

Paper DSC 103: FUNDAMENTALS OF INFORMATION TECHNOLOGY

Hours Per Week: 6 (4T+2P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To understand the basic concepts and terminology of information technology and to identify issues related to information security.

UNIT-I: INTRODUCTION TO COMPUTERS:

Introduction, Definition, Characteristics of computer, Evolution of Computer, Block Diagram of a computer, Generations of Computer, Classification Of Computers, Applications of Computer, Capabilities and limitations of computer.

Role of I/O devices in a computer system. **Input Units:** Keyboard, Terminals and its types. Pointing Devices, Scanners and its types, Voice Recognition Systems, Vision Input System, Touch Screen, **Output Units:** Monitors and its types. Printers: Impact Printers and its types. Non-Impact Printers and its types, Plotters, types of plotters, Sound cards, Speakers.

UNIT -II: COMPUTER ARITHMETIC & STORAGE FUNDAMENTALS:

Binary, Binary Arithmetic, Number System: Positional & Non Positional, Binary, Octal, Decimal, Hexadecimal, Converting from one number system to another.

Primary Vs Secondary Storage, Data storage & retrieval methods. **Primary Storage:** RAM ROM, PROM, EPROM, EEPROM. **Secondary Storage:** Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives.

UNIT-III: SOFTWARE:

Software and its needs, Types of S/W. **System Software:** Operating System, Utility Programs - Programming Language: Machine Language, Assembly Language, High Level Language their advantages & disadvantages. **Application S/W** and its types: Word Processing, Spread Sheets Presentation, Graphics, DBMS s/w.

UNIT-IV: OPERATING SYSTEM:

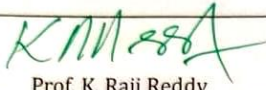
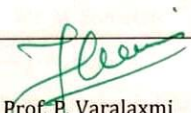
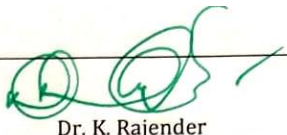



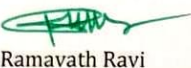
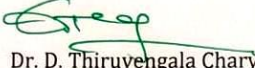
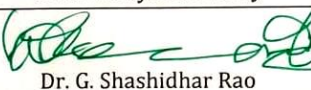
Functions, Measuring System Performance, Assemblers, Compilers and Interpreters. Batch Processing, Multiprogramming, Multi Tasking, Multiprocessing, Time Sharing, DOS, Windows, Unix/Linux.

UNIT-V: DATA COMMUNICATION:

Data, Communication, Basic Networking Devices, Communication Process, Data Transmission speed, Communication Types (modes), Data Transmission Medias, Modem and its working, characteristics, Types of Networks, LAN Topologies, Computer Protocols, Concepts relating to networking.

SUGGESTED READINGS:

Computer Fundamentals : P.K.Sinha

 Prof. K. Raji Reddy	 Prof. P. Varalaxmi	 Dr. K. Rajender
 Dr. S. Narasimha Chary	 Mr. M. Somaiah	 Dr. S. Narayana Swamy
 Dr. Ramavath Ravi	 Dr. D. Thiruvengala Chary	 Dr. G. Shashidhar Rao

Faculty of Commerce & Business Management, Kakatiya University, Warangal
Paper DSC 203: OBJECT ORIENTED PROGRAMMING USING JAVA
(For B.Com. Computer Applications only)

Hours Per Week: 7 (3T+4P)

Exam Hours: 1 ½

Objectives: To understand fundamentals of object-oriented programming in Java and to create Java application programs using sound OOP practices such as interfaces, APIs and error exception handling.

UNIT- I: OBJECT ORIENTED PROGRAMMING & INHERITANCE:

Object Oriented Programming: Principles, Benefits of Object Oriented Programming. Introduction to Java: Java buzzwords, bytecode. Java Programming Fundamentals: Applet and Application program using simple java program, data types, variables, arrays, operators, expressions, control statements, type conversion and casting, concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, Introducing: access control, static, final, nested and inner classes, exploring string class, using command-line arguments.

