VEL TECH MULTITECH
Dr RANGARAJAN Dr.SAKUNTHALA ENGINEERING COLLEGE

(An ISO 9001: 2008 Certified Institution)
(Owned by 'VEL Shree R. Rangarajan
Dr. Sakunthala Rangarajan Educational Academy)
(Approved by AICTE, New Delhi &
Govt. of Tamil Nadu and affiliated to Anna University)

SYLLABUS

WEEKLY SCHEDULE

VI SEMESTER 2014 - 2015

DEPARTMENT OF IT

IV YEAR DEGREE COURSE

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SEM: VI **YEAR: III**

ACADEMIC YEAR (2014-15)

Regulation 2008

S. No	WEEKS	DATE	
		FROM	TO
1	WEEK1	02.01.15	09.01.15
2	WEEK2	12.01.15	16.01.15
3	WEEK3	19.01.15	23.01.15
4	WEEK4	27.01.15	30.01.15
5	WEEK5	02.02.15	06.02.15
6	WEEK6	09.02.15	13.02.15
7	WEEK7	16.02.15	20.02.15
8	WEEK8	23.02.15	27.02.15
9	WEEK9	02.03.15	06.03.15
10	WEEK10	09.03.15	13.03.15
11	WEEK11	16.03.15	20.03.15
12	WEEK12	23.03.15	27.03.15
13	WEEK13	30.03.15	01.04.15
14	WEEK14	06.04.15	10.04.15
15	WEEK 15	13.04.15	17.04.15
16	WEEK16	20.04.15	24.04.15
17	WEEK17	27.04.15	30.04.15

CONTENTS

TEST SCHEDULE

S.No	SUB CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	UNIT TEST III	UNIT TEST IV	UNIT TEST V
1	IT2351	Network Programming and Management	22.01.15 FN	11.02.15 FN	03.03.15 FN	23.03.15 FN	13.04.15 FN
2	CS2353	Object Oriented Analysis and Design	22.01.15 AN	11.02.15 AN	03.03.15 AN	23.03.15 AN	13.04.15 AN
3	IT2352	Cryptography and Network Security	23.01.15 FN	12.02.15 FN	04.03.15 FN	24.03.15 FN	15.04.15 FN
4	IT2353	Web Technology	23.01.15 AN	12.02.15 AN	04.03.15 AN	24.03.15 AN	15.04.15 AN
5	IT2354	Embedded Systems	24.01.15 FN	13.02.15 FN	05.03.15 FN	25.03.15 FN	16.04.15 FN
6	IT2024	User Interface Design	24.01.15 AN	13.02.15 AN	05.03.15 AN	25.03.15 AN	16.04.15 AN

MODEL THEORY

S. No	DATE	SUB.CODE	SUBJECT
1	20.04.2015	IT2351	Network Programming and Management
2	21.04.2015	CS2353	Object Oriented Analysis and Design
3	22.04.2015	IT2352	Cryptography and Network Security
4	23.04.2015	IT2353	Web Technology
5	24.04.2015	IT2354	Embedded Systems
6	27.04.2015	IT2024	User Interface Design

IT2351 NETWORK PROGRAMMING AND MANAGEMENT

UNIT I ELEMENTARY TCP SOCKETS

WEEK-1:
Introduction to Socket Programming – Overview of TCP/IP Protocols - Introduction to Sockets – Socket addresses Structures. Byte ordering functions – address conversion Functions - Elementary TCP Sockets. socket, connect, bind, listen, accept, read, and write, Close functions - Iterative Server – Concurrent Server.

WEEK-2 Unit Test-1

UNIT II APPLICATION DEVELOPMENT

TCP Echo Server – TCP Echo Client – Posix Signal handling – Server with multiple clients – boundary conditions:

WEEK-3:
Server process Crashes, Server host Crashes, Server Crashes and reboots, Server Shutdown.

WEEK-4:
I/O multiplexing – I/O Models – select function – Shutdown function – TCP echo Server (with multiplexing) – poll function.

WEEK-5:
TCP echo Client (with Multiplexing).

WEEK-6 Unit Test-2

UNIT III SOCKET OPTIONS, ELEMENTARY UDP SOCKETS

Socket options – getsocket and setsocket functions – generic socket options – IP socket options – ICMP socket options – TCP socket options

WEEK-7:
Elementary UDP sockets – UDP echo Server UDP echo Client – Multiplexing TCP and UDP sockets- Domain name system.

WEEK-8
Gethostbyname function – Ipv6 support in DNS – gethostbyadr function - Getservbyname and getservbyport functions.

WEEK-9 Unit Test-3

UNIT IV ADVANCED SOCKETS

Ipv4 and Ipv6 interoperability – threaded servers – thread creation and termination.

