



**VEL TECH MULTI TECH
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 CSE

IV DEGREE COURSE

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SEM : VI

YEAR : III

ACADEMIC YEAR: 2014– 2015

| S.NO | WEEKS | DATE | |
|-------------|--------------|-------------|-----------|
| | | FROM | TO |
| 1 | WEEK 1 | 02.01.15 | 09.01.15 |
| 2 | WEEK 2 | 12.01.15 | 16.01.15 |
| 3 | WEEK 3 | 19.01.15 | 23.01.15 |
| 4 | WEEK 4 | 27.01.15 | 30.01.15 |
| 5 | WEEK 5 | 02.02.15 | 06.02.15 |
| 6 | WEEK 6 | 09.02.15 | 13.02.15 |
| 7 | WEEK 7 | 16.02.15 | 20.02.15 |
| 8 | WEEK 8 | 23.02.15 | 27.02.15 |
| 9 | WEEK 9 | 02.03.15 | 06.03.15 |
| 10 | WEEK 10 | 09.03.15 | 13.03.15 |
| 11 | WEEK 11 | 16.03.15 | 20.03.15 |
| 12 | WEEK 12 | 23.03.15 | 27.03.15 |
| 13 | WEEK 13 | 30.03.15 | 01.04.15 |
| 14 | WEEK 14 | 06.04.15 | 10.04.15 |
| 15 | WEEK 15 | 13.04.15 | 17.04.15 |
| 16 | WEEK 16 | 20.04.15 | 24.04.15 |
| 17 | WEEK 17 | 27.04.15 | 30.04.15 |

CONTENTS

| THEORY | | |
|------------------|------------------|-----------------------------------------|
| Sl.NO | SUB. CODE | SUBJECT |
| 1 | CS2351 | Artificial Intelligence |
| 2 | CS2352 | Principles of Compiler Design |
| 3 | CS2353 | Object Oriented Analysis and Design |
| 4 | CS2354 | Advanced Computer Architecture |
| 5 | IT2353 | Web Technology |
| 6 | IT2354 | Embedded Systems |
| PRACTICAL | | |
| 7 | CS2357 | Object Oriented Analysis and Design Lab |
| 8 | GE2321 | Communication Skills Lab |
| 9 | CS2358 | Internet Programming Lab |

TEST SCHEDULE

UNIT TEST –I

| Sl. NO | DATE | SUB. CODE | SUBJECT |
|---------------|----------------|------------------|-------------------------------------|
| 1 | 22.01.15 FN | CS2351 | Artificial Intelligence |
| 2 | 22.01.15 AN | CS2352 | Principles of Compiler Design |
| 3 | 23.01.15 FN | CS2353 | Object Oriented Analysis and Design |
| 4 | 23.01.15 AN | CS2354 | Advanced Computer Architecture |
| 5 | 24.01.15 FN | IT2353 | Web Technology |
| 6 | 24.01.15 AN | IT2354 | Embedded Systems |

UNIT TEST – II

| c | DATE | SUB. CODE | SUBJECT |
|----------|----------------|------------------|-------------------------------------|
| 1 | 11.02.15 FN | CS2351 | Artificial Intelligence |
| 2 | 11.02.15 AN | CS2352 | Principles of Compiler Design |
| 3 | 12.02.15 FN | CS2353 | Object Oriented Analysis and Design |
| 4 | 12.02.15 AN | CS2354 | Advanced Computer Architecture |
| 5 | 13.02.15 FN | IT2353 | Web Technology |
| 6 | 13.02.15 AN | IT2354 | Embedded Systems |

UNIT TEST –III

| Sl. NO | DATE | SUB. CODE | SUBJECT |
|---------------|----------------|------------------|-------------------------------------|
| 1 | 03.03.15 FN | CS2351 | Artificial Intelligence |
| 2 | 03.03.15 AN | CS2352 | Principles of Compiler Design |
| 3 | 04.03.15 FN | CS2353 | Object Oriented Analysis and Design |
| 4 | 04.03.15 AN | CS2354 | Advanced Computer Architecture |
| 5 | 05.03.15 FN | IT2353 | Web Technology |
| 6 | 05.03.15 AN | IT2354 | Embedded Systems |

UNIT TEST –IV

| Sl. NO | DATE | SUB. CODE | SUBJECT |
|---------------|----------------|------------------|-------------------------------------|
| 1 | 23.03.15 FN | CS2351 | Artificial Intelligence |
| 2 | 23.03.15 AN | CS2352 | Principles of Compiler Design |
| 3 | 24.03.15 FN | CS2353 | Object Oriented Analysis and Design |
| 4 | 24.03.15 AN | CS2354 | Advanced Computer Architecture |
| 5 | 25.03.15 FN | IT2353 | Web Technology |
| 6 | 25.03.15 AN | IT2354 | Embedded Systems |

