

BHARATHIAR UNIVERSITY, COIMBATORE – 641 046

**M. Sc INFORMATION TECHNOLOGY (CBCS)
(Effective from the academic Year 2016 - 2017)**

1. Eligibility for Admission to the Programme

Candidates for admission to the first year programme leading to the Degree of Master of Science in Information Technology (M.Sc IT) will be required to possess:

A Pass with 50% of marks in B.Sc. Computer Science / B.C.A. /B.Sc. Computer Technology / B.Sc. Information Technology.

In case of SC/ST candidates, a mere pass in any of the above Bachelor's degree will be sufficient.

2. Duration of the Programme

The programme shall be offered on a full-time basis. The programme will consist of three semesters of course work and laboratory work and the fourth semester consists of project work.

3. Regulations

The general Regulations of the Bharathiar University Choice Based Credit System Programme are applicable to this programme.

4. The Medium of Instruction and Examinations

The medium of instruction and Examinations shall be in English.

5. Submission of Record Notebooks for Practical Examinations & Project Viva-Voce.

Candidates taking the Practical Examinations should submit bonafide Record Note Books prescribed for the Examinations. Otherwise the candidates will not be permitted to take the Practical Examinations.

Candidates taking the Project Viva Examination should submit Project Report prescribed for the Examinations. Otherwise the candidates will not be permitted to take the Project Viva-voce Examination.

M.Sc. Information Technology (University Department) 2016-2017
SCHEME OF EXAMINATIONS
(Effective from the academic Year 2016-2017 onwards)

Core/ Elective/ Supportive/ Project	Suggested Code	Sem	Title of the Paper	Duration	Credits	Marks
Core 1	16IT13A	I	Object Oriented Software Engineering	4	4	100
Core 2	16IT13B	I	Design and Analysis of Algorithms	4	4	100
Core 3	16IT13C	I	Advanced Java Programming	4	4	100
Core 4	16IT13D	I	Unix Programming	4	4	100
Core 5	16IT13P	I	Advanced Java Programming – lab	3	3	75
Core 6	16IT13Q	I	Unix Programming – Lab	3	3	75
Elective - I	16IT1EX	I	Elective – I	4	4	100
Supportive-1	16IT1GSXX	I		2	2	50
Core 7	16IT23A	II	C# and .NET Programming	4	4	100
Core 8	16IT23B	II	Multimedia Systems	4	4	100
Core 9	16IT23C	II	Information Security	4	4	100
Core 10	16IT23D	II	Open Source Technology	4	4	100
Core 11	16IT23P	II	C# and .NET Programming – Lab	3	3	75
Core 12	16IT23Q	II	Open Source Technology – Lab	3	3	75
Elective - II	16IT2EX	II	Elective – II	4	4	100
Supportive-2	16IT2GSXX	II		2	2	50
Core 13	16IT33A	III	Embedded Systems	4	4	100
Core 14	16IT33B	III	Software Testing	4	4	100
Core 15	16IT33C	III	Grid and Cloud Computing	4	4	100
Core 16	16IT33D	III	Mobile Computing	4	4	100
Core 17	16IT33P	III	Software Testing - Lab	3	3	75
Core 18	16IT33Q	III	Mobile Computing – Lab	3	3	75
Elective - III	16IT3EX	III	Elective – III	4	4	100
Supportive-3	16IT3GSXX	III		2	2	50
Project	16ITPRO	IV	Project work and Viva-Voce		6	150
Total					90	2250

M.Sc Information Technology (University Department) 2016-2017

ELECTIVE PAPERS

16ITE01	Data Mining and Warehousing	4	4	100
16ITE02	Digital Image Processing	4	4	100
16ITE03	Artificial Intelligence	4	4	100
16ITE04	Software Project Management	4	4	100
16ITE05	E- Commerce	4	4	100
16ITE06	Mobile Ad-Hoc Networks	4	4	100
16ITE07	Web Programming	4	4	100
16ITE08	Web Services	4	4	100
16ITE09	Software Quality Assurance	4	4	100
16ITE10	Pervasive and Ubiquitous Computing	4	4	100
16ITE11	Internet Of Things	4	4	100

M.Sc Information Technology (University Department) 2016-2017

LIST OF SUPPORTIVE COURSES

Course Code	Title of the course	Instruction Hours	Credits	Marks
16ITS01	Windows and MS Word	2	2	50
16ITS02	Internet and HTML Programming	2	2	50
16ITS03	Relational Database Management Systems	2	2	50
16ITS04	Object Oriented Programming	2	2	50
16ITS05	Software Engineering	2	2	50
16ITS06	Multimedia Systems	2	2	50

Course Title: OBJECT ORIENTED SOFTWARE ENGINEERING

Course Code: 16IT13A

Number of Credits: 04

Course Description :

Object oriented software engineering has evolved in various software life cycle models. The models state that the nature of software and its standards like testing and configuration.

Goals:

Towards the models and methods, the importance of models and life cycle of the software should be enhanced in view of current development of creative models.

Objective:

The students will develop their role of software models with new ideas of studying these concepts. It also improves the knowledge of the students to do research in further developments.

UNIT I

Software life cycle models: Waterfall, RAD, Spiral, Open-source, Agile process - Understanding software process - Process metric - CMM levels

UNIT II

Planning & Estimation- Product metrics Estimation- LOC, FP, COCOMO models- Project Management – Planning - Scheduling – Tracking

UNIT III

Workflow of Software life cycle - Requirement Workflow - Functional , Nonfunctional - Characteristics of Requirements - Requirement Elicitation Techniques - Requirement Documentation –Use case specification, Activity Diagram - Analysis workflow - Static Analysis -Identifying Object – Methods of identifying objects and types - Boundary, Control, Entity - Dynamic Analysis - Identifying Interaction – Sequence and Collaboration diagrams, State chart diagram - Design Workflow - System Design Concept – Coupling and Cohesion - Architectural Styles - Identifying Subsystems and Interfaces - Design Patterns

UNIT IV

Implementation Workflow -Mapping models to Code -Mapping Object Model to Database Schema Testing FTR – Walkthrough and Inspection -Unit Testing, Integration, System and Regression Testing - User Acceptance Testing -Software Quality – Quality Standards, Quality Matrices -Testing & SQA: FTR, unit testing, integration testing, product testing, and acceptance testing

UNIT V

Software Configuration Management -Managing and controlling Changes -Managing and controlling versions Maintenance - Types of maintenance -Maintenance Log and defect reports-Reverse and re-engineering

Reference :

1. Bernd Bruegge, "Object oriented software engineering", Second Edition, Pearson Education.
2. Stephan R. Schach, "Object oriented software engineering", Tata McGraw Hill.
3. Roger Pressman, "Software Engineering", sixth edition, Tata McGraw Hill.

Course Title: DESIGN AND ANALYSIS OF ALGORITHMS

Course Code:16IT13B

Number of Credits: 04

Course Description :

Algorithms will produce the original logic and functionality of the software and any process. So that problem solving techniques involved as sorting, searching, trees and graphs with the various algorithms have been developed in this course.

