

**MANONMANIAM SUNDARANAR UNIVERSITY  
TIRUNELVELI**

**UG COURSES – AFFILIATED COLLEGES**

**B.Sc. Computer and Information Technology**

**(Choice Based Credit System)**

**(with effect from the academic year 2016-2017 onwards)**

**(45<sup>th</sup> SCAA meeting held on 09.02.2017)**

Sem.	Pt I/II/ III/ IV/ V	Sub No.	Subject status	Subject Title	Hrs/ week	Cre - dits	Marks				
							Maximum			Passing minimum	
							Int.	Ext.	Tot.	Ext.	Tot.
V	III	29	Core - 6	Relational Database Management System	4	4	25	75	100	30	40
		30	Core - 7	Software Engineering	4	4	25	75	100	30	40
		31	Core - 8	Operation System	4	4	25	75	100	30	40
		32	Major Practical - V	Relational Database Management System Lab	8	4	50	50	100	20	40
		33	Major Elective – II (Select any one )	A) Web Programming B) System Programming Internet Security	6	5	25	75	100	30	40
	IV	34	Skill Based subject (Common)	Personality Development/ Effective Communication/ Youth Leadership	4	4	25	75	100	30	40
				Subtotal	30	25					

Sem.	Pt I/II/ III/ IV/ V	Sub No.	Subject status	Subject Title	Hrs/ week	Cre - dits	Marks				
							Maximum			Passing minimum	
							Int.	Ext.	Tot.	Ext.	Tot.
VI	III	35	Core - 9	Data Communications and Networking	4	4	25	75	100	30	40
		36	Core - 10	Multimedia Technology	4	4	25	75	100	30	40
		37	Core - 11	Wireless Application Protocol	4	4	25	75	100	30	40
		38	Core - 12	Net Programming	4	4	25	75	100	30	40
		39	Major Practical - VI	Net Programming Lab	8	4	50	50	100	20	40
	40	Major Elective - III (Select any one )	A) Web Services B) Software Project Management Mobile Communication	6	5	25	75	100	30	40	
				Subtotal	30	25					

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/  
Semester - V/ Ppr.no.29/ Core - 6**

**RELATIONAL DATA BASE MANAGEMENT SYSTEM**

**Unit - I**

Introduction : Purpose of Database Systems – Data Models – Database Languages – Transaction Management – Storage Management – DBA – Database Users – System Structure. E-R Model – Entities and Entity sets – Relationship Sets – Mapping Constraints – E-R Diagram.

**Unit – II**

Structure of Relational Databases – Relational Algebra – Tuple Relational Calculus – Domain Relational Calculus – Integrity Constraints – Normalization – Boyce – Codd Normal Form – Third Normal Form – Fourth Normal Form – Domain – Key Normal Form.

**Unit – III**

Basic SQL Operations – Creating a Table – Insert – Rollback – Commit – Auto commit – Delete – Update – Select, From, Where and Order by – Single value tests – Single value tests – LIKE – Simple tests against a list of values – Combining Logic – Dropping tables – Dropping a Column – Creating a table from a table – Data Functions – Conversation functions – Translate – Decode – Creating a view – Advanced Sub queries – Outer Joins – Natural and Inner Joins – Union, Intersect & Minus – Synonyms – Indexes – Tables space – Clusters – Sequences.

**Unit – IV**

Basics of Object – Relational Databases : Objects – Abstract Data Types – Nested tables – Varying arrays – Large Objects – References Object Views – Naming conventions for objects – structure of an object – Users, Roles and Privilege : Creating a user – Password management – Three Standard roles – Format for grant command – Revoking privileges – What users can Grant : Moving to another user – Create Synonym – Create a role – Granting privileges to a role – Granting a role to another role – Adding Password to a role – Removing password from a role – Enabling & Disabling Roles – Revoking Privilege from a role – Drop role.

