



**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 CSE**

**IV DEGREE COURSE**

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## WEEK DETAILS

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

## **SUBJECT CONTENTS**

<b>SL.NO</b>	<b>SUBJECT CODE</b>	<b>SUBJECT NAME</b>
<b>THEORY</b>		
<b>1</b>	<b>MG2452</b>	<b>Engineering Economics &amp; Financial Accounting</b>
<b>2</b>	<b>CS2401</b>	<b>Computer Graphics</b>
<b>3</b>	<b>CS2402</b>	<b>Mobile and Pervasive Computing</b>
<b>4</b>	<b>CS2403</b>	<b>Digital Signal Processing</b>
<b>5</b>	<b>IT2024</b>	<b>User Interface Design</b>
<b>6</b>	<b>IT2032</b>	<b>Software Testing</b>
<b>PRACTICAL</b>		
<b>7</b>	<b>CS2405</b>	<b>Computer Graphics Lab</b>
<b>8</b>	<b>CS2406</b>	<b>Open Source Lab</b>

### 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	MG2452	Engineering Economics & Financial Accounting	08/07/14 FN	30/07/14 FN	20/08/14 FN	09/09/14 FN	29/09/14 FN
2	CS2401	Computer Graphics	08/07/14 AN	30/07/14 AN	20/08/14 AN	09/09/14 AN	29/09/14 AN
3	CS2402	Mobile and Pervasive Computing	09/07/14 FN	31/07/14 FN	21/08/14 FN	10/09/14 FN	30/09/14 FN
4	CS2403	Digital Signal Processing	09/07/14 AN	31/07/14 AN	21/08/14 AN	10/09/14 AN	30/09/14 AN
5	IT2024	User Interface Design	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	MG2452	Engineering Economics & Financial Accounting	13-10-2014
2	CS2401	Computer Graphics	14-10-2014
3	CS2402	Mobile and Pervasive Computing	15-10-2014
4	CS2403	Digital Signal Processing	16-10-2014
5	IT2024	User Interface Design	17-10-2014
6	IT2032	Software Testing	20-10-2014

# **MG2452 : ENGINEERING ECONOMICS AND FINANCIAL ACCOUNTING**

## **UNIT I: INTRODUCTION**

**WEEK 1: Managerial Economics – Relationship with other disciplines**

**WEEK 2: Firms: Types, objectives and goals**

**WEEK 3: Managerial decisions - Decision analysis**

## **UNIT II: DEMAND & SUPPLY ANALYSIS**

**WEEK 4: UNIT TEST-I**

**Demand - Types of demand - Determinants of demand -**

**WEEK 5: Demand function - Demand elasticity - Demand forecasting**

**WEEK 6: Supply - Determinants of supply - Supply function - Supply elasticity.**

**WEEK 7: UNIT TEST-II**

**WEEK 8:**

## **UNIT III: PRODUCTION AND COST ANALYSIS**

**Production function - Returns to scale -**

**WEEK 9: Production optimization - Least cost input - Isoquants - Managerial uses of production function.**

**WEEK 10: Cost Concepts - Cost function – Types of Cost - Determinants of cost**

**WEEK 11: Short run and Long run cost curves - Cost Output Decision - Estimation of Cost.**

## **WEEK12: MODEL PRACTICAL EXAMINATION 1**

### **UNIT IV – PRICING**

#### **WEEK 13: UNIT TEST-III**

**Determinants of Price**

**WEEK 14: Pricing under different objectives and different market structures- Price discrimination**

**WEEK 15: Pricing methods in practice – role of Government in pricing Control**

#### **WEEK 16: UNIT TEST-IV**

### **UNIT V - FINANCIAL ACCOUNTING (ELEMENTARY TREATMENT)**

**WEEK 17: Balance sheet and related concepts - Profit & Loss Statement and related concepts -Financial Ratio Analysis - Cash flow analysis - Funds flow analysis Comparative financial statements**

**WEEK 18: - Analysis & Interpretation of financial statements- Investments - Risks and return evaluation of investment decision - Average rate of return Payback Period Net Present Value - Internal rate of return.**

#### **WEEK 19: - UNIT TEST-V**

#### **WEEK 20: MODEL THEORY EXAM (5 UNITS)**

#### **WEEK 21: MODEL PRACTICAL EXAM**

### **TEXT BOOK**

- 1. McGuigan, Moyer and Harris, 'Managerial Economics; Applications, Strategy and Tactics', Thomson South Western, 10th Edition, 2005.**
- 2. Prasanna Chandra. 'Fundamentals of Financial Management', Tata Mcgraw Hill Publishing Ltd., 4th edition, 2000**

