



**VEL TECH MULTI TECH
Dr RANGARAJAN Dr.SAKUNTHALA
ENGINEERING COLLEGE**

(An ISO 9001: 2008 Certified Institution)

(Owned by Vel Trust)

(Approved by Govt. of Tamil Nadu and affiliated to Anna University and
Accredited by NBA, New Delhi)



SYLLABUS

WEEKLY SCHEDULE

VII SEMESTER 2014 - 2015

**DEPARTMENT OF INFORMATION
TECHNOLOGY**

IV YEAR DEGREE COURSE

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WEEK DETAILS

SL.NO.	WEEK	FROM	TO
1	WEEK1	24-06-2014	27-06-2014
2	WEEK2	30-06-2014	04-07-2014
3	WEEK3	07-07-2014	11-07-2014
4	WEEK4	14-07-2014	18-07-2014
5	WEEK5	21-07-2014	25-07-2014
6	WEEK6	28-07-2014	01-08-2014
7	WEEK7	04-08-2014	08-08-2014
8	WEEK8	11-08-2014	14-08-2014
9	WEEK9	18-08-2014	22-08-2014
10	WEEK10	25-08-2014	28-08-2014
11	WEEK11	01-09-2014	05-09-2014
12	WEEK12	08-09-2014	12-09-2014
13	WEEK13	15-09-2014	19-09-2014
14	WEEK14	22-09-2014	26-09-2014
15	WEEK15	29-09-2014	01-10-2014
16	WEEK16	06-10-2014	10-10-2014
17	WEEK17	13-10-2014	17-10-2014
18	WEEK18	20-10-2014	24-10-2014
19	WEEK19	27-10-2014	31-10-2014

SUBJECT CONTENTS

SL.N O	SUBJECT CODE	SUBJECT NAME
THEORY		
1	IT2401	Service Oriented Architecture
2	IT2402	Mobile Communication
3	CS2401	Computer Graphics
4	IT2403	Software Project Management
5	IT2043	Knowledge Management
6	IT2032	Software Testing
PRACTICAL		
7	IT2406	Computer Graphics Lab
8	CS2405	Service Oriented Architecture Lab

TEST / EXAM SCHEDULE

SL.NO	SUBJECT CODE	SUBJECT NAME	UNIT TEST I	UNIT TEST II	UNIT TEST III	UNIT TEST IV	UNIT TEST V
1	IT2401	Service Oriented Architecture	08/07/14 FN	30/07/14 FN	20/08/14 FN	09/09/14 FN	29/09/14 FN
2	IT2402	Mobile Communication	08/07/14 AN	30/07/14 AN	20/08/14 AN	09/09/14 AN	29/09/14 AN
3	CS2401	Computer Graphics	09/07/14 FN	31/07/14 FN	21/08/14 FN	10/09/14 FN	30/09/14 FN
4	IT2403	Software Project Management	09/07/14 AN	31/07/14 AN	21/08/14 AN	10/09/14 AN	30/09/14 AN
5	IT2043	Knowledge Management	10/07/14 FN	01/08/14 FN	22/08/14 FN	11/09/14 FN	01/10/14 FN
6	IT2032	Software Testing	10/07/14 AN	01/08/14 AN	22/08/14 AN	11/09/14 AN	01/10/14 AN

SL.NO	SUBJECT CODE	SUBJECT NAME	MODEL EXAM
1	IT2401	Service Oriented Architecture	13-10-2014
2	IT2402	Mobile Communication	14-10-2014
3	CS2401	Computer Graphics	15-10-2014
4	IT2403	Software Project Management	16-10-2014
5	IT2043	Knowledge Management	17-10-2014
6	IT2032	Software Testing	20-10-2014

IT2401 SERVICE ORIENTED ARCHITECTURE

WEEK 1: UNIT I

Roots of SOA – Characteristics of SOA

WEEK 2: Comparing SOA to client-server and distributed internet architectures – Anatomy of SOA