## **Unit – V**

An Introduction to PL/SQL : PL/SQL Overview – Declaration section – Executable commands section – Exception handling Section – Triggers : Syntax – Types of Triggers : Row – Level – Statement – Level – before & after – Instead of Schema – Database – Level Triggers – Enabling & Disabling Triggers – Replacing & Dropping Triggers – Procedures, Functions & Packages : Syntax – Compile – Replace – Drop Procedure, Functions & Packages – Cursor Management.

### **Text Books:**

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan “Database System Concepts” McGraw – Hill Education, 2010.
2. Kevin Loney, George Koch And the Experts at TUSC, “ORACLE 9i The Complete Reference”, Tata McGraw – Hill Publishing Company Ltd., New Delhi.
3. Database Systems RamezElmasri, Shankant B. Navathe – 6<sup>th</sup> Edition – Pearson.

### **Reference :**

1. Rajesh Narang – “Database Management Systems”, PHI Learning Pvt. Ltd., 2006.
2. Raghu Ramakrishnan, Johannes Gehrke, “Database Management Systems”, McGraw – Hill Education, 2002.
3. Michael Abbay, Mike Corey, Ian Abramson, “ORACLE 9i A Beginner’s Guide”, TataMcGraw – Hill Publishing Company Ltd., New Delhi, 2002.
4. The Database Application Book using the MYSQL Database Gehani – Universities Press.

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/  
Semester - V/ Ppr.no.30/Core - 7**

**SOFTWARE ENGINEERING**

**Unit – I**

Software Engineering : Definition – Software Engineering Activities, Skills and challenge – Components of Software Engineering : SSAD and OOSAD – Software Life Cycle Model – Software Development Model – CMM for Process Improvement- Software Process Model – Software Estimation : Size Effort and Cost : Software Metrics : Introduction – Estimation of Effect and Schedule – COCOMO – Software Cost Estimation.

**Unit – II**

Software Quality Assurance – Testing Techniques for SQA – Software Testing Strategies – Software Engineering Tools – Introduction – Analysis Tools – Requirements Engineering – Work Breakdown Structure – Prototyping – System Analysis – System Modeling – Structure System Analysis – Software Requirement Specification.

**Unit – III**

System Design : Introduction – Data Structure and Database Design- Design Development Process – System Design Architecture – System Behavior design – Architecture and Choices – Architecture and Non – Functional Requirements – Design Specification Documentation – User Interface Design – User Interface Analysis and Design – Guidelines for Designing UI Components – Procedural Design.

**Unit – IV**

Object Oriented Approach and Technology – Basis of Objects – Object Properties – Object Oriented System Development Cycle – UML – Static Class Diagrams – Use Case Diagrams – Behavior Diagrams.

**Unit – V**

Software Project Management : Introduction – Basic Concepts – Project Management – Software Development Process Management – Management of Software Workflows – Evaluation of Workflow Process – Integration of Software Engineering Management and Project Life Cycle – Testing for Quality – Functional Testing – System Testing – User Satisfaction Testing – Test Cases and Test Plans – Software System Maintenance.

**Text Book :**

1. Waman S. Jawadekar, "Software Engineering Principles and Practice". Tata McGraw Hill Education Private Limited, New Delhi.

**Reference :**

1. Roger S. Pressman, "Software Engineering A Practitioner Approach", McGraw – Hill Higher Education.
2. Timothy C. Lethbridge and Robert Laganriere, "Object – Oriented Software Engineering", Tata McGraw – Hill Publishing Company Limited, New Delhi.
3. Ian Sommerville, "Software Engineering", Pearson Education Pte.Ltd.Delhi.

## **OPERATING SYSTEM**

### **Unit – I**

Operating System – What is an Operating System? – Computing System Architecture : Desktop Systems – Multiprocessor Systems – Distributed Processing – Cluster Systems – Hand held Systems – Functions and Structure – Difference services of the Operating System – Users of system Calls – issue of portability – users view of the operating system – Graphical user interface – Operating System Structure – virtual machine – booting.