WEEK-10:
TCP echo server using threads – Mutexes – condition variables – raw sockets – raw Socket creation.

WEEK-11:
Raw socket output – raw socket input – ping program – trace route program.

WEEK-12 Unit Test-4

UNIT V SIMPLE NETWORK MANAGEMENT
SNMP network management concepts – SNMP management information – standard MIB's.

WEEK-13:
SNMPv1 protocol and Practical issues – introduction to RMON,

WEEK-14:
SNMPv2 and SNMPv3.

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXT BOOKS

1. W. Richard Stevens, "UNIX Network Programming Vol-I", Second Edition, Pearson Education, 1998.
2. Mani Subramaniam, "Network Management: Principles and Practice", Addison Wesley", First Edition, 2001.

REFERENCES

1. D.E. Comer, "Internetworking with TCP/IP Vol- III", (BSD Sockets Version), Second Edition, Pearson Education, 2003.
2. William Stallings, "SNMP, SNMPv2, SNMPv3 and RMON 1 and 2", Third Edition, Addison Wesley, 1999.

IT1351 OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT I
WEEK-1:
Introduction to OOAD – What is OOAD? – What is UML? What are the united processes (UP) phases? Case study – the NextGen POS system, Inception Relating Use cases – include, extend and generalization. - Use case Modeling.

WEEK-2 Unit Test-1

UNIT II
Elaboration - Domain Models

WEEK-3:
Finding conceptual classes and description classes – Associations – Attributes, Domain model refinement

WEEK-4
Finding conceptual class hierarchies- Aggregation and Composition

WEEK-5
UML activity diagrams and modeling - UML activity diagrams and modeling.

WEEK-6 Unit Test-2

UNIT III
System sequence diagrams - Relationship between

WEEK-7:
Sequence diagrams and use cases Logical architecture - UML package diagram – Logical architecture refinement – UML class diagrams.

WEEK-8:
UML interaction diagrams.

WEEK-9 Unit Test-3

UNIT IV
GRASP: Designing objects with responsibilities – Creator – Information expert.

WEEK-10:
Low Coupling –Controller – High Cohesion – Designing for visibility.

WEEK-11:
Applying GoF design patterns – adapter, singleton, factory and observer patterns.

WEEK-12 Unit Test-4

UNIT V
UML state diagrams and modeling - Operation contracts.

WEEK-13:
Mapping design to code –UML deployment and component diagrams.

WEEK-14:
Component diagrams.

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXT BOOKS

1. Craig Larman,"Applying UML and Patterns: An Introduction to object-oriented Analysis and Design and iterative development", Third Edition, Pearson Education, 2005.

REFERENCE

1. Mike O'Docherty, "Object-Oriented Analysis & Design: Understanding System Development with UML 2.0", John Wiley & Sons, 2005.
2. James W- Cooper, Addison-Wesley, "Java Design Patterns – A Tutorial", 2000.
3. Micheal Blaha, James Rambaugh, "Object-Oriented Modeling and Design with UML", Second Edition, Prentice Hall of India Private Limited, 2007.
4. Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides,**"**Design patterns: Elements of Reusable object-oriented software", Addison-Wesley, 1995.

IT2352 CRYPTOGRAPHY AND NETWORK SECURITY

UNIT I

WEEK-1:
Security trends – Attacks and services – Classical crypto systems – Different types of ciphers – LFSR sequences. - Basic Number theory – Congruences – Chinese Remainder theorem – Modular exponentiation. - Fermat and Euler's theorem – Legendre and Jacobi symbols –Finite fields – continued fractions.

WEEK-2 Unit Test-1

UNIT II
Simple DES – Differential cryptoanalysis.

WEEK-3:
DES – Modes of operation – Triple DES.

WEEK-4:
AES – RC4 – RSA – Attacks.

WEEK-5:
Primality tests – factoring.

WEEK-6 Unit Test-2

UNIT III
Discrete Logarithms – Computing discrete logs – Diffie-Hellman key exchange.

WEEK-7:
ElGamal Public key cryptosystems.Hash functions

WEEK-8:
Secure Hash – Birthday attacks -MD5 – Digital signatures – RSA – ElGamal – DSA.

WEEK-9 Unit Test-3

UNIT IV
Authentication applications – Kerberos, X.509.

WEEK-10:
PKI – Electronic Mail security – PGP, S/MIME

WEEK-11:
IP security – Web Security – SSL, TLS, SET.

WEEK-12 Unit Test-4

UNIT V
System security – Intruders

WEEK-13:
Malicious software-viruses – Firewalls.

WEEK-14:
Security Standards.

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXT BOOK

1. Wade Trappe, Lawrence C Washington, "Introduction to Cryptography with coding theory", 2nd Ed, Pearson, 2007.
2. William Stallings, "Cryptography and Network security Principles and Practices", Pearson/PHI, 4th Ed, 2006.