Inheritance: Inheritance concept, types of inheritance, Member access rules, use of super and final. Polymorphism - dynamic binding, method overriding, abstract classes and methods.

UNIT-II: INTERFACES, PACKAGES, EXCEPTION HANDLING & MULTITHREADING:

Interfaces: Defining an interface, implementing interfaces, extending interface.

Packages: Defining, Creating and Accessing a Package, importing packages.

Exception handling: Benefits of exception handling, classification, checked exceptions and unchecked exceptions, usage of try, catch, throw, throws and finally, rethrowing exceptions, built in exceptions, creating own exception sub classes.

Multithreading: Java Thread Model, The Main Thread, creating a Thread, creating multiple threads, using isAlive() and join(), thread priorities, synchronization, interthread communication, deadlock.

UNIT- III: COLLECTIONS & OTHER UTILITY CLASSES:

Collections: Overview of Java Collection framework, Commonly used Collection classes – ArrayList, LinkedList, HashSet, TreeSet, Collection Interfaces – Collection, List, Set. Accessing Collection via iterator, working with Map. Legacy classes and interfaces – Vector, Hashtable, Stack, Dictionary, Enumeration interface.

Other Utility classes: String Tokenizer, Date, Calendar, GregorianCalendar, Scanner

Java Input/Output: exploring java.io, Java I/O classes and interfaces, File, Stream classes, byte stream, character stream, serialization.

UNIT- IV: GUI PROGRAMMING WITH JAVA, EVENT HANDLING & DATABASE

PROGRAMMING USING JDBC:

GUI Programming with java: The AWT class hierarchy, MVC architecture. Applet Revisted: Basics, architecture and skeleton, simple applet program.

Event Handling: Delegation Event Model, Event Classes, Source of Events, Event Listener Interfaces. Handling mouse and keyboard events, Adapter classes.

Database Programming using JDBC: Introduction to JDBC, JDBC Drivers & Architecture, CRUD operation Using JDBC, Connecting to non-conventional Databases.

UNIT-V: EXPLORING SWING & SERVLET:

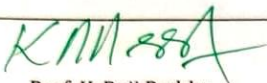
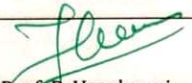
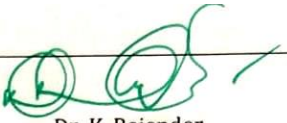
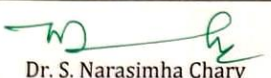


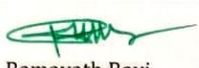
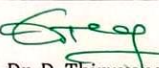
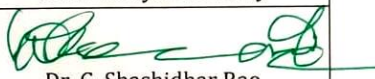
Exploring Swing: JLabel, ImageIcon, JTextField, the Swing buttons, JTabbedPane, JScrollPane, JList, JComboBox.

Servlet: Life cycle, using tomcat, simple servlet, servlet API, javax.servlet package, reading servlet parameters, javax.servlet.http package, handling HTTP requests and responses.

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SUGGESTED READINGS:

1. Herbert Scheldt, "The Complete Reference Java, 7th Edition, Tata McGraw Hill, 2006.
2. James M Slack, Programming and Problem Solving with JAVA, Thomson Learning, 2002.
3. C Thomas Wu, An Introduction to Object Oriented Programming with Java 5th Edition, McGraw Hill
4. H. M. Dietel and P. J. Dietel, Java How to Program, Sixth Edition, Pearson Education / PHI.