### **Unit – II**

Information Management : File System – Device Driver – Terminal I/O – CD – ROM.  
Process Management : Introduction – What is process? Evolution of multiprogramming – Context Switching – Process States – Process State Transitions – Process Control Block – Process hierarchy – Operation on a process – create a process – kill a process – dispatch a process – change the priority of a process – Block a process – dispatch a process – time up a process wake up a process – Suspend/resume operation – Process Scheduling – Multithreading.

### **Unit – III**

Inter Process Communication : the producer/Consumer Problems – solutions to the producer – consumer problems – Classical IPC problems.  
Deadlocks : Introduction – Graphical representation of deadlock – deadlock prerequisites – deadlock strategies.

### **Unit – IV**

Memory Management : Introduction – Single Contiguous memory management – fixed partition memory management – variable partitions – non contiguous allocation – paging – segmentation – combined system – virtual memory management system.

### **Unit – V**

Information Management : File System – Device Driver – Terminal I/O – CD – ROM.  
Case Study : LINUX – Introduction – UNIX and LINUX : A Comparison – Process Management – Process Scheduling – Memory Management – File Management – Device Drivers – Security;

**Text Book :**

1. Operating Systems – Achyut S Godbole, Tata McGraw – Hill Publishing Company, New Delhi, 2<sup>nd</sup> Edition, 2005.
2. Operating System – Harvey M. Deitel, Paul J Deitel. David R. Choftness, Third Edition, Pearson.

**Reference :**

1. Operating Systems, Internals and Design Principles, William Stallings, PHI, 2008.
2. Operating System Concepts – Silverschatz and Galvin, 6<sup>th</sup> Edition, John Wiley & Sons, Inc., 2004.
3. An Introduction to Operating Systems – Concepts and Practice, Pramod Chandra P. Bhatt, Prentice Hall of India, 2007.



**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/  
Semester - V/ Ppr.no.32/Major Practical - 5**

**RELATIONAL DATA BASE MANAGEMENT SYSTEM – LAB LIST**

1. Create a simple table and write three queries to process a table.
2. Demonstrate query processing using aggregate operators.
3. Write oracle code for demonstrating the correlated sub queries.
4. Write oracle code to create employee records and delete the retired employees and store it on to another table with same structure.
5. Create a course table and create a procedure that displays the instructor details, class details and student details of a particular table which the user inputs.
6. Write a database trigger before insert for each row on the course table not allowing transactions on Sundays and Saturdays.
7. Create a package that contains overloaded functions for
  - i. Adding five integers
  - ii. Subtracting two integers
  - iii. Multiplying three integers
8. Write PL/SQL block to increase the salary by 10% if the salary is > 2500 and < 3000.
9. Write PL/SQL block to display the names of those employee getting salary > 3000. Create and insert records into the following tables. (Insert minimum 10 records in each table).
10. Create Student information table.
11. Create Department information table.
12. Create Instructor's information table.
13. Create Course information table.
14. Create Schedule type details.
15. Create Student grade information table in PL/SQL.

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/  
Semester - V/ Ppr.no.33(A) / Major Elective – II (A)**

**WEB PROGRAMMING**

**Unit – I**

Introduction to Internet and World Wide Web – Components to Enable Internet Access – Features of Internet Explorer and Firefox – Browser Setting – Web 2.0. – Search Engines – Content Networks – User Generated Content – Blogging – Social Networking and Media Tagging – RIA – Web Services, Mashups, Widgets and Gadgets – Location Based Services – Web 2.0. Models.

**Unit – II**

Introduction to XHTML – Structure of XHTML Document – Headings – Links – Images – Lists – Tables – Forms – Frames – Internal Linking – Web Page Design – Introduction to CSS – Inline Styles – Embedded Style Sheets – Conflicting Styles – Linking External Style Sheets – Positioning Elements – Backgrounds – Element Dimensions – Box Model and Text Flow – Media Types – Drop Down Menu – User Style Sheets – Sample Web Applications.