REFERENCES

1. W. Mao, "Modern Cryptography – Theory and Practice", Pearson Education, Second Edition, 2007.
2. Charles P. Pfleeger, Shari Lawrence Pfleeger – Security in computing Third Edition – Prentice Hall of India,

IT2353 WEB TECHNOLOGY

UNIT I

WEEK-1:
Web Essentials: Clients, Servers, and Communication. The Internet-Basic Internet Protocols -The World Wide Web-HTTP request message-response message-Web Clients Web Servers-Case Study. Markup Languages: XHTML. An Introduction to HTML History-Versions-Basic XHTML Syntax and Semantics. Some Fundamental HTML Elements-Relative URLs-Lists-tables-Frames- Forms-XML Creating HTML Documents Case Study.

WEEK-2 Unit Test-1

UNIT II
Style Sheets: CSS-Introduction to Cascading Style Sheets-Features-Core Syntax-Style Sheets and HTML Style Rle Cascading and Inheritance

WEEK-3:
Text Properties-Box Model Normal Flow Box Layout-Beyond the Normal Flow-Other Properties-Case Study.

WEEK-4:
Client- Side Programming: The JavaScript Language-History and Versions Introduction JavaScript in Perspective-Syntax-Variables and Data Types.

WEEK-5:
Statements-Operators- Literals-Functions-Objects-Arrays-Built-in Objects-JavaScript Debuggers.

WEEK-6 Unit Test-2

UNIT III
Host Objects: Browsers and the DOM-Introduction to the Document Object Model DOM History and Levels-Intrinsic Event Handling-Modifying Element Style

WEEK-7
The Document Tree- DOM Event Handling-Accommodating Noncompliant Browsers Properties of window - Case Study. Server-Side Programming: Java Servlets - Architecture -Overview-A Servelet- Generating Dynamic Content-Life Cycle

WEEK-8
Parameter Data-Sessions-Cookies- URL Rewriting-Other Capabilities - Data Storage Servelets and Concurrency -Case Study- Related Technologies.

WEEK-9 Unit Test-3

UNIT IV
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.

WEEK-10:
Template based Transformations: XSLT-Displaying XML Documents in Browsers-Case Study- Related Technologies. Separating Programming and Presentation: JSP Technology Introduction.

WEEK-11:
JSP and Servlets-Running JSP Applications Basic JSP-JavaBeans Classes and JSP-Tag Libraries and Files-Support for the Model-View-Controller Paradigm-Case Study-Related Technologies.

WEEK-12 Unit Test-4

UNIT V
Web Services: JAX-RPC-Concepts-Writing a Java Web Service-Writing a Java Web Service Client-Describing Web Services: WSDL- Representing Data Types:

WEEK-13:
XML Schema-Communicating Object Data: SOAP Related Technologies-Software Installation-Storing Java Objects as Files-

WEEK-14:
Databases and Java Servlets.

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXT BOOKS

1. Jeffrey C.Jackson, "Web Technologies--A Computer Science Perspective", Pearson Education, 2006.
2. Robert. W. Sebesta, "Programming the World Wide Web", Fourth Edition, Pearson Education, 2007.
3. Deitel, Deitel, Goldberg, "Internet & World Wide Web How to Program", Third Edition, Pearson Education, 2006.
4. Marty Hall and Larry Brown,"Core Web Programming" Second Edition, Volume I and II, Pearson Education, 2001.
5. Bates, "Developing Web Applications", Wiley, 2006.

IT2354 EMBEDDED SYSTEMS

UNIT I EMBEDDED COMPUTING

WEEK-1:

Challenges of Embedded Systems – Embedded system design process. Embedded processors – 8051 Microcontroller, ARM processor - Architecture, Instruction sets and Programming.

WEEK-2 Unit Test-1

UNIT II MEMORY AND INPUT / OUTPUT MANAGEMENT

Programming Input and Output

WEEK-3:

Memory system mechanisms

WEEK-4:

Memory and I/O devices and interfacing

WEEK 5

Interrupts handling

WEEK-6 Unit Test-2

UNIT III PROCESSES AND OPERATING SYSTEMS

Multiple tasks and processes.

WEEK-7:

Context switching – Scheduling policies.

WEEK-8:
Inter process communication mechanisms – Performance issues.

WEEK-9 Unit Test-3

UNIT IV EMBEDDED SOFTWARE
Programming embedded systems in assembly and C – Meeting real time constraints.

WEEK-10:
Multi-state systems and function sequences.

WEEK-11:
Embedded software development tools – Emulators and debuggers.

WEEK-12 Unit Test-4

UNIT V EMBEDDED SYSTEM DEVELOPMENT
Design issues and techniques

WEEK-13:
Complete design of example embedded systems.