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Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS: Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary -Types of Database. Relational and ER Models: Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION: Relational Database Integrity - TheKeys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form -The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation. File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation

- Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

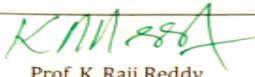
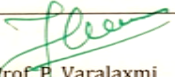





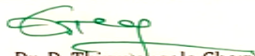

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL): Meaning–SQL commands – Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries. Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV: TRANSACTIONS AND CONCURRENCY MANAGEMENT: Transactions – Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES: Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

ADVANCED TOPICS: Overview: Parallel Database - Multimedia Database - Mobile Database - Web Database - Multidimensional Database. Data Warehouse - OLTP Vs OLAP - NoSQL Database. **LAB:** SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS: 1) Database Systems: R.Elmasri & S.B. Navathe, Pearson.; 2) Introduction to Database Management System: ISRD Group, McGraw Hill.; 3) Database Management System: R.Ramakrishnan & J.Gehrke, McGrawHill.; 4) Modern Database Management: J.A.Hoffer, V.Rames & H.Topi, Pearson.; 5) Database System Concepts: Silberschatz, Korth & Sudarshan, McGrawHill. 6) Simplified Approach to DBMS: Parteek Bhaia, Kalyani Publishers.

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Kakatiya University, Warangal
Faculty of Commerce & Business Management,
B.Com. IV Semester -Paper DSC 403: WEB TECHNOLOGIES
(Only for B.Com (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To gain skills of usage of Web Technologies to design Web pages.

UNIT-I: INTRODUCTION:

Art of creating a web site - Markup language (HTML) – Hypertext - Formatting text - Forms & formulating instructions & formulation elements – Commenting code – Anchors - Back grounds – Images - Hyperlinks – Lists – Tables – Frames - Web design principles.

UNIT-II: AN OVER VIEW OF DYNAMIC WEB PAGES & DYNAMIC WEB PAGE:

An over view of dynamic web pages and dynamic web page technologies: Introduction to Dynamic HTML programming - Cascading style sheets (CSS) - Basic syntax and structure - Events handling - Changing Text and Attributes - Dynamically changing style - Text Graphics and placements - Creating multimedia effects with filters and Transactions.

UNIT-III: JAVA SCRIPT&EVENTS AND EVENT HANDLERS:

Java Script: Introduction - Client side Java script - Server side Java script - Core features - Data types and variables – Operators - Expressions and statements – Functions – Objects – Array - Date and math related objects - Document object model - Event handling.

Events And Event Handlers: General information about Events – Event – OnAbort – OnClick - Ondbl click - Ondrag drop – Onerror - Onfocus - Onkey Press – Onkey Up – Onload - Onmouse Down – Onmouse Move - Onmouse Out – Onmouse Over - Onmove - Onrest – Onresize - Onselect - On submit - Onunload.

UNIT-IV: HYPER TEXT PRE PROCESSOR (PHP):

Introduction to PHP: Declaring variables, data types, arrays, strings, operators, expressions, control structures, functions, Reading data from web form controls like text boxes, radio buttons, lists etc., Handling File Uploads. Connecting to database (MySQL as reference), executing simple queries, handling results, Handling sessions and cookies.

File Handling in PHP: File operations like opening, closing, reading, writing, appending, deleting etc. on text and binary files, listing directories.

UNIT-V: EXTENSIBLE MARKUP LANGUAGE (XML)& JSP:

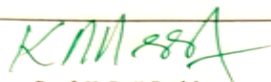
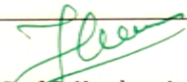





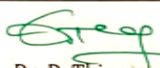

Extensible Markup Language (XML): Introduction - Creating XML Documents - XML style Sheet - Hyperlinks in XML Document Object Model - XML Query Language.

JSP: Introduction to JSP: The Anatomy of a JSP Page, JSP Processing, Declarations, Directives, Expressions, Code Snippets, implicit objects, Using Beans in JSP Pages, Using Cookies and session for session tracking, connecting to database in JSP.

LAB WORK: CREATING A WEBSITE WITH DYNAMIC FUNCTIONALITY USING CLIENT-SIDE AND SERVER SIDE SCRIPTING.

SUGGESTED READINGS:

1. Web Technology: Pradeep Kumar, HPH
2. Internet & World Wide Web How to Program: Deitel&Deitel, Pearson.
3. Web programming: Chris Bates.
4. HTML & XML An Introduction NIIT, PHI.
5. HTML for the WWW with XHTML & CSS: Wlizabeth Castro, Pearson

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Faculty of Commerce & Business Management,
B.Com. V Semester - Paper DSE 503b: E-COMMERCE
(Only for B.Com. (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: to acquire conceptual and application knowledge of ecommerce.