**Unit – III**

Introduction to Java Script – Structure of Java Script – Sample Programs – Memory Concepts – Operators – I/O Structures – Control Structures : Selection and Multiple Selection Structures – Repetition Structures – break and continue structures – Functions : Programmer Defined Functions – Function Definition – Scope Rules – Global Functions – Recursion – Example Programs.

**Unit – IV**

Arrays : Declaring and Allocating Arrays – Passing Arrays to Functions – Multidimensional Arrays – Objects : Object Technology Concepts – Various JavaScript Objects – DOM Nodes and Trees – DOM Collections – Events and Event Models – XML Basics – XML Namespaces – DTD – XML Schema Documents – XML Vocabularies – XSL – RSS – ActiveX Controls Sample Web Applications.

**Unit – V :**

Server Side Programming – Web Servers : HTTP Transactions – IIS and Apache Servers – Databases : MySQL – ADO.NET Object Model – JDBC – PHP : PHP Basics – Form Processing – Dynamic Content – ASP.NET 2.0. Introduction – Developing Sample Web Application – Web Controls – Session Tracking – Case Studies.

**Text Books :**

1. Deitel, Deitel, “Internet & World Wide Web- How to Program”, 4<sup>th</sup> Edition, Pearson Education, 2009.

## **SYSTEMS PROGRAMMING**

### **Unit – I**

Evolution of the components of a Programming System – Assemblers – Loaders – Macros – Compilers – Formal Systems. MACHINE STRUCTURE, MACHINE LANGUAGE, AND ASSEMBLY LANGUAGE : General Machine Structure – Machine Language – An Assembly Language.

### **Unit – II**

ASSEMBLERS : General Design Procedure – Design of Assembler – Table Processing : Searching and Sorting – Linear Search – Binary Search – Sorting – Interchange Sort – Shell Sort – Bucket Sort – Radix Exchange Sort – Address Calculation Sort – Comparison of sorts – hash or random entry searching.

### **Unit – III**

MACRO LANGUAGE AND THE MACRO PROCESSOR : Macro Instructions – Features of a Macro Facility – Macro Instructions Arguments – Conditional Macro Expansion – Macro Calls within Macros – Macro Instruction Defining Macros – Implementation – Implementation of Restricted Facility : A two Pass Algorithm – A Single – Pass Algorithm – Implementation of Macro Calls within Macros – Implementation within a Assembler.

### **Unit – IV**

LOADERS : Loader Schemes – Compile and – go – Loaders – General Loader Scheme – Absolute Loaders – Subroutine Linkages – Relocating Loaders – Direct – Linking Loaders – Other Loader Schemes – Binders, Linking Loaders, Overlays, Dynamic Binders – Design of an Absolute Loader – Design of a Direct – Linking Loader – Specification of problem – Specification of Data Structure – Format of a Data Bases – Algorithm

## COMPILERS : PART I

Statement of Problem – Recognizing Basic Elements – Recognizing Syntactic Units and Interpreting Meaning – Intermediate Form – Storage Allocation – Code Generation – Optimization (Machine – Independent) – optimization (Machine – dependent) – Assembly Phase – General Model of Compiler.

### **Unit – V**

PART 2 : Phases of the Compiler – Lexical Phase – Syntax Phase – Interpretation Phase – Optimization – Storage Assignment – Code Generation – Assembly Phase – Phase of a Compiler.

Part – 3 – Data Structures – Recursion, call and return statements – storage classes – use – implementation – Block Structure – Nonlocal go to's – Interrupts – Pointers.

### **Text Book**

1. “Systems Programming”, John J. Donovan, McGraw – Hill International Editions.

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/  
Semester - V/ Ppr.no.33(C) /Major Elective – II (C)**

**INTERNET SECURITY**

**Unit – I**

Introduction : Why require a security? – Picking a Security Policy – Strategies for a Secure Network – The Ethics of Computer Security – Security Threats and levels – Security Plan (RFC 2196).