WEEK-14:
CASE STUDIES

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXTBOOKS

1. Wayne Wolf, "Computers as Components: Principles of Embedded Computer System Design", Elsevier, 2006.
2. Michael J. Pont, "Embedded C", Pearson Education, 2007.

REFERENCES

1. Steve Heath, "Embedded System Design", Elsevier, 2005.
2. Muhammed Ali Mazidi, Janice Gillispie Mazidi and Rolin D. McKinlay, "The 8051 Microcontroller and Embedded Systems", Pearson Education, Second edition, 2007.

IT2024 USER INTERFACE DESIGN

UNIT I INTRODUCTION

WEEK-1:
Human–Computer Interface – Characteristics Of Graphics Interface - Direct Manipulation Graphical System – Web User Interface - Popularity – Characteristic & Principles.

WEEK-2 Unit Test-1

UNIT II HUMAN COMPUTER INTERACTION
User Interface Design Process – Obstacles –Usability –Human Characteristics In Design – Human Interaction Speed –Business Functions –Requirement Analysis

WEEK-3:
Direct –Indirect Methods – Basic Business Functions – Design Standards – System Timings

WEEK-4
Human Consideration In Screen Design – Structures Of Menus – Functions Of Menus–Contents Of Menu– Formatting –

WEEK-5:
Phrasing the Menu – Selecting Menu Choice– Navigating Menus– Graphical Menus.

WEEK-6 Unit Test-2

UNIT III WINDOWS
Characteristics– Components– Presentation Styles– Types Managements– Organizations– Operations– Web Systems

WEEK-7:
Device– Based Controls Characteristics–Screen – Based Controls – Operate Control

WEEK-8:
Text Boxes– Selection Control–Combination Control– Custom Control– Presentation Control.

WEEK-9 Unit Test-3

UNIT IV MULTIMEDIA
Text For Web Pages – Effective Feedback.

WEEK-10:
Guidance & Assistance– Internationalization– Accesssibility– Icons.

WEEK-11:
Image– Multimedia – Coloring.

WEEK-12 Unit Test-4

UNIT V WINDOWS LAYOUT– TEST
Prototypes – Kinds of Tests.

WEEK-13:
Retest – Information Search – Visualization.

WEEK-14:
Hypermedia – WWW– Software Tools.

WEEK-15 Unit Test-5

WEEK-16 & 17 Model Exam

TEXT BOOKS

1. Wilbent. O. Galitz ,"The Essential Guide To User Interface Design", John Wiley& Sons, 2001.
2. Ben Sheiderman, "Design The User Interface", Pearson Education, 1998.

REFERENCES

1. Alan Cooper, "The Essential Of User Interface Design", Wiley – Dream Tech Ltd., 2002.

CS2357 OBJECT ORIENTED ANALYSIS AND DESIGN LAB

1. Passport automation system.
2. Book bank
3. Exam Registration
4. Stock maintenance system.
5. Online course reservation system
6. E-ticketing
7. Software personnel management system
8. Credit card processing
9. e-book management system
10. Recruitment system
11. Foreign trading system
12. Conference Management System
13. BPO Management System

CS2307 NETWORK LAB

1. Programs using TCP Sockets (like date and time server & client, echo server & client, etc..)
2. Programs using UDP Sockets (like simple DNS)
3. Programs using Raw sockets (like packet capturing and filtering)
4. Programs using RPC
5. Simulation of sliding window protocols Experiments using simulators (like OPNET)
6. Performance comparison of MAC protocols
7. Implementing Routing Protocols
8. Performance comparison of Routing protocols
9. Study of UDP performance
10. Study of TCP performance.

IT2357 WEB TECHNOLOGY LAB

1. Create a web page with the following using HTML
   i) To embed an image map in a web page
   ii) To fix the hot spots
   iii) Show all the related information when the hot spots are clicked.
2. Create a web page with all types of Cascading style sheets.
3. Client Side Scripts for Validating Web Form Controls using DHTML
4. Write programs in Java to create applets incorporating the following features:
   - Create a color palette with matrix of buttons
   - Set background and foreground of the control text area by selecting a color from color palette.
   - In order to select Foreground or background use check box control as radio buttons
   - To set background images
5. Write programs in Java using Servlets:
   - To invoke servlets from HTML forms
   - To invoke servlets from Applets
6. Write programs in Java to create three-tier applications using JSP and Databases
   - for conducting on-line examination.
   - for displaying student mark list. Assume that student information is available in a database which has been stored in a database server.
7. Programs using XML – Schema – XSLT/XSL
8. Program using DOM / SAX
9. Programs using AJAX
10. Consider a case where we have two web Services- an airline service and a travel agent and the travel agent is searching for an airline. Implement this scenario.