Goals:

The aim of studying algorithm is to analyse the states, workflow, merits and problem solving ability towards searching, sorting, trees and dynamic programming.

Objective:

The students will develop their role of software models with new ideas of studying these concepts. It also improves the knowledge of the students to do research in further developments.

UNIT I

Introduction - The Role of Algorithms in Computing - Insertion sort - Analyzing algorithms - Designing algorithms – Functions - Asymptotic notation -Standard notations and common functions Divide-and-Conquer - maximum-subarray problem - Strassen's algorithm for matrix multiplication substitution method for solving recurrences -The recursion-tree method for solving recurrences

UNIT II

Probabilistic Analysis and Randomized Algorithms - The hiring problem - Indicator random variables - Randomized algorithms - Probabilistic analysis and further uses of indicator random variables

UNIT III

Sorting - Heapsort - Heaps - Maintaining the heap property - Building a heap - The heapsort algorithm - Priority queues - Quicksort -Performance of quicksort - A randomized version of quicksort Analysis of quicksort - Sorting in Linear Time

UNIT IV

Stacks and queues - Linked lists - Implementing pointers and objects - Representing rooted trees Binary Search Trees -Red-Black Trees

UNIT V

Dynamic Programming - Matrix-chain multiplication -Elements of dynamic programming - Longest common subsequence -Optimal binary search trees - Greedy Algorithms -An activity-selection problem - Huffman codes - Amortized Analysis-Aggregate analysis - The accounting method - The potential method - Dynamic tables

Reference:

1. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, "Introduction to Algorithms", MIT Press, Third Edition, 2009.
2. Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran, "Fundamentals of Computer Algorithms", Second edition, Galgotia Publication, New Delhi, 2003.
3. Anany Levitin, "Introduction to the Design and Analysis of Algorithm", Second edition, Pearson Education, New Delhi, 2005.

Course Title: ADVANCED JAVA PROGRAMMING

Course Number: 16IT13C

Number of Credits: 4

Course Description: This course presents the concepts of RMI, JDBC and JSP.

Goal: To enable the students to learn the basic functions, principles and concepts of advanced java programming.

Objectives: On successful completion of the course the students should have Acquired skill in advanced java programming. This course covers the advanced features of Java starting with the database connectivity using drivers, servlet programming, and the distributed computing strategies of Java using RMI.

UNIT I

Basic Concept: JAVA – Features and Characters of JAVA - Object-Oriented Programming – Encapsulation – Inheritance – Polymorphism - Overriding– Constants -Variables – Types – Swing features – Difference between Swing and AWT components.

UNIT II

Distributed Application and Networking: Client/Server communication - Overview of the RMI – Advantages of RMI – RMI Architecture – Developing RMI Applications – Parameters in RMI - Java Virtual Machine - Java Serialization - Java Networking.

UNIT III

Applets and Events: Applets - HTML applet tags – Order of Applet initialization – Sizing graphics – Mouse Event Handling – Examples of key event handling - The Delegation Event Model – Event class and event listener.

UNIT IV

JDBC and Servlets: JDBC Vs ODBC – Types of JDBC Drivers – Basic operations on JDBC. Features of Servlets – Servlet lifecycle service – Steps to run the servlet program – Cookies Vs Session – Database Connectivity with JDBC using Servlet.

UNIT V

JSP and EJB: Define JSP – Advantages of JSP – JSP tags - Servlet Vs JSP – JSP Syntax Basics – JSP Directories – EJB Benefits – Types of Enterprises Beans – Session Bean with types – Entity Bean – Entity Beans Vs Session Beans – Message Driven Beans.

Reference :

1. Professional Java Server Programming, Subrahmanyam Allamaraju and Cedric Bues, Apress, SPD, 2005.
2. Java The Complete Reference, Herbert Schildt, Tata McGraw-Hill, Eighth edition, 2011.
3. Advanced Java for Students, Dr.Ashwin Metha and Sarika Shah, The X team, Published by SPD Pvt. Ltd, 2012.
4. Jamie Jaworski, “Java Unleashed” , SAMS Techmedia Publications 1999.
5. Campione, Walrath and Huml, “The Java Tutorial”, Addison Wesley 1999.
6. Jim Keogh,” The Complete Reference J2EE”, Tata McGrawHill Publishing Company Ltd,2002.

Course Title: UNIX PROGRAMMING

Course Code: 14IT13D

Number of Credits: 4

Course Description: This course presents the introduction, inter process communication, classical IPC problems, shell programming and system programming in UNIX.

Goal: To enable the students to learn the basic fundamentals of UNIX operating system, and UNIX programming

Objectives: On successful completion of the course the students should have: Understood the UNIX file system. Learnt shell programming & system programming in UNIX

UNIT I

Unix – Introduction – Basic commands – files – permissions – directories – processes – pipes – redirection – filters – vi editor – unix file system – unix file structure.

UNIT II

Shell programming – Shell Syntax : Variables – conditions – control structures – functions – commands – command execution – simple programs

UNIT III

Unix System Programming – System calls and device drivers – Library functions – low level file access – system calls for managing files – files and directory maintenance – scanning directories.

UNIT IV

Process and signals – process – process structure – starting new processes – signals

UNIT V

Interprocess communication – Pipes: process pipes – pipe call – parent and child processes - Semaphores: Definition – example – facilities – shared memory: overview – functions – message queue: overview – functions – Sockets: socket connections.

Reference :

1. Peter Dyson, Stan Kelly – Bootle, John Heilborn, “UNIX Complete”, BPB Publications, 1999
2. Richard Stones, Neil Matthew, “Beginning Linux Programming”, WROX, 1999
3. Uresh Vahalia, “UNIX Internals, The New Frontiers”, Pearson Education Limited, 2002.

Course Title : C# AND.NET PROGRAMMING

Course Code : 16IT23A

Number of Credits : 4

Course Description :

This course presents the Introduction to .NET frame work, C# and its features

Goals: To enable the students to learn the fundamentals of .NET and C#.

Objectives:

- On successful completion of the course the students should have:
- Understood the .NET framework
- Learnt programming techniques in C#

UNIT I

Introduction to .NET frame work - . NET objects – ASP .NET - .NET Web services – Windows forms

UNIT II

Introduction to C# - Understanding c# in .NET - Overview of C# - Literals, variables and data types

UNIT III

Operators, Expressions, Branching and looping operations – Methods, Arrays, Strings

UNIT IV

Structures and Enumerations – Classes and Objects – Inheritance and Polymorphism, Multiple Inheritance

UNIT V

Operator overloading, Events, console I/O operations and Exceptions

Reference :

1. E. Balagurusamy, “Programming in C#”, Tata McGraw-Hill, 2002
2. David S. Platt, “Introducing Microsoft .NET”, Microsoft Press, SAARC Edition, 2001
3. Microsoft, “C# Language Specifications”, Microsoft Press, 2001

Course Title: MULTIMEDIA SYSTEMS

Course Code : 16IT23B

Number of Credits: 4

Course Description: This course presents the Introduction to Multimedia, Images & Animation.

Goals: To enable the students to learn the concepts of Multimedia.