UNIT-I: INTRODUCTION:

E-Commerce: Meaning - Advantages & Limitations - E-Business: Traditional & Contemporary Model, Impact of E-Commerce on Business Models - Classification of E-Commerce: B2B - B2C - C2B - C2C - B2E - Applications of Ecommerce: E-Commerce Organization Applications - E-Marketing - E-Advertising - E-Banking - Mobile Commerce - E-Trading - E-Learning - E-Shopping.

UNIT-II: FRAMEWORK OF E-COMMERCE:

Framework of E-Commerce: Application Services - Interface Layers - Secure Messaging - Middleware Services and Network Infrastructure - Site Security - Firewalls & Network Security - TCP/IP - HTTP - Secured HTTP - SMTP - SSL.

Data Encryption: Cryptography - Encryption - Decryption - Public Key - Private Key - Digital Signatures - Digital Certificates.

UNIT-III: CONSUMER ORIENTED E-COMMERCE APPLICATIONS:

Introduction - Mercantile Process Model: Consumers Perspective and Merchant's Perspective - Electronic Payment Systems: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards.

UNIT-IV: ELECTRONIC DATA INTERCHANGE:

Introduction - EDI Standards - Types of EDI - EDI Applications in Business - Legal - Security and Privacy issues if EDI - EDI and E-Commerce - EDI Software Implementation.

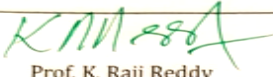
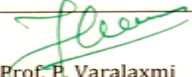





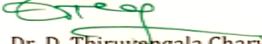

UNIT-V: E-MARKETING TECHNIQUES:

Introduction - New Age of Information - Based Marketing - Influence on Marketing - Search Engines & Directory Services - Charting the On-Line Marketing Process - Chain Letters - Applications of 5P's (Product, Price, Place, Promotion, People) E-Advertisement - Virtual Reality & Consumer Experience - Role of Digital Marketing.

Lab work: Using Microsoft Front Page Editor and HTML in Designing a Static Webpage/Website.

SUGGESTED READINGS:

1. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson
2. E-Commerce: Tulasi Ram Kandula, HPH.
3. Electronic Commerce, A Managers' Guide: Ravi Kalakota, Andrew B Whinston
4. E-Commerce & Computerized Accounting: Rajinder Singh, Er. Kaiser Rasheed, Kalyani
5. E-Commerce & Mobile Commerce Technologies: Pandey, Saurabh Shukla, S. Chand

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Faculty of Commerce & Business Management,
B.Com. V Semester - Paper DSE 503C: MOBILE APPLICATIONS
(Only for B.Com. (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To understand and apply the mobile applications.

UNIT-I: INTRODUCTION:

What is Android, Android versions and its feature set The various Android devices on the market, The Android Market application store ,Android Development Environment - System Requirements, Android SDK, Installing Java, and ADT bundle - Eclipse Integrated Development Environment (IDE), Creating Android Virtual Devices (AVDs), the Android Software Stack, The Linux Kernel, Android Runtime - Dalvik Virtual Machine, Android Runtime – Core Libraries, Dalvik VM Specific Libraries, Java Interoperability Libraries, Android Libraries, Application Framework, Creating a New Android Project ,Defining the Project Name and SDK Settings, Project Configuration Settings, Configuring the Launcher Icon, Creating an Activity, Running the Application in the AVD, Stopping a Running Application, Modifying the Example Application, Reviewing the Layout and Resource Files,


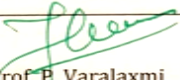







UNIT-II: MOBILE SOFTWARE:

Understanding Java SE and the Dalvik Virtual Machine, The Directory Structure of an Android Project , Common Default Resources Folders, The Values Folder, Leveraging Android XML, Screen Sizes, Launching Your Application: The AndroidManifest.xml File, Creating Your First Android Application, Android Application Components, Android Activities: Defining the UI, Android Services: Processing in the Background, Broadcast Receivers: Announcements and Notifications Content Providers: Data Management, Android Intent Objects: Messaging for Components.