WEEK 3: How components in an SOA interrelate - Principles of service orientation

WEEK 4: UNIT TEST-I

UNIT II

Web services – Service descriptions – Messaging with SOAP – Message exchange Patterns -Coordination –Atomic Transactions

WEEK 5: Business activities – Orchestration – Choreography-Service layer abstraction – Application Service Layer – Business Service Layer – Orchestration Service Layer

WEEK 6: UNIT TEST-II

WEEK 7: UNIT III

Service oriented analysis – Business-centric SOA – Deriving business services- service modeling

WEEK 8: Service Oriented Design – WSDL basics – SOAP basics – SOA composition guidelines- Entity-centric business service design

WEEK 9: – Application service design – Taskcentric business service design.

WEEK 10 UNIT TEST-III

UNIT IV

SOA platform basics – SOA support in J2EE – Java API for XML-based web services (JAX-WS) - Java architecture for XML binding (JAXB) – Java API for XML Registries (JAXR)

WEEK 11: Java API for XML based RPC (JAX-RPC)- Web Services Interoperability Technologies (WSIT) - SOA support in .NET – Common Language Runtime

WEEK 12: ASP.NET web forms – ASP.NET web services – Web Services Enhancements (WSE)

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V

WS-BPEL basics – WS-Coordination overview - WS-Choreography

WEEK 16: WS-Policy, Security

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

TEXT BOOKS

1. Thomas Erl, “Service-Oriented Architecture: Concepts, Technology, and Design”, Pearson Education, 2005.

BOOKS FOR REFERENCES

1. Thomas Erl, “SOA Principles of Service Design “(The Prentice Hall Service-Oriented Computing Series from Thomas Erl), 2005.
2. Newcomer, Lomow, “Understanding SOA with Web Services”, Pearson Education, 2005.
3. Sandeep Chatterjee, James Webber, “Developing Enterprise Web Services, An Architect’s Guide”, Pearson Education, 2005.
4. Dan Woods and Thomas Mattern, “Enterprise SOA Designing IT for Business Innovation” O’REILLY, First Edition, 2006

IT2402 MOBILE COMMUNICATION

WEEK 1: UNIT I WIRELESS COMMUNICATION

Cellular systems-Frequency Management and Channel Assignment

WEEK 2: types of handoff and their characteristics, dropped call rates & their evaluation

WEEK 3: MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks

WEEK 4: UNIT TEST-I

UNIT II WIRELESS NETWORKS

Wireless LAN – IEEE 802.11 Standards

WEEK 5: Architecture – Services Mobile Ad hoc Networks- WiFi and WiMAX -Wireless Local Loop

WEEK 6: UNIT TEST-II

WEEK 7: UNIT III Database Design

GSM-architecture-Location tracking and call setup-Mobility management Handover-Security-GSM SMS- International roaming for GSM-call recording functions-

WEEK 8:

subscriber and service data mgt Mobile Number portability -VoIP service for Mobile Networks- GPRS –Architecture-

WEEK 9:

GPRS procedures-attach and detach procedures-PDP context procedure-combined RA/LA update procedures-Billing

WEEK 10: UNIT TEST-III

UNIT IV MOBILE NETWORK AND TRANSPORT LAYERS

Mobile IP – Dynamic Host Configuration Protocol-Mobile Ad Hoc Routing Protocols- Multicast routing-TCP over Wireless Networks – Indirect TCP – Snooping TCP – Mobile TCP

WEEK 11: Fast Retransmit / Fast Recovery Transmission/Timeout Freezing-Selective Retransmission

WEEK 12: Transaction Oriented TCP-TCP over 2.5 / 3G wireless Networks

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V APPLICATION LAYER

WAP Model-Mobile Location based services -WAP Gateway- WAP protocols – WAP user agent profile-caching model- wireless bearers for WAP

WEEK 16 : WML – WMLScripts -WTA -iMode-SyncML

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

Text Books:

1. Jochen Schiller, “Mobile Communications”, Second Edition, Pearson Education, 2003.
2. William Stallings, “Wireless Communications and Networks”, Pearson Education, 2002.

