Physical Methods of Identity Theft, Virtual and Internet Facilitated methods, Crimes facilitated by Identity theft/fraud, Organized Crime and Technology

UNIT-VIII:

Protection of Cyber consumers in India Cyber-consumer act Consumer, Goods and service, consumer compliant, restricted and unfair trade practices

TEXTBOOKS:

1. Vivek Sood, " Cyber Law Simplefied", Tata McGraw Hill
2. Marjie T. Britz, "Computer Forensics and Cyber Crime", Pearson.
3. Cyber Laws Texts and Cases, Ferrera, CENGAGE

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