**Unit – II**

Classes of Attack : Stealing Passwords – Social Engineering – Bugs and Backdoors – Authentication Failures – Protocol Failures : Information Leakage – Exponential Attacks – Viruses and Worms – Denial – of – Service Attacks – Botnets – Active Attacks.

**Unit – III**

Computer Security – What are Viruse, Trojan Horse, Worms? – How to protect the computer against virus – What is the Structure of Viruse?

**Unit – IV**

Firewalls and Proxy Servers – Kinds of Firewalls : Packet Filters – Application – Level Filtering – Circuit – Level Gateways – Dynamic Packet Filters – Distributed Firewalls – What Firewalls Cannot Do – Filtering Services : Reasonable Services to Filter – Digging for Worms – Packet – Filtering – Implementing Polices (Default allow, Default Deny) on Proxy.

**Unit – V**

Cryptography – Introduction to Basic Encryption and Decryption, Diffie – Hellman Key Exchange – Concept of Public Key and Private Key – Digital Signatures.

**Text Book :**

1. William R. Cheswick, Steven M. Bellovin and Aviel D. Rubin, “Firewalls and Internet Security: Repelling the Wily Hacker”, Second Edition, Pearson Education.

**Reference :**

1. Speed, “Internet Security : A Jumpstart For Systems Administrators And IT Managers”, Elsevier India.
2. BehrouzForouzan, “Cryptography And Network Security E/2”, Tata McGraw Hill Education.

**DATA COMMUNICATION AND NETWORKING**

**Unit – I**

Data Communication : Standard Organizations – Line Configuration – Topology – Transmission Mode – Categories of Networks – Internet Works – The Model – Functions of the Layers. Transmission of Digital Data : Interfaces and Modems – Digital Data Transmission – DTE – DCE Interface – other Interface Standards.

**Unit – II**

Transmission Media – Guided Media – Unguided Media – Multiplexing – Many to one/one to Many, Frequency – Division Multiplexing (FDM), Wave – Devision Multiplexing (WDM), Time – Division Multiplexing (TDM).

**Unit – III**

Error Detection and Correction : Types of Errors – Detection – Redundancy – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cycle Redundancy Check (CRC) – Checksum – Error Correction. Data Link Control – Line Discipline – Flow Control – Error Control.

**Unit – IV**

Switching : Circuit Switching – Packet Switching – Message Switching – Integrated Services – Digital Network (ISDN) – Services – History – Subscribe Access to the ISDN – The ISDN Layers – Broadband ISDN – Future of ISDN.

**Unit – V**

Frame Relay : Introduction – Frame Relay Operation – Frame Relay Layers – Congestion Control Leaky Bucket Algorithm – Traffic Control. Networking and Internetworking devices – Repeaters – Gateways – Other Devices – Routing Algorithm, Distance Vector Routing – Link State Routing.

**Text Book :**

1. Data Communications and Networking – “Behrouz A Foruzan”, Tata McGraw Hill Publishing Company Limited, New Delhi. 2<sup>nd</sup> Edition 2006.
2. Data Communications and Networking – Wayne Tomain – Pearson.

**Reference Book :**

1. Computer Networks – “Andrew S. Tanenbaum”, - Prentice Hall of India, 4<sup>th</sup> Edition, 2006.
2. Data and Computer Communications “William Stallings Prentice Hall of India 2007.

**MULTIMEDIA TECHNOLOGY**

**Unit – I**

Introduction : Multimedia Presentation and Production – Characteristics of Multimedia. Presentation – Multiple Media – Utilities of Multi – sensory perception – Hardware and Software, Requirements. Digital Representation : Analog Representation – Waves – Digital. Representation – Need for Digital Representation – Analog to Digital Conversion – Digital to Analog Conversion. Text : Types of Text – Unicode Standard – Font – Insertion of Text – Text Compression – File Formats.