Objectives: On Successful completion of the course the students should have understood the Multimedia, animation and flash.

UNIT I

Introduction: Multimedia definition-Features of Multimedia-Goals and Objectives of Multimedia-Multimedia Applications-Architecture of Multimedia-Multimedia Database Systems-Requirements of Multimedia-Multimedia Standards.

UNIT II

Multimedia Digital Representation: Digital Image concepts-ADC and DAC-Image Data types-Image File Formats-Digital Image Filters and types-Motion capturing Systems-Image Compression-Lossy Compression- Lossless Compression.

UNIT III

Audio and Video Systems: Fundamental characteristics of Sound-Audio File Formats-MIDI and MIDI File Processing-MCI-Multimedia API-Video File Formats-Video Capturing-JPEG and MPEG-Video Compression Technique-LCD-LED-TV Monitoring Systems-Plasma Display Panel(PDP).

UNIT IV

Graphics and Animation: Interactive and Non-Interactive Graphics-Animation-2D and 3D Animation-Animation Tools-Techniques of Animation: Onion Skinning, Morphing, Masking, Motion Cycling-Blue Screen Technique.

UNIT V

Flash and Visual Special Effects: Flash-Flash Tools-Application of Flash-Importing sounds into Flash-Raster Operations(ROPs)-Multimedia Keys-Bitmap-Brushes.

Reference:

1. Tay Vaughan, Multimedia making it Work", McGraw Hill, 1994.
2. Scott Jarol, Visual Basic Multimedia, Galgotia 1995.
3. Jeffcoate, Judith, "Multimedia in Practice", Prentice Hall, 2001.
4. Vince, John, "Virtual Reality Systems", Pearsons Education, 1995.
5. Ralf Steinmetz and Klara Nahrstedt "Multimedia Computing, Communication and Applications", Pearson Education.
6. Principles of Multimedia by Ranjan Parekh. Tata McGraw-Hill

7. Multimedia Systems Design by Prabhat K. Andleigh and Kiran Thakrar-PHI publication
8. Multimedia systems by John F. Koegal Buford-Pearson Education.
9. Fundamentals of multimedia by Ze-Nian Li and MS Drew. PHI EEE edition

Course Title: INFORMATION SECURITY

Course Code: 16IT23C

Number of Credits: 4

Course Description : This course presents the concepts of Network Monitoring & control

Goals : To enable the students to learn the concepts of network security and management

Objectives :

- On Successful completion of the course the students should have:
- Understood the Network Monitoring concepts and protocols
- Understood the SNMP Concepts, encryption and decryption

UNIT I

CONVENTIONAL AND MODERN ENCRYPTION: Services – Attacks – Steganography - Classical Encryption Techniques - Block ciphers and the data encryption standard – DES – AES - Differential and Linear Cryptanalysis – Modes of operation – Encryption Algorithms : Triple DES – Blowfish – CAST128

UNIT II

PUBLIC KEY ENCRYPTION: Number Theory concepts – Fermat & Euler Theorem – Euclid Algorithm – RSA Algorithm – Elliptic Curve Cryptography – Diffie Hellman Key Exchange

UNIT III

AUTHENTICATION AND SECURITY PRACTICE: Message Authentication and Hash function - Digital Signature and Authentication Protocols

UNIT IV

NETWORK SECURITY: Authentication Application – Electronic Mail security – IP Security – Web Security

UNIT V

SYSTEM SECURITY and Wireless Security: Intruders and Intrusion – Malicious Software – Firewalls – Trusted systems – Security standards and standard settings organisation - Wireless Security : Issues – Network Security Attack – Key Management – Secure routing

Reference :

1. William Stallings, “Cryptography & Network Security”, Pearson Education, New Delhi 2005.

2. C.Siva Ram Murthy and B.S. Manoj, “Ad Hoc Wireless Networks – Architecture and Protocols, Pearson Education, Second Edition.

Course Title : OPEN SOURCE TECHNOLOGY

Course Code : 16IT23D

Number of Credits : 4

Course Description :

This course contain the basic knowledge about open source. It also contain open source software like Perl, PHP, Python and MySQL

Goals : Students can use open source software for their own purpose and any organizations

Objectives :

- Students can understand Open source
- Learn programming like PHP Perl, Python and MySQL
- Develop their own open source software using these tools

UNIT I

Open Source Software : Open Source Definition - The distribution terms of open source software - open source technology – importance - Free and Open Source Software (FOSS) - Benefits - Perspectives of Open Source software Open Standards : National Information Standards Organization (NISO) - The Digital Library Federation (DLF) - The Dublin Core Metadata Initiative - MARC standards - Resource Description and Access (RDA) -. Open Archives Initiative(OAI) – PMH - Search / Retrieval via URL (SRU) - SRW/CQL - Java Platform - Enterprise Edition (Java EE). Open Source Licenses : GNU General Public License (GPL) - GNU Lesser General Public License (LGPL) - GNU Affero General Public License (AGPL) - Apache License - Artistic License.

UNIT II

Perl : An Overview of Perl – Variables – Statements - Scalar values - Operators - Control structures –regular expressions – Arrays - Hashes - List processing - Pattern Matching – File Handling

UNIT III

PHP : Basic Syntax of PHP – programming in web environment - Common PHP Script Elements - Using Variables - Constants – Data types - Operators ; Statements – Flow Control functions – Dates and Times - Working With Arrays -Using Functions – OOP - String Manipulation and Regular Expression - File and Directory Handling - Working With Forms

UNIT IV

Python : Variables - Data types – Strings - Operators – Control Statements - Loops - Sequences: Lists – Tuples - Sets – Dictionaries – File Handling -Exception – Handling exception

UNIT V

MySQL : Data Types - Primary Keys and Auto Increment Fields – Queries - SQL programs - Closing a Connection.- Create Database and Tables - Sorting Query Results - Database ODBC:- Connecting to MySQL with PHP, Inserting data with PHP, Retrieving data with PHP.

Reference :

1. Chris DiBona, Danese Cooper and Mark stone O'Reilly, "Open Sources 2.0-The Continuing Evolution", First Edition, 2005.
2. Larry Wall, Tom Christiansen, Jon Orwart- O'Reilly, "Programming PERL" Third Edition, 2010.
3. Elliot White III, Jonathan.D.Eisenhamer, "PHP 5 in practice" pearson Education,2007.
4. Mark Lutz, O'Reilly, "Programming Python 4E" ,2011.
5. Paul Du Bois,O'Reilly Publishers,"My SQL- Cookbook",Second Edition,2010.

Course Title: EMBEDDED SYSTEMS

Course Code : 16IT33A

Number of Credit: 4

Course Description: This course presents the embedded system introduction, design process, embedded processor, hardware units, RTOS and software tools.

Goals: To enable the students to learn the basic functions, principles, designs, processors in embedded systems and Real Time Operating Systems.

Objectives: On successful completion of the course the students should have: Understand the embedded system of hardware and software processor and Real Time Operating System concepts.

UNIT I

Embedded system introduction: Definition - Classification-Components - Systems on a chip (SOC) - Exemplary embedded systems.