Android Manifest XML: Declaring Your Components, Designing for Different Android Devices, Views and View Groups, Android Layout Managers, The View Hierarchy, Designing an Android User Interface using the Graphical Layout Tool.

UNIT-III: MOBILE DISPLAY:

Displaying Text with Text View, Retrieving Data from Users, Using Buttons, Check Boxes and Radio Groups, Getting Dates and Times from Users, Using Indicators to Display Data to Users, Adjusting Progress with Seek Bar, Working with Menus using views, Gallery, Image Switcher, Grid View, and Image View views to display images, Creating Animation, Saving and Loading Files, SQLite Databases, Android Database Design, Exposing Access to a Data Source through a Content Provider, Content Provider Registration, Native Content Providers

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UNIT-IV: MOBILE APPLICATIONS:

Intent Overview, Implicit Intents, Creating the Implicit Intent Example Project, Explicit Intents, Creating the Explicit Intent Example Application, Intents with Activities, Intents with Broadcast Receivers, An Overview of Threads, The Application Main Thread, Thread Handlers, A Basic Threading Example, Creating a New Thread, Implementing a Thread Handler, Passing a Message to the Handler. Sending SMS Messages Programmatically, Getting Feedback after Sending the Message Sending SMS Messages Using Intent Receiving, sending email

Introduction to location-based service, configuring the Android Emulator for Location-Based Services, Geo coding and Map-Based Activities, Playing Audio and Video, Recording Audio and Video, Using the Camera to Take and Process Pictures

UNIT-V: MOBILE APP DEVELOPMENT & INSTALLATION:








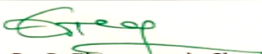

Introduction to Windows Phone App Development, Installing the Windows Phone SDK, Creating Your First XAML for Windows Phone App. Understanding the Role of XAP Files, the Windows Phone Capabilities Model, the Threading Model for XAML-Based Graphics and Animation in Windows Phone, Understanding the Frame Rate Counter, The Windows Phone Application Analysis Tool, Reading Device Information, Applying the Model-View-View Model Pattern to a Windows Phone App, Property Change Notification, Using Commands

SUGGESTED READINGS:

1. Erik Hellman, "Android Programming – Pushing the Limits", 1st Edition, Wiley India Pvt Ltd, 2014.
2. Dawn Griffiths and David Griffiths, "Head First Android Development", 1st Edition, O'Reilly SPD Publishers, 2015
3. J F DiMarzio, "Beginning Android Programming with Android Studio", 4th Edition, Wiley India Pvt Ltd, 2016. ISBN-13: 978-8126565580
4. AnubhavPradhan, Anil V Deshpande, " Composing Mobile Apps" using Android, Wiley 2014, ISBN: 978-81-265-4660-2

Web Resource :

Google Developer Training, "Android Developer Fundamentals Course – Concept Reference", Google Developer Training Team, 2017.
<https://www.gitbook.com/book/google-developer-training/android-developerfundamentals-course-concepts/details> (Download pdf file from the above link)

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE603a: MULTIMEDIA SYSTEMS
(Only for B.Com (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To acquire the knowledge of multimedia systems.

UNIT-I: MEDIA AND DATA STREAMS:

Properties of multimedia systems, Data streams characteristics: Digital representation of audio, numeric instruments digital interface Bark concepts, Devices, Messages, Timing Standards Speech generation, analysis and transmission.

UNIT-II: DIGITAL IMAGE&ANIMATIONS:

Digital Image: Analysis, recognition, transmission, **Video:** Representation, Digitalization, transmission.

Animations: Basic concepts, animation languages, animations control transmission.

UNIT-III: DATA COMPRESSION STANDARDS&STORAGE:

Data Compression Standards: JPEG, H-261, MPEG DVI

Optical storage devices and Standards: WORHS, CDDA, CDROM, CDWO, CDMO.

Real Time Multimedia, Multimedia file System.