## **REFERENCES**

- 1. Samuelson. Paul A and Nordhaus W.D., 'Economics', Tata Mcgraw Hill Publishing Company Limited, New Delhi, 2004.**
- 2. Paresh Shah, 'Basic Financial Accounting for Management', Oxford University Press, New Delhi, 2007.**
- 3. Salvatore Dominick, 'Managerial Economics in a global economy'. Thomson South Western, 4th Edition, 2001**

## **CS2401 : COMPUTER GRAPHICS**

### **UNIT I: 2D PRIMITIVES**

**WEEK 1: output primitives – Line, Circle and Ellipse drawing algorithms - Attributes of output primitives**

**WEEK2: 2D Geometric transformation**

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

### **UNIT II : 3D CONCEPTS**

**WEEK 3 : UNIT TEST-I**

**Parallel and Perspective projections – 3D object representation**

**WEEK 4: Polygons, Curved lines, Splines, Quadric Surfaces,- Visualization of data sets**

**WEEK 5: 3Dtransformations – Viewing -Visible surface identification.**

**WEEK 6: UNIT TEST-II**

**WEEK 7:**

**UNIT III: GRAPHICS PROGRAMMING**

**Color Models – RGB, YIQ, CMY, HSV**

**WEEK 7:– Animations – General Computer Animation**

**WEEK 8: Graphics programming using OpenGLRaster, Keyframe-Basic graphics primitives**

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

**WEEK10: UNIT TEST-III**

**UNIT IV: RENDERING**

**WEEK 10: Introduction to Shading models – Flat and Smooth shading**

**WEEK 11: Adding texture to faces –Adding shadows of objects – Building a camera in a program**

**WEEK 12: Creating shaded objects– Rendering texture – Drawing Shadows.**

**WEEK 13: UNIT TEST-IV**

**UNIT V : FRACTALS**

**WEEK 14: Fractals and Self similarity – Peano curves – Creating image by iterated functions –Mandelbrot sets- Julia Sets – Random Fractals**

**WEEK 15: Overview of Ray Tracing –Intersecting rays with other primitives Adding Surface texture**

**WEEK 16: Reflections and Transparency – Boolean operations on Objects**

**WEEK 17: UNIT TEST-V**



## **WEEK 18: MODEL THEORY EXAM(5 UNITS)**

## **WEEK 19: MODEL PRACTICAL EXAM**

### **TEXT BOOKS**

- 1. Donald Hearn, Pauline Baker, Computer Graphics – C Version, second edition, Pearson Education, 2004.**
- 2. F.S. Hill, Computer Graphics using OpenGL, Second edition, Pearson Education, 2003.**

### **REFERENCES**

- 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.**

## **CS2402 : MOBILE AND PERVASIVE COMPUTING**

### **UNIT I: MOBILE NETWORKS**

**WEEK 1: Cellular Wireless Networks – GSM – Architecture**

**WEEK 2: Protocols – Connection Establishment – Frequency Allocation**

**WEEK 3: Routing – Mobility Management – Security – GPRS.**

### **UNIT II : WIRELESS NETWORKS**

**WEEK 3: UNIT TEST-I**

**Wireless LANs and PANs – IEEE 802.11 Standard – Architecture.**

**WEEK 4: Services – Network – Hiper LAN – Blue Tooth- Wi-Fi – WiMAX**

**WEEK 5: Blue Tooth- Wi-Fi – WiMAX**

**WEEK 6: UNIT TEST-II**

**UNIT III: ROUTING**

**WEEK 7: Mobile IP**

**WEEK 8: DHCP – AdHoc**

**WEEK 9: Proactive and Reactive Routing Protocols – Multicast Routing.**

**WEEK 10: UNIT TEST-III**

**UNIT IV: TRANSPORT AND APPLICATION LAYERS**

**WEEK 10: Mobile TCP– WAP – Architecture**

**WEEK 11: Programming Model– WDP – WTLS – WTP**

**WEEK 12: WSP – WAE – WTA Architecture – WML – WMLScripts.**

**WEEK13: UNIT TEST-IV**

**UNIT V: PERVASIVE COMPUTING**

**WEEK 14: REVISION (1-4)UNITS**

**WEEK 15: Pervasive computing infrastructure-applications- Device Technology- Hardware,Human-machine Interfaces, Biometrics, and Operating systems**

**WEEK 16: Device Connectivity –Protocols, Security, and Device Management- Pervasive Web Application architecture- Access from PCs and PDAs - Access via WAP**