UNIT II

Design process and examples: Automatic chocolate vending machine (ACVM) - Smart card - Simple Digital camera - Mobile phone and mobile computer - Set of Robots.

UNIT III

Embedded processors: Embedded processors in system - Features of 8085 Microprocessor - Internal architecture of 8085 Microprocessor - Features and block diagram of 8051 Microcontroller - Differences between Microprocessor and Microcontroller - VLSI Microprocessor.

UNIT IV

Hardware units: Logical gates with truth table - Boolean theorem - Demorgan's theorem - Standard representation for logical function with example - Multiplexer - Demultiplexer - Flip-Flop - Characteristics of Flip-Flop - RS Flip-Flop - JK Flip-Flop - T Flip-Flop - D Flip-Flop.

UNIT V

RTOS and Software tools: RTOS Round Robin scheduling - Binary semaphores - Interrupt handlers and schedulers - selecting RTOS - Task and task states - Host and target machines - Linking and locating software - Getting embedded software into target systems.

Reference :

1. Rajkamal, Embedded System Architecture, Programming and Design, TATA McGraw Hill, Second Edition, Eighth reprint 2011.
2. G.K.Kharate, Digital Electronics, Oxford University press, Sixth impression 2012.
3. A.P.Godse, G.A.Godse, Microprocessor and Microcontroller, Technical Publication Pune, First Edition 2010.
4. David E.Simon, An Embedded Software Primer, Pearson Education Asia, First Indian reprint 2000.

Course Title: SOFTWARE TESTING

Course Code : 16IT33B

Number of Credit: 4

UNIT I

Purpose of Software testing – Some Dichotomies – a model for testing – Playing pool and consulting oracles – Is complete testing possible – The Consequence of bugs – Taxonomy of Bugs.

UNIT II

Software testing Fundamentals – Test case Design – Introduction of Black Box Testing and White Box testing – Flow Graphs and Path testing – Path testing Basics - Predicates, Path Predicates and Achievable Paths - Path Sensitizing – Path Instrumentation – Implementation and Application of Path Testing.

UNIT III

Transaction Flow testing – Transaction Flows – techniques – Implementation Comments – Data Flow Testing – Basics – Strategies – Applications, Tools and effectiveness – Syntax Testing – Grammar for formats – Implementation

UNIT IV

Logic Based Testing – Motivational Overview – Decision tables – Path Expressions – KV Charts – Specifications – States, State Graphs and transition Testing – State Graphs – Good & bad states – state testing Metrics and Complexity.

UNIT V

Testing in engineering criteria for technologies – Testing Object Oriented software- Testing web applications and web services - Testing GUIs – Building testing Tools – challenges in testing software

Reference :

1. Boris Beizer, Software testing techniques, Dreamtech Press, Second Edition – 2003.
2. Paul Ammann, Jeff Offutt, “Introduction to Software Testing”, Cambridge university press, 2008.
3. Myers and Glenford.J., The Art of Software Testing, John-Wiley & Sons, 1979
4. Roger.S.Pressman, Software Engineering – A Practitioner’s Approach ,Mc-Graw Hill, 5th edition, 2001
5. Marnie.L. Hutcheson, Software Testing Fundamentals, Wiley-India, 2007.

Course Title : GRID AND CLOUD COMPUTING

Course Code : 16IT33C

Number of credits: 4

Course Description:

This course presents a general idea on Service oriented computing, Grid and Cloud Computing, Grid and Cloud Architecture and Grid and Cloud toolkits

Goals :

To introduce the concepts of service oriented computing and Grid and Cloud activities.

Objectives :

On successful completion of the course the student should have:

Gained knowledge on Grid and Cloud computing fundamentals and Architecture Learnt about Grid and Cloud computing toolkits

UNIT I

Introduction to Grid Computing- Grid Applications –Grid Standards – Grid Topologies – Grid Components – Grid Challenges - Computational grid – Data grid – Methods of Grid computing – Middleware Grid - Salient features of the GridSim – Grid Computing roles.

UNIT II

Service Oriented Architecture - Web Service Architecture - Grid Architecture – A modular Architecture for GridSim platform - Grid resource management system – Grid Data management – Service message description mechanisms - Relationship between web service and Grid service – Grid Anatomy – Grid Security.

UNIT III

Over view of Cloud Computing – Cloud Applications - Intranets and the Cloud - Companies in the Cloud Today – Cloud types – Cloud service model architectures – Cloud deployment model architectures - Cloud Computing Services-Development Services and Tools.

UNIT IV

Cloud security – Infrastructure security – Data security – Network security - Security Issues in cloud - Cloud storage – Infrastructure in cloud computing - Cloud software architecture issues- Classification of Cloud Implementations.

UNIT V

Pros and Cons in Cloud computing – Applications of Cloud computing – Principles and paradigms of cloud - Service providers in cloud – Various cloud platforms.

Reference :

1. Joshy Joseph, Craig Fellenstein, "Grid Computing", IBM Press, Pearson Education, 2004.
2. Ian Foster, Carl Kesselman (eds.), "The Grid: Blueprint for a New Computing Infrastructure", Morgan Kaufmann Publishers, 2004.
3. Ahmar Abbas, "Grid Computing: A Practical Guide to Technology and Applications, Firewall Media", 2009.
4. Anthony T.Velte, Toby J.Velte, Robert Elsenpeter, "Cloud Computing -A Practical Approach", Tata McGraw Hill Education Pvt. Ltd, 2010.
5. Michael Miller, " Cloud Computing: Web based Applications that change the way you work and Collaborate online", Que Publishing, August 2008.
6. Haley Beard, "Cloud Computing Best Practices for Managing and Measuring Processes for on demand computing, Applications and Data Centers in the Cloud with SLAs", Emereo Pvt. Ltd, July 2008.
7. Prof (Dr.) Andreas Polze, "A Comparative Analysis of Cloud Computing Environments".

Course Title : MOBILE COMPUTING

Course Code : 16IT33D

Number of Credits : 4

Course Description :

This course contain how the wireless and mobile devices are working and we can access and programming for this devices.

Goals : Students can programme for mobile devices

Objectives :

Students able to understand different technologies in Mobile Computing Design and develop their own Mobile Applications

UNIT I

Mobile Communication – Mobile Computing – Mobile Computing Architecture – Frequency – Signals – Signal Propagation – Multiplexing – Modulation – Spread Spectrum – SDMA – FDMA – TDMA – CDMA – OFDM

UNIT II

GSM – SMS – GPRS - DECT – TETRA – UMTS – IMT-2000 - 4G

UNIT III

IEEE 802.11 – HIPERLAN – Bluetooth - WAP – IrDA – ZigBee – RFID – Adaptation software for Mobile Computing – power aware mobile computing – context aware mobile computing – data synchronization

UNIT IV

Mobile IP : Network Layer – Mobile Transport Layer – Mobile Agent – Service Discovery – Mobile File System – Mobile OS : Windows CE – Android – Symbion - Mobile VoIP

UNIT V

ADHOC Wireless Network : Introduction – Issues in wireless Ad Hoc Wireless Network – Issues in designing MAC protocol – Classification of MAC protocols – Issues in Designing a Routing protocol for Ad Hoc - Classification of Routing protocols – Issues in Designing Transport Layer Protocol for Ad Hoc - Sensor Networks : Architecture and Design – Medium Access Control – Routing – Transport Layer – Energy model.