UNIT-IV: MULTIMEDIA COMMUNICATION SYSTEM, DATABASES&SYNCHRONIZATION:

Multimedia Communication System: Collaborative computing session management, transport subsystem, QOS, resource management.

Multimedia Databases: Characteristics, data structures, operation, integration in a database model.

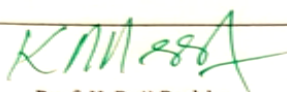
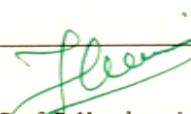
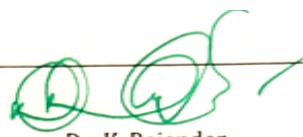




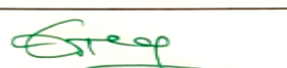

Synchronization: Issues, presentation requirements, reference to multimedia synchronization, MHEG.

UNIT-V: MULTIMEDIA APPLICATION:

Media preparation, Composition, integration communication, consumption, entertainment.

SUGGESTED READINGS:

1. Ralf Steninmetz, KlaraHahrstedt, *Multimedia: Computing, Communication and Applications*, PHI PTR Innovative Technology Series.
2. John F.KoegelBufford, *Multimedia System*, Addison Wesley, 1994.
3. Mark Elsom – Cook, *Principles of Interactive Multimedia* , Tata Mc-Graw Hill, 2001.
4. Judith Jefcoate, *Multimedia in Practice: Technology and Application* , PHI 1998.

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE 603b: CYBER SECURITY
(Only for B.Com (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective To understand the cyber security, detection, network security, the law and cyber forensic.

UNIT-I: INTRODUCTION TO CYBER SECURITY, CYBER SECURITY VULNERABILITIES AND CYBER SECURITY SAFEGUARDS:

Introduction to Cyber Security: Overview of Cyber Security, Internet Governance – Challenges and Constraints, Cyber Threats:- Cyber Warfare-Cyber Crime-Cyber terrorism-Cyber Espionage, Need for a Comprehensive Cyber Security Policy, Need for a Nodal Authority, Need for an International convention on Cyberspace.

Cyber Security Vulnerabilities: Overview, vulnerabilities in software, System administration, Complex Network Architectures, Open Access to Organizational Data, Weak Authentication, Unprotected Broadband communications, Poor Cyber Security Awareness.

Cyber Security Safeguards: Overview, Access control, Audit, Authentication, Biometrics, Cryptography, Deception, Denial of Service Filters, Ethical Hacking, Firewalls, Intrusion Detection Systems, Response, Scanning, Security policy, Threat Management.

UNIT-II: SECURING WEB APPLICATION, SERVICES AND SERVERS:

Introduction, Basic security for HTTP Applications and Services, Basic Security for SOAP Services, Identity Management and Web Services, Authorization Patterns, Security Considerations, Challenges.

UNIT-III: INTRUSION DETECTION AND PREVENTION:

Intrusion, Physical Theft, Abuse of Privileges, Unauthorized Access by Outsider, Malware infection, Intrusion detection and Prevention Techniques, Anti-Malware software, Network based Intrusion detection Systems, Network based Intrusion Prevention Systems, Host based Intrusion prevention Systems, Security Information Management, Network Session Analysis, System Integrity Validation.

UNIT-IV: CRYPTOGRAPHY AND NETWORK SECURITY:

Introduction to Cryptography, Symmetric key Cryptography, Asymmetric key Cryptography, Message Authentication, Digital Signatures, Applications of Cryptography. Overview of Firewalls- Types of Firewalls, User Management, VPN Security Security Protocols: - security at the Application Layer- PGP and S/MIME, Security at Transport Layer- SSL and TLS, Security at Network Layer-IPSec.

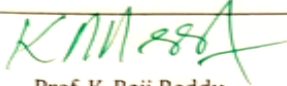
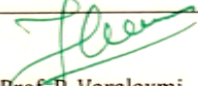






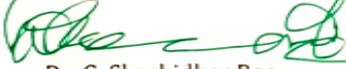
UNIT-V: CYBERSPACE AND THE LAW, CYBER FORENSICS:

Cyberspace and The Law: Introduction, Cyber Security Regulations, Roles of International Law, the state and Private Sector in Cyberspace, Cyber Security Standards. The INDIAN Cyberspace, National Cyber Security Policy 2013.