REFERENCES:

1. Kaveh Pahlavan, Prasanth Krishnamoorthy, “Principles of Wireless Networks”, First Edition, Pearson Education, 2003.

2. Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, 2003.
3. C.K.Toh, “AdHoc Mobile Wireless Networks”, First Edition, Pearson Education, 2002.

CS2401COMPUTER GRAPHICS

WEEK 1: UNIT-I 2D PRIMITIVES

Output primitives – Line, Circle and Ellipse drawing algorithms

WEEK 2: Attributes of output primitives – Two dimensional Geometric transformation

WEEK 3: Two dimensional viewing – Line, Polygon, Curve and Text clipping algorithms

WEEK 4: UNIT TEST-I

UNIT II 3D CONCEPTS

Parallel and Perspective projections -Three dimensional object representation

WEEK 5: Polygons, Curved lines, Splines, Quadric Surfaces,- Visualization of data sets-3D transformations – Viewing -Visible surface identification.

WEEK 6: UNIT TEST-II

WEEK 7:.UNIT III GRAPHICS PROGRAMMING

Color Models – RGB, YIQ, CMY, HSV – Animations – General Computer Animation

WEEK 8: Raster, Keyframe -Graphics programming using OPENGL – Basic graphics primitives

WEEK 9: Drawing three dimensional objects -Drawing three dimensional scenes

WEEK 10: UNIT TEST-III

UNIT IV INTRODUCTION TO SHADING MODELS

Flat and Smooth shading – Adding texture to faces Adding shadows of objects

WEEK 11

Building a camera in a program-Creating shaded object

WEEK 12:

Rendering texture – Drawing Shadows.

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V

Fractals and Self similarity – Peano curves – Creating image by iterated functions- Mandelbrot sets – Julia Sets – Random Fractals – Overview of Ray Tracing

WEEK 16:

Intersecting rays with other primitives – Adding Surface texture – Reflections and Transparency – Boolean operations on Objects

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

TEXT BOOKS:

1. Donald Hearn, Pauline Baker, Computer Graphics – C Version, second edition,
2. F.S. Hill, Computer Graphics using OpenGL, Second edition, Pearson Education,2003.

REFERENCE:

1. James D. Foley, Andries Van Dam, Steven K. Feiner, John F. Hughes, Computer Graphics-Principles and practice, Second Edition in C, Pearson Education, 2007.

IT2403 SOFTWARE PROJECT MANAGEMENT

WEEK 1: UNIT I Introduction to Software Project Management

Project Definition – Contract Management

WEEK 2:

Activities Covered By Software Project Management

WEEK 3:

Overview of Project Planning – Stepwise Project Planning

WEEK 4: UNIT TEST-I

UNIT II Project Evaluation

Strategic Assessment – Technical Assessment – Cost Benefit Analysis

WEEK 5:

Cash Flow Forecasting – Cost Benefit Evaluation Techniques – Risk Evaluation.

WEEK 6: UNIT TEST-II

WEEK 7: UNIT III ACTIVITY PLANNING

Objectives – Project Schedule – Sequencing and Scheduling Activities –Network Planning Models – Forward Pass-Backward Pass.

WEEK 8:

Activity Float – Shortening Project Duration – Activity on Arrow Networks – Risk Management – Nature Of Risk Types OfRisk –

WEEK 9:

Managing Risk – Hazard Identification – Hazard Analysis – Risk Planning and Control

WEEK 10: UNIT TEST-III

UNIT IV MONITORING AND CONTROL

Creating Framework – Collecting The Data – Visualizing Progress – Cost Monitoring – Earned Value – Prioritizing Monitoring

WEEK 11:

Getting Project Back To Target – Change Control – Managing Contracts – Introduction – Types Of Contract

WEEK 12:

Stages In Contract Placement – Typical Terms Of A Contract – Contract Management – Acceptance.