**Unit – II**

Image : Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing Software – File Formats – Image Output on Monitor and Printer.

**Unit – III**

Audio : Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File Formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response – Audio Processing Software.

**Unit – IV**

Video : Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – Digital Video - Digital Video Standards – PC Video – Video Recording Formats and Systems – Video File Formats and CODECs – Video Editing – Video Editing Software.

## **Unit – V**

Animation : Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression : MPEG – 1 Audio – MPEG – 1 Video – MPEG – 2 Audio – MPEG – 2 Video.

### **Text Books :**

1. Principles of Multimedia – Ranjan Parekh, 2007, TMH.

### **Reference Books :**

1. Multimedia : Making it Work – Tay Vaughan, 7<sup>th</sup> Edition, TMH.
2. Comdex Multimedia And Web Design – Vikas Gupta, Dream Tech Press 2007.
3. Multimedia Applications – Ralf Steinmetz, KlaraNahrstedt – Springer – International Edition.



**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/**

**Semester - VI/ Ppr.no.37/Core - 11**

**WIRELESS APPLICATION PROTOCOL**

**Unit – I**

A brief History of WAP : Origins – The WAP Forum – Forum Members – Why WAP? The Great Convergence – WAP Device Characteristics – The Need For WAP - An Overview of WAP : WAP in Action – Web Transaction Model – WAP Transaction Model – WAP Architecture – A closer Look at WAE.

**Unit – II**

The WAP Application Environment : The Microbrowser– WML – WML Features – WML Script – WAP Client Software, Hardware, and Websites : OEM Microbrowsers – Consumer Microbrowsers – WAP Devices – Consumer WAP Sites.

**Unit – III**

WAP Gateways : A Note on Terminology – WAP Gateway Services – Security – WAP's Security – Some WAP Profiles : exo – net – MainFreight – Sky City Hotels – A consumer Profile – What WAP Does well – Implementation an Enterprise WAP Strategy – The Future of WAP : Problems with WAP – Solving These Problems – The Next Generation.

**Unit – IV**

Document Status – References – Definitions and Abbreviations – WML and URLs – WML Character Set – WML Syntax – Core WML Data Types – Events and Navigation – The State Model.

**Unit – V**

The Structure of WML Decks – User Agent Semantics – WML Reference Information – A Compact Binary Representation of WML – Static Conformance Statement.

**Text Book :**

1. Steve Mann, Scott Sbihli, "The Wireless Application Protocol", Wiley India Pvt. Ltd., New Delhi.

**Reference :**

1. Dale Bulbrook, "WAP : A Beginner's Guide", Tata McGraw – Hill Publishing Company Limited, New Delhi.
2. SandeepSinghal, Tnomas Bridgman, LalithaSuryanarayana, Daniel Mauney, JariAlvinen, David Bevis, Jim Chan, Stefan Hild, "WAP – The Wireless Application Protocol, Writing Applications for the Mobile Internet", Pearson Education Pvt. Ltd. Delhi.

**NET PROGRAMMING**

**Unit – I**

The .NET Frame Work – Learning the .NET Languages – Introduction to ASP.NET and IIS – Types, Objects and Name Spaces – ASP .NET Application – Building ASP.NET Website.

**Unit – II**

Web Form Fundamentals – HTML Controls – Web Controls – Validation Controls – Navigation Controls – Data Controls – Login Controls – CSS – Working with CSS in Web Developer – More Programs.

**Unit - III**

State Management – Session – View – Query String – Cookies – Tracing – Logging – Error Handling – User Controls – ASP.NET Ajax – Example Programs.

**Unit – IV**

ADO.NET – Over View of ADO.NET – ADO.NET Access – Data Binding – Data List – DATA Grid and Repeaters – Working with Data base – Sample Programs.

**Unit – V**

XML – Using XML – XSD – XSLT – Web Services – Creating Web Services – Using Web Services – Caching – ASP.NET Security.