Cyber Forensics: Introduction to Cyber Forensics, Handling Preliminary Investigations, Controlling an Investigation, Conducting disk-based analysis, Investigating Information-hiding, Scrutinizing E-mail, Validating E-mail header information, Tracing Internet access, Tracing memory in real-time.

SUGGESTED READINGS:

1. Ramandeepkaurnagra, Cyber laws and Intellectual Property Rights, Kalyani Publishers, 7e,
2. Nina Godbole&SunitBelapureCyber Security, Wiley India Pvt Ltd, 2012.
3. Gerald. R. Ferrera, Reder and linchtenstein, Cyber laws – Text and Cases,3e, Cengage learning

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Kakatiya University, Warangal.
Faculty of Commerce & Business Management,
B.Com. VI Semester - Paper DSE 603c: DATA ANALYTICS
(Only for B.Com (Computer Applications))

Hours Per Week: 7 (3T+4P)

Credits: 5

Exam Hours: 1 ½

Marks: 50U+35P+15I

Objective: To learn the different ways of data Analysis, data streams, mining and clustering and visualization.

UNIT-I: INTRODUCTION TO BIG DATA:

Introduction to Big Data Platform – Challenges of conventional systems – Web data – Evolution of Analytic scalability, analytic processes and tools, Analysis vs reporting – Modern data analytic tools, Stastical concepts: Sampling distributions, resampling, statistical inference, prediction error.

UNIT-II: DATA ANALYSIS:

Regression modeling, Multivariate analysis, Bayesian modeling, inference and Bayesian networks, Support vector and kernel methods, Analysis of time series: linear systems analysis, nonlinear dynamics – Rule induction – Neural networks: learning and generalization, competitive learning, principal component analysis and neural networks; Fuzzy logic: extracting fuzzy models from data, fuzzy decision trees, Stochastic search methods.

UNIT-III: MINING DATA STREAMS:

Introduction to Streams Concepts – Stream data model and architecture – Stream Computing, Sampling data in a stream – Filtering streams – Counting distinct elements in a stream – Estimating moments – Counting oneness in a window – Decaying window – Realtime Analytics Platform(RTAP) applications – case studies – real time sentiment analysis, stock market predictions.

UNIT-IV: FREQUENT ITEMSETS AND CLUSTERING:

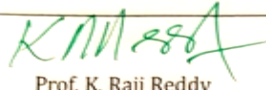
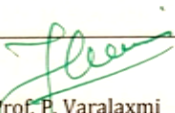
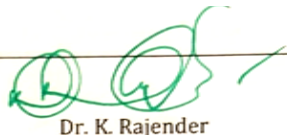





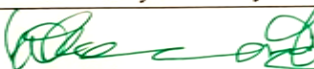
Mining Frequent itemsets – Market based model – Apriori Algorithm – Handling large data sets in Main memory – Limited Pass algorithm – Counting frequent itemsets in a stream – Clustering Techniques – Hierarchical – K- Means – Clustering high dimensional data – CLIQUE and PROCLUS – Frequent pattern based clustering methods – Clustering in non-euclidean space – Clustering for streams and Parallelism.

UNIT-V: FRAMEWORKS AND VISUALIZATION:

MapReduce – Hadoop, Hive, MapR – Sharding – NoSQL Databases – S3 – Hadoop Distributed file systems – Visualizations – Visual data analysis techniques, interaction techniques; Systems and applications:

SUGGESTED READINGS:

1. Michael Berthold, David J. Hand, Intelligent Data Analysis, Springer, 2007.
2. AnandRajaraman and Jeffrey David Ullman, Mining of Massive Datasets, Cambridge University Press, 2012.
3. Bill Franks, Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with advanced analytics, John Wiley & sons, 2012.

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