**WEEK 17: UNIT TEST-V**

**WEEK 18: MODEL THEORY EXAM (5 UNITS)**

**WEEK 19: MODEL PRACTICAL EXAM**

### **TEXT BOOKS**

- 1. Jochen Schiller, “Mobile Communications”, PHI, Second Edition, 2003.**
- 2. Jochen Burkhardt, Pervasive Computing: Technology and Architecture of Mobile Internet Applications, Addison-Wesley Professional; 3rd edition, 2007**

### **REFERENCES**

- 1. Frank Adelstein, Sandeep KS Gupta, Golden Richard, Fundamentals of Mobile and Pervasive Computing, McGraw-Hill 2005**
- 2. Debashis Saha, Networking Infrastructure for Pervasive Computing: Enabling Technologies, Kluwer Academic Publisher, Springer; First edition, 2002**

## **CS2403: DIGITAL SIGNAL PROCESSING**

### **UNIT I: SIGNALS AND SYSTEMS**

**WEEK 1: Basic elements of digital signal Processing –Concept of frequency in continuous time and discrete time signals**

**WEEK 2: Sampling theorem –Discrete time signals. Discrete time systems**

**WEEK 3: Analysis of Linear time invariant systems –Z transform – Convolution and correlation.**

## **UNIT II: FREQUENCY TRANSFORMS**

### **WEEK 3: UNIT TEST-I**

**Introduction to DFT – Properties of DFT**

**WEEK 4: Filtering methods based on DFT – FFT Algorithms  
Decimation, in – time Algorithms**

**WEEK 5: Decimation – in – frequency Algorithms –Use of FFT in  
Linear Filtering – DCT.**

### **WEEK 6: UNIT TEST-II**

## **UNIT III: IIR FILTER DESIGN**

**WEEK 7: Structures of IIR – Analog filter design**

**WEEK 8: Discrete time IIR filter from analog filter IIR filter  
design by Impulse Invariance**

**WEEK 9: Bilinear transformation, Approximation of derivatives–  
(HPF, BPF, BRF) filter design using frequency translation**

### **WEEK 10: UNIT TEST-IV**

## **UNIT IV: FIR FILTER DESIGN**

**WEEK 10: Structures of FIR – Linear phase FIR filter – Filter  
design using windowing techniques,**

**WEEK 11. Frequency sampling techniques**

**WEEK 12: Finite word length effects in digital Filters**

### **WEEK 13: UNIT TEST-V**

## **UNIT V: APPLICATIONS**

**WEEK 14: REVISION (1-4) UNITS**

**WEEK 15: Multirate signal processing Speech compression  
Adaptive filter**

**WEEK 16: Musical sound processing – Image enhancement**

**WEEK 17: UNIT TEST-V**

**MODEL PRACTICAL EXAMINATION**

**WEEK 18: MODEL THEORY EXAM (5 UNITS)**

**WEEK 19: MODEL PRACTICAL EXAMINATION**

**TEXT BOOK**

1. John G Proakis and Dimtris G Manolakis, “Digital Signal Processing Principles, Algorithms and Application”, PHI/Pearson Education, 2000, 3<sup>rd</sup> Edition.

## **IT2024 : USER INTERFACE DESIGN**

### **UNIT I: INTRODUCTION**

**WEEK 1: Human–Computer Interface – Characteristics of Graphics Interface**

**WEEK 2: Direct Manipulation Graphical System – Web User Interface**

**WEEK 3: Popularity –Characteristic & Principles**

### **UNIT II: HUMAN COMPUTER INTERACTION**

**WEEK 4: UNIT TEST-I**

**User Interface Design Process – Obstacles –Usability –Human Characteristics In Design– Human Interaction Speed –Business Functions –Requirement Analysis – Direct –Indirect Methods**

**WEEK 5: Basic Business Functions – Design Standards – System Timings – Human Consideration In Screen Design – Structures Of Menus – Functions Of Menus–Contents Of Menu**

**WEEK 6: Formatting – Phrasing The Menu – Selecting Menu Choice– Navigating Menus– Graphical Menus.**

**WEEK 7: UNIT TEST-II**

**UNIT III: WINDOWS**

**WEEK 8: Characteristics– Components– Presentation Styles– Types– Managements–Organizations– Operations– Web Systems– Device**

**WEEK 9: Based Controls Characteristics–Screen – Based Controls – Operate Control – Text Boxes– Selection Control– Combination Control– Custom Control– Presentation Control.**