Reference :

1. Raj Kamal, “ Mobile Computing”, Second Edition, Pearson Education, New Delhi, 2007
2. Jochen Schiller, “ Mobile Communications”, Second Edition, Pearson Education, New Delhi, 2009
3. Asoke K Talukder, Roppa R Yavagal, “Mobile Computing” Tata McGraw-Hill, 2008
4. C.Siva Ram Murthy and B.S.Manoj, Ad Hoc Wireless Networks – Architectures and Protocols, Pearson Education, Second Edition.

Course Title : DATA MINING AND WAREHOUSING

Course Code : 16ITE01

Number of credits: 4

Course Description:

This course presents the data mining concepts, classifications algorithms and data warehousing.

Goals: Enable the student to be familiar in data warehousing, clustering and rules.

Objectives:

- On successful completion of the course the student should have:
- Understood data mining and data warehousing applications.

UNIT I

Introduction: Definitions – Taxonomy of Data mining tasks Steps in DM process – Overview of datamining techniques

UNIT II

Predictive modeling: Predictive modeling – classification – Decision trees – Patterns association rules – algorithms

UNIT III

Other approaches: Visualization – statistical perspective – clustering – regression analysis Time series analysis – rule learning – inductive logic programming

UNIT IV

Data warehousing: Dimensional modeling – Meta data - performance issues and indexing Development life cycle and merits.

UNIT V

Applications: Tools, applications and case studies

Reference:

- 1.Usama M.Fayyad , Gregory Piatesky – “Advances in Knowledge discovery and data mining “ M.I.T Press
2. Ralph Kimball, “The Data warehouse life cycle tool kit” John Wiley & Sons
3. Sean Lilly , “Data Mining in action” John Wiley & Sons

Course Title : DIGITAL IMAGE PROCESSING

Course Code : 16ITE02

Number of Credits : 4

Course Description

This course presents the Introduction to Digital image Processing, fundamentals, image enhancement and image restoration techniques.

Goals :

To enable the students to learn the fundamentals of Digital Image Processing, image compression and segmentation.

Objectives:

On Successful completion of the course the students should have:

- Understood the fundamentals of Digital Image Processing, image compression and segmentation.

UNIT I

Digital Image Fundamentals: Digital image, applications of digital image processing- elements of digital image processing-digital camera, line scan CCD sensor – display element perception – luminance – brightness, contrast- color models – RGB, CMY, HSI -Fourier transforms.

UNIT II

Image transform: Properties of Unitary transform – 2D DFT – DCT- Discrete wavelet transform- Hotelling Transform – SVD transform – Slant, Haar transforms.

UNIT III

Image enhancement and restoration: Contrast stretching – intensity level slicing – Histogram equalization – spatial averaging – smoothing – Median filtering – non linear filters – maximum , minimum, geometric mean – edge detection – degradation model –unconstrained and constrained filtering – removal of blur –Wiener filtering.

UNIT IV

Image compression: Huffman's coding- truncated Huffman's coding – binary codes, arithmetic coding, run length coding- transform coding – JPEG and MPEG coding.

UNIT V

Image segmentation: Pixel based approach – Feature threshold – choice of feature – optimum threshold – threshold selecting method- region based approach – region growing – region splitting – region merging.

Reference:

1. S.Jayaraman, S.Esakkirajan and T.Veerakumar,"Digital Image Processing", Tata McGraw Hill Education Private Limited.
2. Gonzalez R.C and Woods R. E, "Digital image processing "Addison Wesley 2. Anil K Jain Fundamentals of Digital image processing, Prentice Hall.
3. S.Annadurai and R.Shanmugalakshmi,"Fundamentals of Digital Image Processing", Pearson Education.
4. Anil.K.Jain,"Fundamentals of Image Processing", Prentice Hall.
5. Maher.A.Sid Ahmad,"Image Processing-Theory,Algorithms and Architectures", McGraw Hill Education Private Limited.

Course Title : ARTIFICIAL INTELLIGENCE

Course Code : 16ITE03

Number of Credits: 4

Course Description :

This course presents the Introduction to AI Problems, Heuristic techniques, and Represents Simple facts and learning.

Goals :

To enable the students to learn the concepts of AI and Expert Systems

Objectives :

- On Successful completion of the course the students should have:
- Understood the AI & Expert Systems. Learnt the Heuristic techniques and reasoning

UNIT I

Introduction : Foundation and history of AI, AI problems and techniques AI programming
Introduction to :LISP and PROLOG Problem spaces and searches – Blind search strategies
Depth first – Heuristic search techniques Hill climbing – Best first – A* algorithm AO*, trees
Minimax algorithm - Game playing and alpha beta pruning

UNIT II

Knowledge representation: Issues of Knowledge representation, Predicate logic - logic programming – Semantic inheritance – constraints propagation – Representing Knowledge using rules.

UNIT III

Reasoning under uncertainty : Uncertain Knowledge – Review of probability – Bayes's Probabilistic Inferences and Heuristic methods – symbolic reasoning under uncertainty
statistical reasoning – fuzzy logic – temporal reasoning – Non monotonic reasoning.

UNIT IV

Planning in situational calculus – representation for planning – partial order algorithm.
Learning from examples – discovery as learning – learning by analogy explanation
Neural nets and genetic algorithms.

UNIT V

Applications, NLP – Rule based systems architecture – expert systems – Knowledge based concepts – AI applications to robotics – current trends in intelligent systems

Reference:

- 1.Rich and Kevin Knight “Artificial Intelligence” Tata McGraw Hill
- 2.Russel and Peter Norvig, “Artificial Intelligence - A modern approach” Prentice Hall
3. Patrick Henry Winston “AI” Addison Wesley

Course Title : SOFTWARE PROJECT MANAGEMENT

Course Code : 16ITE04

Number of Credits : 4

Course Description :

This course presents a deep insight to software project management concepts

Goals:

Enable the student to be familiar with software project management

Objectives:

- On successful completion of the course the student should have:

Understood the system software project management, project evaluation effort estimation and risk management.

UNIT I

Product life cycle: Introduction – idea generation – prototype development phase – alpha phase – beta phase – protection phase – Maintenance and obsolescence phase. Project Life cycle models – What is it ? A framework for studying different life cycle models – waterfall model, prototype model, RAD model, spiral model. Metrics : Metric roadmap - metric strategy-why to measure – set target, track them, understand and minimize variability, Act on data- Common fit falls

UNIT II

Software configuration management: Basic definitions and terminology - the process and activities of Software configuration audit – software configuration management in geographically distributed teams - metrics in software configuration management – tools and automation. Software quality assurance Defining quality, importance of quality, quality control and assurance – cost and benefits of quality – software quality analyst's functions, SQA tools, measures for SQA success -pitfalls.