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V MANAGING PEOPLE AND ORGANIZING TEAMS

Introduction – Understanding Behavior – Organizational Behaviour: A Background – Selecting The Right Person For The Job – Instruction In The Best Methods

WEEK 16: Motivation– The Oldman – Hackman Job Characteristics Model – Working In Groups – Becoming A Team – Decision Making – Leadership – Organizational Structures – Stress

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

TEXT BOOK:

1. Bob Hughes, Mikecotterell, “Software Project Management”, Third Edition, TataMcGraw Hill, 2004.

REFERENCES:

1. Ramesh, Gopaldaswamy, "Managing Global Projects", Tata McGraw Hill, 2001.
2. Royce, "Software Project Management", Pearson Education, 1999.
3. Jalote, "Software Project Management in Practice", Pearson Education, 2002.

IT2043 KNOWLEDGE MANAGEMENT

WEEK 1: UNIT I KNOWLEDGE MANAGEMENT

KM Myths – KM Life Cycle – Understanding Knowledge – Knowledge, intelligence

WEEK 2: Experience – Common Sense – Cognition and KM – Types of Knowledge

WEEK 3: Expert Knowledge – Human Thinking and Learning.

WEEK 4: UNIT TEST-I

UNIT II KNOWLEDGE MANAGEMENT SYSTEM LIFE CYCLE

Challenges in Building KM Systems – Conventional Vrs KM System Life Cycle

WEEK 5: Knowledge Creation and Knowledge Architecture – Nonaka's Model of Knowledge- Creation and Transformation. Knowledge Architecture

WEEK 6: UNIT TEST-II

WEEK 7: UNIT III CAPTURING KNOWLEDGE

Evaluating the Expert – Developing a Relationship with Experts – Fuzzy Reasoning and Quality of Knowledge

WEEK 8: Knowledge Capturing Techniques, Brain Storming – Protocol Analysis

WEEK 9:

Consensus Decision Making – Repertory Grid- Concept Mapping – Black boarding.

WEEK 10: UNIT TEST-III

UNIT IV KNOWLEDGE CODIFICATION

Modes of Knowledge Conversion – Codification Tools and Procedures – Knowledge Developer’s Skill Sets

WEEK 11:

System Testing and Deployment – Knowledge Testing – Approaches to Logical Testing, User Acceptance Testing

WEEK 12:

KM System Deployment - Issues – User Training – Post implementation

WEEK 13: UNIT TEST-III

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT TEST-IV

UNIT V KNOWLEDGE TRANSFER AND SHARING

Transfer Methods – Role of the Internet – Knowledge Transfer in e-world – KM System Tools – Neural Network – Association Rules- Classification Trees – Data Mining

WEEK 16:

Decision Making Architecture – Data Management – Knowledge Management Protocols – Managing Knowledge Workers.

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

TEXT BOOK:

1. Elias.M. Award & Hassan M. Ghaziri – “Knowledge Management” Pearson Education 2003.

REFERENCES:

1. Guus Schreiber, Hans Akkermans, Anjo Anjewierden, Robert de Hoog, Nigel Shadbolt, Walter Van de Velde and Bob

- Wielinga, “Knowledge Engineering and Management”, Universities Press, 2001.
2. C.W. Holsapple, “Handbooks on Knowledge Management”, International Handbooks on Information Systems, Vol 1 and 2, 2003

IT2032 SOFTWARE TESTING

WEEK 1: UNIT-1

Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions:

WEEK 2: Software Testing Principles – The Tester’s Role in a Software Development Organization – Origins of Defects –Defect Classes – The Defect Repository and Test Design – Defect Examples

WEEK 3: UNIT TEST-I

UNIT II TEST CASE DESIGN

Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing –Requirements based testing – positive and negative testing

WEEK 4: Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user documentation testing –domain testing Using White–Box Approach to Test design

WEEK 5: Test Adequacy Criteria –static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths - Their Role in White box Based Test Design –code complexity testing – Evaluating Test Adequacy Criteria.