**Text Book :**

1. Mathew Mac. Donald, “ASP.NET The complete Reference”, Tata McGraw – Hill Publishing Company Ltd., New Delhi.
2. ImarSpanjaars, ASP.NET 3.5 in C# and V.B. : “Wiley India Pvt Ltd.

**Reference :**

1. O'REILLY, Jesse Liberty, Dan Hurwitz and Brain Mac Donald, “Learning ASP.NET 3.5”, II Edition.

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/**

**Semester - VI/ Ppr.no.39/ Major Practical -6**

### **NET PROGRAMMING – LAB LIST**

1. Arithmetic Operations Using Text Box and Button
2. Adding and Removing Items in runtime using Drop Down List and List Box.
3. Upload and display Image using File Up Load Control.
4. Display Date, Day, Month, Year, Day of Week, Day of the Year using Calendar Control.
5. Create an Advertisement using Ad rotator Control.
6. Create a Registration form and apply ASP.NET validation Controls.
7. Binding data in Grid view using Source.
8. Create small pay roll.
9. Create user control with Source.
10. Create a Login Page using Session Variable.
11. Create Student Mark List using SQL Provider.
12. Grid View, Edit, Update, Cancel and Delete using Source.
13. Create a Crystal Report.
14. Create a Simple Web Page Using CSS.
15. Create a Master Page.

## **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, UDI specification – and 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 band with utilization, portals and services management.

### **UNIT IV**

Building real world enterprise application 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, customization, 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 free wares) - Web Services Platform as a set of enabling technologies for XML based distributed computing.

### **Reference Books**

1. Sandeep Chatterjee, James Webber, “Developing Enterprise Web Services: An Architects Guide”, Prentic Hall, Nov 2003.
2. Keith Ballinger, “NET web services “Architecture and Implementation with .Net”, Pearson Education, First Edition 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.

**SOFTWARE PROJECT MANAGEMENT**

**UNIT I**

Conventional Software Management – Waterfall Model - Conventional Software Management Performance – Evolution of Software economics - Software economics – Pragmatic software cost estimation – Improving software economics – Reducing software product size – Improving software process – Team effectiveness – Automation through software environments.

**UNIT II**

Lift cycle phases – Engineering and Production stages – Inception, Elaboration, Construction and Transition Phases – Artifacts of the process – The artifact sets – Management, Engineering and Pragmatic artifacts – Model based software Architectures.

**UNIT III**

Workflows of the process – Software process Workflows – Iteration Workflows - – Iterative process planning – work breakdown structures – Planning guidelines – cost & schedule estimation process – iteration planning process – pragmatic planning – Project Organizations & responsibilities.

**UNIT IV**

Process automation – Tools – The project environment – Project control and Process Instrumentation – The seven core metrics – Management indicators – Quality indicators – Life cycle expectations – Pragmatic software metrics – Metrics automation – Tailoring the Process – Process discriminates.

**UNIT V**

Modern Project Profile – Continuous Integration – Early risk resolution – Evolutionary requirements – software management Principles Next generation software economics – Modern Process transitions.

**Text Book**

1. Software Project Management – Walker Royce – Pearson Education 2012
2. Software Project Management, Bob Hughes and Mike Cotterell- Tata McGraw Hill, 2011.
3. Software Project Management in practice, Pankaj Jalote, Pearson Education 2012

**MSU/2016-17/UG-Colleges/Part-IV (B.Sc.Information Technology)/**

**Semester - VI/ Ppr.no.40/Elective – III (B)**

**MOBILE COMMUNICATION**

**UNIT I**

Mobil Communication: Need for Mobil Communication – Requirements of Mobil Communication – History of Mobil Communication – Properties of Wireless Medium – Radio Propagation – Propagation Coverage Calculation.