UNIT III

Requirement gathering; inputs and start criteria for requirements, dimensions for requirement gathering, steps, to be followed, output and quality records, skill sets Estimation – what is estimation, when and why is it needed, three phases of estimation – estimation methodology models for size estimation - converting effort to schedule

UNIT IV

Design and development phase: Some differences in chosen approach – salient features of Design - evolving an architecture, blue print - design for reusability - technology choices/ constraints – design standards – design for portability - user interface issues – design for testability – design for diagnosability - design for maintainability - designs for install ability and interoperability

UNIT V

Project management testing and maintenance: Testing – activities that make testing - test scheduling and types of tests – people issues in testing management structures for testing metrics. Introduction to management phase - configuration management, skill sets, estimating size , effort, and people resources for maintenance, metrics.

Reference:

- 1.Gopalswamy Ramesh ,”Managing Global software projects” Tata Mcgraw Hill
2. S.A. Kelkar “Software project management – a concise study” PHI, 2003.

Course Title : E-COMMERCE

Course Code : 16ITE05

Number of Credits : 4

Course Description :

This course presents the introduction to E-Commerce, Network Infrastructure, Information publishing technology, Securing network transaction, search engines.

Goals :

To enable the students to learn the basic functions, principles and concepts of E-Commerce.

Objectives :

On successful completion of the course the students should have:

- Understood the E-Commerce Framework

UNIT I

E-Commerce Framework- E-commerce and Media Convergence – The Anatomy of E-commerce Applications – E-commerce Organization Applications – Market Forces Influencing the I-Way – Components of I-Way – Network Access Equipment.

UNIT II

Architectural Framework for Electronic Commerce – World Wide Web (WWW) as the Architecture – Web Background: Hypertext Publishing – Technology behind the Web – Security and the web – Consumer-Oriented Applications – Mercantile Models from the Consumer's Perspective – Mercantile Models from the Merchant's Perspective.

UNIT III

Types of Electronic Payment Systems – Digital Token-Based Electronic Payment Systems – Smart Cards and Electronic Payment Systems – Credit Card-Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems – Electronic Data Interchange – EDI Applications in Business – EDI: Legal, Security and Privacy Issues –EDI and E-Commerce.

UNIT IV

Internal Information Systems – Macroforces and Internal Commerce – Work-Flow Automation and Coordination – Customization and Internal Commerce – Supply Chain Management (SCM) – Dimensions of Internal Electronic Commerce Systems – Making a Business Case for a Document Library – Types of Digital Documents – Issues behind Document Infrastructure – Corporate Data Warehouses.

UNIT V

The New Age of Information-Based Marketing – Advertising on the Internet – Charting the On-Line Marketing Process – Market Research – Search and Resource Discovery Paradigms – Information Search and Retrieval – E-commerce Catalogs or Directories – Information Filtering – Consumer-Data Interface: Emerging Tools.

Reference:

1. Ravi Kalakota, Andrew B. Whinston, "Frontiers of Electronic Commerce" Pearson Education Asia , Twelfth Impression.
2. Jeffery F. Rayport, Bernard J. Jaworski , "E-commerce", TMCH, 2002.
3. Bharat Bhasker, "Electronic Commerce Framework, Technologies and Applications", Tata McGraw Hill Publication, 2013.

Course Title : MOBILE AD-HOC NETWORKS
Course Code : 16ITE06
Number of Credits : 4

UNIT-I

Introduction: Ad-Hoc Networks- Services and applications – Characteristics – Wireless Sensor Networks –Sensor Application of Body Area Network and Health Care Monitoring - WLANs – WLAN Services –Physical Media For WLANs- Types of Mobile Host Movements-Challenges Facing Ad-Hoc Mobile Networks.

UNIT-II

Routing in MANETs: Types of Ad-Hoc Routing Protocols- Proactive Routing Protocols: DSDV –OLSR- WRP, Reactive Routing Protocols: AODV–DSR - TORA- LAR –PAR, Hybrid Routing Protocols: ZRP-FSR-LANMAR –Cluster Based Routing Protocols.

UNIT-III

QoS and Energy Management: Define Qos- Objective of Qos Based Routing -List out the QoS Applications- on Demand QoS Routing Protocol- A Cross Layer QoS of Service Model- Power Management- Advances in Device Power Management – Advances in Protocol Power Management – Power Conservation by Mobile Applications.

UNIT-IV

Architecture and Model: Ad-Hoc Service Location Architectures-Bluetooth Architectures-Bluetooth Network Configuration-Bluetooth Applications -The WAP Protocol Architecture – WAP Service Model – WAP Programming Model- WWW programming Model.

UNIT-V

Security and NS-2 Tools: MANET Performance Metrics, NS2 Simulation parameters- NS2 OTCL –Multicast Routing Mobile Ad-Hoc Networks- Unicast Route Discovery in AODV- Multicast Route Discovery in AODV -Classifications of MAC Protocols – Security in Ad-Hoc Networks.

Reference :

1. William Stallings, “Wireless Communications & Networks”, Pearson Education, 2005.
2. C.Siva Ram Murthy, B.S. Manoj, “Ad Hoc Wireless Networks – Architectures and Protocols”, 2nd Edition, Pearson Education,2011.
3. Fei Hu , Xiaojun Cao, “ Wireless Sensor Networks Principles and Practice “ CRC Press,2010.
4. C.K Toh ,“Ad Hoc Mobile Wireless Networks” Protocols and Systems, Pearson Edition, 2011.
5. Carlos de Moraes Cordeiro, Dharma Rakish Agrawal, “Ad Hoc & Sensor Networks”, Cambridge Uni.Press,India Pvt.Ltd ,2010.
6. L.Gavrilovska, R.Prasad, “Ad Hoc Networking Towards Seamless Communications”, Springer, 2006.
7. Charles E.Perkins , “Ad Hoc Networking”,Pearson Edition , 2011.
8. George Aggelou,” Mobile Ad Hoc Networks”, Tata McGraw –Hill Edition,2009.

Course Title : WEB PROGRAMMING

Course Code : 16ITE07

Number of Credits : 4

Course Description :

This course contain the basic web programming like HTML and XML. It also contain scripting languages like Java Script, JSP and Servlet .