WEEK 6: UNIT TEST-II

WEEK 7: UNIT III LEVELS OF TESTING

The Need for Levels of Testing – Unit Test – Unit Test Planning – Designing the Unit Tests. The Test Harness-Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – scenario testing

WEEK 8: defect bash elimination -System Testing – types of system testing - Acceptance testing –performance testing - Regression Testing – internationalization testing

WEEK 9:

ad-hoc testing -Alpha – Beta Tests – testing OO systems –usability and accessibility testing

WEEK 10: UNIT TEST-III

UNIT IV TEST MANAGEMENT

People and organizational issues in testing – organization structures for testing teams –testing services - Test Planning – Test Plan Components – Test Plan Attachments

WEEK 11:

Locating Test Items – test management – test process Reporting Test Results – The role of three groups in Test Planning and Policy Development

WEEK 12:

Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group.

WEEK 13: UNIT TEST-IV

WEEK 14: REVISION CLASSES (UNIT 1- IV)

WEEK 15: UNIT V CONTROLLING AND MONITORING

Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation- Test metrics and measurements

WEEK 16:

project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion- SCM – Types of reviews – Developing a review program – Components of Review Plans– Reporting Review Results. – evaluating software quality – defect prevention – testing maturity model

WEEK 17: UNIT TEST-V

WEEK 18: MODEL EXAM

WEEK 19:

ICD CLASSES & MODEL PRACTICAL EXAM

TEXT BOOKS:

1. Srinivasan Desikan and Gopalaswamy Ramesh, “ Software Testing – Principles and Practices”, Pearson education, 2006.
2. Aditya P.Mathur, “Foundations of Software Testing”, Pearson Education,2008.

REFERENCES:

1. Boris Beizer, “Software Testing Techniques”, Second Edition,Dreamtech, 2003.
2. Elfriede Dustin, “Effective Software Testing”, First Edition, Pearson Education, 2003.
3. Renu Rajani, Pradeep Oak, “Software Testing – Effective Methods, Tools and Techniques”, Tata McGraw Hill, 2004.

CS2405 SERVICE ORIENTED ARCHITECTURE LAB

1. Develop at least 5 components such as Order Processing, Payment Processing,etc., using .NET component technology.
2. Develop at least 5 components such as Order Processing, Payment Processing,etc., using EJB component technology.
3. Invoke .NET components as web services.
4. Invoke EJB components as web services.
5. Develop a Service Orchestration Engine (workflow) using WS-BPEL and implement service composition. For example, a business process for planning business travels will invoke several services. This process will invoke several airline companies (such as American Airlines, Delta Airlines etc.) to check the airfare price and buy at the lowest price.

6. Develop a J2EE client to access a .NET web service.

7. Develop a .NET client to access a J2EE web service.

LAB EQUIPMENTS

LIST OF EQUIPMENTS:

Hardware:

CPU:- (As Server) Processor (Core 2 Quad or equivalent) with good speed,
2GBRAM, 300GBHDD

Software:

- 1).NET framework (MS Academic Alliance)
(or)
Express Edition
- 2) J2EE framework free download
- 3) OS – Windows or Linux

IT2406 COMPUTER GRAPHICS LAB

1. Implementation of Bresenham's Algorithm – Line, Circle, Ellipse.
2. Implementation of Line, Circle and ellipse Attributes.
3. Two Dimensional transformations - Translation, Rotation, Scaling, Reflection, Shear.
4. Composite 2D Transformations.
5. Cohen Sutherland 2D line clipping and Windowing
6. Sutherland – Hodgeman Polygon clipping Algorithm.
7. Three dimensional transformations - Translation, Rotation, Scaling.

8. Composite 3D transformations.

9. Drawing three dimensional objects and Scenes.

10. Generating Fractal images.

LIST OF EQUIPMENTS:

1) Turbo C

2) Visual C++ with OPENGL

3) Any 3D animation software like 3DSMAX, Maya, Blender