Introduction to Cellular Mobil Communication: Cellular Structure – Frequency Reuse – System Architecture – Authentication Centre (AUC) – Home Location Register (HLR) – Visiting Location Register (VLR) – Equipment Identify Register (EIR) – Base Station System - Cellular Mobil Communication Switching.

**UNIT II**

Mobil Communication Standards: First generation Wireless Networks – Second generation Wireless System – Third generation and Beyond Wireless Systems – Implementation Organization – Regional Organization – Global Organization – Global System for Mobile communication (GSM) – GSM Architecture – Advanced Mobile Phone Service (AMPS) – Digital Advanced Mobile Phone Service.

Cordless Telephony Standards: - Personal Access Communication Standards (PACS) – EIA/TIA IS-136-EIA TIA IS – 95 Standards – Digital European Cordless Telephone (DECT) – Personal Handy Phone System (PHS) – IEEE 802.11 - Other Standards -Handoff Techniques - Handoff Detection and Assignment – Types of Handoff – Mobile controlled Handoff – Network controlled Handoff – Mobile Assisted handoff – Radio Link Transfer – Roaming Management – Connection to Public Telephone Network – Connection from Mobile Unit to a Fixer User, Cellular.

System Spectrum: - Adaptive channel allocation – Frequency Division – Spectrum Utilization – Channel Reservation for Handoff Calls – Control Channels – Channel Assignment Methods – Channel Borrowing and Sharing – Non – Fixed Assignment Methods – Permanent Cell Splitting – Temporary Cell Splitting.

**UNIT III**

Cordless Mobile Communication System: Cordless Telephone Home – Multichannel CordlessTelephone System – Wireless Private Box Exchange History of Data networks – Classification of Mobile Data Networks – Independent Data networks – Shared Mobile Data – Overlay Mobile Data – Cellular Digital Part data (CDPD) System – Architecture of CDPD – Satellite Classification – Earth Orbit Satellites – Medium Earth Orbit Satellite – Low Earth Orbit Global Satellite Communication – Changeover from One Satellite to Requirements of Global Mobile Communication - Global User Number – Configuration – Third Generation Global Mobile System – Satellite System for mobility

## **UNIT IV**

Interferences in Cellular Mobile Communication: Nature of Co- Channel Interference – Measurement of Co- Channel Interference - Measurement of Co-Channel Interference with mobile Unit – Frequency Reuse - Co- Channel Interference Omni directional Radiation – directional Antennas for Co- Channel Interference Reduction – Other Methods of Co- Channel Reduction – Non-Co- Channel Interference – Measurement of Signal to Noise and Distortion Ratio (SINAD) – Design Objective – Basic Specification - Co- Channel Interference Reduction Factor – Adjacent Channel Interference – Propagation Attenuation – Fading – Factors to be Considered at the Base Station – Working of Mobile IP – Wireless Threads – Authentication and Access control – Secrecy to Communication – Anonymity – Security Arrangement in CDMA – Security of Wireless Data Networks

## **UNIT V**

Wireless Local Loop Architecture: Components in Will – Problems in WLL – Modern Wireless Local Loop – Local Multipoint Distribution Service (LMDS) - Properties of WAP – Bearer Services – Wireless Datagram Protocol (WDP) – Wireless Transport Layer Security (WTLS) – WAP Transaction Protocol (WTP) Wireless Session Protocol (WSP) Wireless Application Environment (WAE) – Components Integration – Bearer Adaptation – WAP Client Supporting Networks – System Description – Advantages of Microcellular – Layout of the Optical Fiber Microcellular Communication System – Need for Ad hoc Networks – MANET and Technical Factors Affecting Ad hoc Network - Ad hoc Nodes System Description – Routing in Ad hoc Network – Bluetooth Technology – Limitation on the Bluetooth Physical Layer – Types of Intelligent Cells – Power Delivery Intelligent Cells – Processing Gain Intelligent Cells – User Controlled Services – Reconfigurable Technology – Vision of 4G – 4G Mobile System Convergence

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