Goal : Students can design and develop web pages

Objectives :

- Understand basic website design
- Understand client side programming and server side programming
- Design and develop their own web site

UNIT 1

Introduction to Internet & World-Wide Web : History - Web Browsers - Web Servers - Uniform Resource Locator- Tools and Web Programming Languages Hypertext Mark Up Language (HTML) : Basic HTML page - Text Formatting – Table – Headers – Linking – Images –List -Meta Elements

UNITII

Cascading Style Sheets (CSS) : Inline, Internal and External Style Sheet - Conflicting Styles - Positioning Elements, Backgrounds, Element Dimensions, Text Flow and the - Box Model User Style Sheet Introduction to JavaScript Scripting (Client-side) : Introduction - Dynamic Welcome Page - Adding Integers – Arithmetic - Decision Making: Equality and Relational Operators

UNIT III

JSP Technology : Model-View-Controller Paradigm - Introduction- Running JSP Applications - Basic JSP-JavaBeans Classes and JSP-Tag Libraries and Files Java Servlets : Architecture – Overview - Dynamic Content - Life Cycle- Parameter Data – Sessions – Cookies - URL Rewriting- Data Storage

UNIT IV

Browsers and the DOM : Introduction to the Document Object Model - History and Levels - Intrinsic Event Handling - Modifying Element Style - The Document Tree - DOM Event Handling - Accommodating Noncompliant Browsers Properties of window

UNIT V

Representing Web Data : XML-Documents and Vocabularies-Versions and Declaration-Namespaces JavaScript and XML: Ajax-DOM based XML processing Event-oriented Parsing: SAX-Transforming XML Documents-Selecting XML Data: XPATH-Template based Transformations: XSLT-Displaying XML Documents in Browsers

Reference :

1. Internet and World Wide Web: How to Program (Third Edition), Deitel and Deitel and Goldberg Pearson Prentice Hall ISBN 0-13-124682-8
2. Programming The WWW Third Edition, Robert W. Sebesta, Pearson Prentice Hall.

Course Title : WEB SERVICES

Course Code : 16ITE08

Number of Credits : 4

Course Description :

This Course presents the Web Services Provided.

Goals :

To enable the students to learn what is web service and Protocols used for Web services .

Objectives :

- On successful completion of the course the students should have:
- Understood how to build the real world applications using Web Services.

UNIT I

Introduction to Web Services – Industry standards, Technologies and Concepts underlying Web Services – their support to Web Services, Applications that consume Web Services.

UNIT II

XML – its choice for Web Services – Network protocols to backend databases – Technologies – SOAP, WSDL – exchange of information between applications in distributed environment – Locating remote Web Services – its access and usage, UDDI Specification – an introduction.

UNIT III

A brief outline of Web Services – Conversation – static and interactive aspects of system interface and its implementation, Work Flow – Orchestration and refinement, Transactions, Security issues – the Common attacks – security attacks facilitated within Web services Quality of Services – Architecting of systems to meet users requirement with respect to latency, performance, reliability, QOS metrics, Mobile and wireless Services – energy consumption, network bandwidth utilization, Portals and Services Management.

UNIT – IV

Building real world Enterprise applications using Web Services – sample source codes to develop Web Services – Steps necessary to build and deploy Web Services and Client applications to meet Customer's requirement – Easier development, Customisation, maintenance, Transactional requirements, seamless porting to multiple devices and platforms.

UNIT – V

Development of Web Services and applications onto Tomcat application Server and Axis SOAP server (both are freewares) – Web Services Platform as a set of Enabling technologies for XML based distributed Computing.

Reference :

- 1.Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services: An Architects Guide", Prentice Hall, Nov 2003
- 2.Keith Ballinger, "NET Web services: Architecture and Implementation with . Net", Pearson Education, First Education Feb 2003.
- 3.Ramesh Nagappan, Developing Java Web Services: Architecting and developing secure Web Services Using Java", John Wiley and Sons, first Edition Feb 2003
- 4.Eric A Marks and Mark J Werrell, "Executive Guide to Web services", John Wiley and sons, March 2003
- 5.Anne Thomas Manes, "Web Services: A managers Guide" Addison Wesley, June 2003

Course Title : SOFTWARE QUALITY ASSURANCE
Course Code : 16ITE09
Number of Credits : 4

UNIT I

Definition of software quality - quality factors – SQA components – contract review – development and quality plans – SQA components in project life cycle – SQA defect removal policies – Reviews

UNIT II

Software project planning - Effort and cost estimation techniques - LOC-based and Function-point based measures - The COCOMO model - Software Quality Assurance (SQA) - The ISO 9000 Quality standards - Evolution of CMMI – CMMI Framework – CMMI for Development – Capability level – Maturity levels – Case Study.

UNIT III

Hierarchical models of software quality – software quality metrics –function points -Software product quality – software maintenance quality – effect of case tools – software quality infrastructure – procedures – certifications – configuration management – documentation control.

UNIT IV

Project progress control – costs – software quality management standards – project process standards – management and its role in SQA – SQA unit

UNIT V

Software reliability - programming languages and reliability, computer architecture and reliability, proving program correctness, reliability models, software support system-Software Testing – Types, White and Black Box, Operational Profiles – Difficulties, Estimating Reliability, Time/Structure based software reliability – Assumptions, Testing methods, Limits, Starvation , Coverage, Filtering, Microscopic Model of Software Risk

Reference :

1. Norman E Fenton and Shari Lawrence Fleeter , "Software Metrics : A rigorous and practical approach", 2nd edition, , Thomson Asia, 2002.
2. Daniel Galin, Software Quality assurance – from theory to implementation, Pearson education, 2009.
3. Watts S. Humphrey “Managing the Software Process”, Pearson Education,2008
4. Marry Beth Chrissis, Mike Konnard and Sandy Shrum, “CMMI : guidelines for Process Integration and Product Improvement”, Addison Wesley, 3rd Edition,2011.
5. Mark. C.Paulk, “CMM: Guidelines for Improving the Software Process” Addison-Wesley, 2011.
6. Alan C Gillies, Software Quality Theory and Management, Cengage Learning, second edition, 2003.
7. Patric D. T.O connor, “Practical Reliability Engineering”, 4th Edition, John Wesley & sons, 2003.
8. John D. Musa, “Software Reliability Engineering”, Tata McGraw Hill, 1999.
9. Michael Lyu, “Handbook of Software Reliability Engineering”, IEEE Computer Society Press, ISBN: 0-07-039400-8, 1996.

Course Title : PERVASIVE AND UBIQUITOUS COMPUTING
Course Code : 16ITE10
Number of Credits : 4

UNIT – I

Technologies: Pervasive computing - Scenario, Roaming environment, Infrastructure, personalized services - Pervasive computing market- m-Business - Applications of Pervasive computing- Device Technology: Hardware, Human- machine interface, Bio-matrix operating systems, Java for pervasive devices.

UNIT – II

Device Connectivity: Protocols, Security, Device Management – Web application concepts- WAP- Voice technology-Personal Digital Assistance.

UNIT – III

Pervasive web application architecture - Access from PCs - Access via WAP - Access from PDA-Access via Voice

UNIT – IV

Ubiquitous computing and its Applications - Smart devices and services: service architecture models, Service provision life cycle, Virtual machines – Tagging, Sensing and controlling.

UNIT – V

Context-Aware Systems: Modeling, Awareness: Mobility, Spatial, Temporal and ICT systems - Intelligent System: Architecture, Semantic Knowledge Base, Classical Logic, Soft Computing Models and System Operations - Ubiquitous Communication - Management of Smart Devices.

Reference :

1. “Pervasive Computing: Technology and Architecture of Mobile Internet Applications”, Jochen Burkhardt, Horst Henn, Stefan Hepper, Thomas Schaec & Klaus Rindtorff, Pearson Education, 2004.
2. “Ubiquitous Computing: Smart Devices, Environments and Interactions”, Stefan Posled, Willey India Pvt. Ltd., 2010.