**UNIT IV: MULTIMEDIA**

**WEEK 10: UNIT TEST-III**

**Text For Web Pages – Effective Feedback**

**WEEK 11: Guidance & Assistance–Internationalization– Accesssibility**

**WEEK 12: Icons– Image– Multimedia – Coloring.**

**WEEK 13: UNIT TEST-IV**

**UNIT V: WINDOWS LAYOUT– TEST**

**WEEK 14: Prototypes – Kinds of Tests – Retest**

**WEEK 15: Information Search – Visualization – Hypermedia**

**WEEK 16: WWW– Software Tools.**

**WEEK 17 UNIT TEST-V**

## **WEEK 18 MODEL PRACTICALS**

## **WEEK 19 MODEL EXAM**

## **WEEK 20 MODEL EXAMINATION (5 UNITS)**

### **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.**

## **IT2032 : SOFTWARE TESTING**

### **UNIT I: INTRODUCTION**

**WEEK 1: Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a Process – Basic Definitions – Software Testing Principles**

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

**WEEK 3: Defect Examples – Developer/Tester Support for Developing a Defect Repository.**

### **UNIT II : TEST CASE DESIGN**

#### **WEEK 4: UNIT TEST-I**

**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 --- Boundary Value Analysis – decision tables**

**WEEK 5: 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 – Test Adequacy Criteria –static testing vs. structural testing – code functional testing**

**WEEK 6: Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design –code complexity testing – Evaluating Test Adequacy Criteria Multirelational OLAP – Categories of Tools – OLAP Tools and the Internet.**

**WEEK 7: UNIT TEST-II**

### **UNIT III: LEVELS OF TESTING**

**WEEK 8: 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 test – types of system testing - Acceptance testing –performance testing.**

**WEEK 9: Designing Integration Tests – Integration Test Planning – scenario testing –defect bash elimination -System Testing - types of system testing - Acceptance testing – performance testing Regression Testing – internationalization testing – ad-hoc testing -Alpha – Beta Tests – testing OO systems – usability and accessibility testing**

### **UNIT IV: TEST MANAGEMENT**

**WEEK 10: UNIT TEST-III**

**People and organizational issues in testing – organization structures for testing teams –testing services**

**WEEK 11: Test Planning – Test Plan Components – Test Plan Attachments – 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**

**UNIT V : CONTROLLING AND MONITORING**

**WEEK 14: Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation**

**WEEK 15: Test metrics and measurements –project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion – SCM – Types of reviews**

**WEEK 16 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 PRACTICAL EXAMINATION**

**WEEK 19 MODEL EXAMINATION**

**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 : COMPUTER GRAPHICS LAB**

### **LIST OF EXPERIMENTS**

1. **Implementation of Bresenham's Algorithm – Line, Circle, Ellipse.**
2. **Implementation of Line, Circle and ellipse Attributes**
3. **Two Dimensional transformations - Translation, Rotation, Scaling, Reflectio 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**

## **CS2406: OPEN SOURCE LAB**

### **LIST OF EXPERIMENTS**

1. **Kernel configuration, compilation and installation : Download / access the latest kernel source code from [kernel.org](http://kernel.org), compile the**

**kernel and install it in the local system. Try to view the source code of the kernel**

**2. Virtualisation environment (e.g., xen, qemu or lguest) to test an applications, new kernels and isolate applications. It could also be used to expose students to other alternate OSs like \*BSD**

**3. Compiling from source : learn about the various build systems used like the auto\* family, cmake, ant etc. instead of just running the commands. This could involve the full process like fetching from a cvs and also include autoconf, automake etc.,**

**4. Introduction to packet management system : Given a set of RPM or DEB, how to build and maintain, serve packages over http or ftp. and also how do you configure client systems to access the package repository**

**5. Installing various software packages**

**Either the package is yet to be installed or an older version is existing. The student can practice installing the latest version. Of course, this might need internet access.**

**Install samba and share files to windows**

**Install Common Unix Printing System (CUPS)**

**6. Write userspace drivers using fuse -- easier to debug and less dangerous to the system (Writing full-fledged drivers is difficult at student level)**

**7. GUI programming: a sample programme – using Gambas since the students have VB knowledge. However, one should try using GTK or QT**

**8. Version Control System setup and usage using RCS, CVS, SVN**

**9. Text processing with Perl: simple programs, connecting with database e.g., MySQL**

**10. Running PHP : simple applications like login forms after setting up a LAMP stack**

**11. Running Python : some simple exercise – e.g. Connecting with MySQL database**

**12. Set up the complete network interface using ifconfig command like setting gateway, DNS, IP tables, etc.,**