Course Title : INTERNET OF THINGS

Course Code : 16ITE11

Number of Credits : 4

Course Description :

This Course contain basics of IoT, different applications of IoT and prototypes for ItT.

Goals : Students can empower themselves with latest technologies

Objectives :

- Students can understand the components composing the Internet of things
- Understand how tools and technologies are used to create new Internet of Things

- Can design and develop their own IoT applications

UNIT 1

Introduction to Internet of Things : Introduction - Physical Design of IoT - Logical Design of IoT - IoT Enabling Technologies - IoT Levels & Deployment Templates

UNIT II

Domain specific IoTs : Home Automation – Cities – Environment – Energy - Retail – Logistics – Agriculture Industry - Health & Lifestyle - IoT and M2M

UNIT III

Developing Internet of Things : IoT Platforms Design Methodology - IoT Systems - IoT Physical Devices & Endpoints - IoT Physical Servers & Cloud Offerings

UNIT IV

IoT Prototyping – Embedded devices – Physical devices – Online Components – from Prototype to Reality

UNIT V

Data Analytics for IoT- Tools for IoT - IoT and Big Data – IoT and Clouds

Reference:

- Designing the Internet of Things, Hakin Cassimally and Adrain Mcweb, John Wiley and Sons Ltd. 2014.
- Internet of things – A Hands on Approach , Bagha and Madisetti, 2014, ISBN-10: 0996025510, ISBN-13: 978-0996025515.
- The Internet of Things, Samuel Greengard, The MIT Press Essential Knowledge series, 2015.

Course Title : WINDOWS AND MS WORD

Course Code : 16ITS01

Number of Credit: 2

UNIT I

Getting started –about OS – types of OS – mouse handling – pull down menu selection.

UNIT II

Window resizing – File manager operation – control panel operation – opening and closing files

UNIT III

Editing – cut, paste – copy to clipboard – creating icon – Creating group items.

UNIT IV

Introduction to common office tools and techniques – sharing information within MS Office – word basics – formatting text documents – working with header, footer and footnotes.

UNIT V

Tabs – tables and sorting – graphics – templates writer tools – macros – keyboard shortcuts – means – custom toolbars.

Reference :

1. Microsoft Office' 2000 by woody Leonhard
2. Using Microsoft Office' 97 by Rick Winter and Patty Winter.

Course Title : INTERNET & HTML PROGRAMMING

Course Code : 16ITS02

Number of Credit: 2

UNIT I

Internet Basics – Origin of Internet – ARPANET – Protocol – Packet switching theory – TCP/IP address (classification), Domain name system (Concept of DNS Server) – Router.

UNIT II

Routing Algorithm (just introduction) – Direct & Dial up Networking – MODEM ISP (VSNL) Services (shell & TCP/IP ACC) Up load, down load Protocols (ZMODEM, KERMIT etc)

UNIT III

Email – Newsgroup – FTP – Gopher – Origin of WWW – Origin of HTML – URL – Browsers (Text & Graphics) – HTTP - Search Engineers (Purpose & Facilities, Yahoo, Alta Vista WebCrawler etc.

UNIT IV

Archie – Veronica – Telnet – Chat – What is meant by Website Homepage. Etc.

UNIT V

HTML Programming HTML – Basic Tags – Various versions of HTML – HTML forms – HTML frames – Browser (IE, Netscape communicator, Lynx (Text) Browser dependent – HTML tags.

Reference :

1. Using Microsoft Office ‘ 97 by Rick Winter and Patty Winter.
2. Advanced Internet for Dummies by Hohn Levine and Margaret Levine.
3. Asian Publishers Internet Concepts, problems and Solutions by Singh.

Course Title : RELATIONAL DATABASE MANAGEMENT SYSTEMS

Course Code : 16ITS03

Number of Credit: 2

UNIT I

Introduction – purpose of database system data models – database languages – Transaction management – Storage management – DBA – database users – system structure

UNIT II

E-R model – Hierarchical model – Network Model.

UNIT III

Structure of Relational databases – Relational Commercial Languages SQL – Integrity Constraints.

UNIT IV

Normalization – Indexing and Hashing

UNIT V

Query Processing – Concurrency Control – Security

Reference :

1. Navethe/Elmasri, "Fundamentals of Database Systems", Addison Wesley, 1994

Course Title : OBJECT ORIENTED PROGRAMMING

Course Code : 16ITS04

Number of Credit: 2

UNIT I

Drawback of structured programming – object oriented language characteristics and fundamentals – programming basics.

UNIT II

Loops, decisions – structures and functions – object and classes.

UNIT III

Overloading – Inheritance – Polymorphism

UNIT IV

Files – Streams – Templates

UNIT V

Exception handling – String handling

Reference :

1. Robert Lafore, “Object Oriented Programming in Turbo C++,” Golgotha publications Ltd 1996.

Course Title : SOFTWARE ENGINEERING

Course Code : 16ITS05

Number of Credit: 2

UNIT I

Introductions: Evolving role of software – Software characteristics, components and its applications – Generic view of software engineering – Software process models.

UNIT II

Systems Analysis: Requirements analysis – Analysis principles – Prototyping Software requirement specification – Data modeling, functional modeling and behavioral modeling.

UNIT III

Design concepts: Design and software quality, Design concepts: Abstraction, refinement, modularity, and software architecture control hierarchy structural partitioning and information hiding, Effective modular design: functional independence, cohesion and coupling – design documentation.

UNIT IV

Design Methods : Data design – Architectural design process: transform mapping and transaction mapping – interface design – procedural design. Design for Real – Time Systems : System considerations – real time systems – analysis and simulation of real time systems.

UNIT V

Software Testing Methods : Software testing fundamentals. White box testing: basis path testing and control structure testing – black box testing – testing for specialized environments. Software Testing Strategies: A strategic approach to software testing – unit testing – integration testing – validation tests – system testing.

Reference :

1. R.S.Pressman”Software Engineering”, (5th edition) Tata McGraw Hill, 1997.

Course Title : MULTIMEDIA SYSTEMS

Course Code : 16ITS06

Number of Credit: 2

UNIT I

Multimedia in use and technology Introducing Multimedia – Multimedia definition need, benefits and problems – system components – Multimedia platforms – development tools – types – cross platform compatibility – commercial tools – standards.

UNIT II

Media type Non temporal – text image, graphics, Temporal – analog, digital audio/video, music animation, other media types – Extended Images, digital ink, speech audio.

UNIT III

Digital video and Image compression – Evaluating a compression system – Redundancy and visibility

UNIT IV

Video compression Techniques – Image Compression Standards – JPEG, MPEG, DVI

UNIT V

Applications – Media in real world – Multimedia and single user – Multimedia on networks – Training and education.

Reference :

1. Judith Jeffcott, MULTIMEDIA IN PRACTICE Technology and Application chapters: 1,2,3,12,13 printice Hall, 1995
2. Simon J Bibbs & Dionysion C.Tsichrikzis. MULTIMEDIA PROGRAMMING chapters : 2,3,4,5, Addison Wesley, 1994
3. MULTIMEDIA SYSTEMS – John F.Koegel Buford, Addison Wesley 1994.