UNIT TEST –V

| Sl. NO | DATE | SUB. CODE | SUBJECT |
|---------------|----------------|------------------|-------------------------------------|
| 1 | 13.04.15 FN | CS2351 | Artificial Intelligence |
| 2 | 13.04.15 AN | CS2352 | Principles of Compiler Design |
| 3 | 15.04.15 FN | CS2353 | Object Oriented Analysis and Design |
| 4 | 15.04.15 AN | CS2354 | Advanced Computer Architecture |
| 5 | 16.04.15 FN | IT2353 | Web Technology |
| 6 | 16.04.15 AN | IT2354 | Embedded Systems |

MODEL EXAM

| Sl. NO | DATE | SUB. CODE | SUBJECT |
|---------------|-------------|------------------|-------------------------------------|
| 1 | 20.04.2015 | CS2351 | Artificial Intelligence |
| 2 | 21.04.2015 | CS2352 | Principles of Compiler Design |
| 3 | 22.04.2015 | CS2353 | Object Oriented Analysis and Design |
| 4 | 23.04.2015 | CS2354 | Advanced Computer Architecture |
| 5 | 24.04.2015 | IT2353 | Web Technology |
| 6 | 27.04.2015 | IT2354 | Embedded Systems |

CS2351 ARTIFICIAL INTELLIGENCE

UNIT I PROBLEM SOLVING

WEEK 1: Introduction – Agents- Uninformed search strategies – heuristics-: Problem formulation- informed search strategies- Constraint satisfaction.

WEEK 2: UNIT TEST-1

UNIT II LOGICAL REASONING

WEEK 2: Logical agents

WEEK 3: propositional logic – inferences

WEEK 4: First-order logic – inferences in first order logic

WEEK 5: forward chaining – backward chaining unification – resolution

WEEK 6: UNIT TEST-2

UNIT III PLANNING

WEEK 7: Planning with state- Space search

WEEK 8: Partial-order planning

WEEK 9: Planning graphs planning and acting in the real world

WEEK 9: UNIT TEST-3

UNIT IV UNCERTAIN KNOWLEDGE AND REASONING

WEEK 10: Uncertainty – review of probability- Probabilistic Reasoning – Bayesian networks

WEEK 11: Inferences in Bayesian networks – Temporal models – Hidden Markov models

WEEK 11: UNIT TEST-4

UNIT V LEARNING

WEEK 12: Learning from observation Inductive learning Decision trees – Explanation based learning

WEEK 13: Inductive learning Decision trees – Explanation based learning- Statistical Learning methods Reinforcement Learning

WEEK 14: UNIT TEST-5

WEEK 15: MODEL PRACTICAL EXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY EXAM

TEXT BOOK

1. S. Russel and P. Norvig, “Artificial Intelligence – A Modern Approach”, Second Edition, Pearson Education, 2003.

REFERENCES

1. David Poole, Alan Mackworth, Randy Goebel, ”Computational Intelligence: a logical approach”, Oxford University Press, 2004.
2. G. Luger, “Artificial Intelligence: Structures and Strategies for complex problem solving”, Fourth Edition, Pearson Education, 2002.
3. J. Nilsson, “Artificial Intelligence: A new Synthesis”, Elsevier Publishers, 1998.

UNIT I LEXICAL ANALYSIS

WEEK 1: Introduction to Compiling- The phases of Compilers- Analysis of the source program- Cousins-The grouping of phases- Compiler construction tools. The role of the lexical analyzer- Input buffering- Specification of tokens-Recognition of tokens- A language for specifying lexical analyzer

WEEK 2: UNIT TEST-1

UNIT II SYNTAX ANALYSIS AND RUN-TIME ENVIRONMENTS

WEEK 2: Syntax Analysis- The role of the parser -Context-free grammars-Writing a grammar

WEEK 3: Top down parsing-Bottom-up Parsing-LR parsers- Constructing an SLR(1) parsing table

WEEK 4: Type Checking- Type Systems-Specification of a simple type checker. Run-Time Environments

WEEK 5: Source language issues-Storage organization-Storage-allocation strategies

WEEK 6: UNIT TEST-2

UNIT III INTERMEDIATE CODE GENERATION

WEEK 6: Intermediate languages-Declarations

WEEK 7: Assignment statements - Boolean expressions

WEEK 8: Case statements- Back patching Procedure calls.

WEEK 9:UNIT TEST-3

UNIT IV CODE GENERATION

WEEK 10: Issues in the design of a code generator - The target machine-Run-time storage management-Basic blocks and flow graphs

WEEK 11: - Next-use information- A simple code generator-Register allocation and assignment-The dag representation of basic blocks - Generating code from dags

WEEK 11:UNIT TEST-4

UNIT V CODE OPTIMIZATION

WEEK 12: Introduction-The principle sources of optimization-Peepphole optimization- Optimization of basic blocks

WEEK 13: Loops in flow graphs-Introduction to global data. flow analysis-Code improving transformations

WEEK 14: UNIT TEST-5

WEEK 15: MODEL PRACTICAL EXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY EXAM

TEXT BOOKS

1. Alfred V. Aho, Ravi Sethi Jeffrey D. Ullman, “Compilers- Principles, Techniques, and Tools”, Pearson Education Asia, 2007.

REFERENCES

1. David Galles, “Modern Compiler Design”, Pearson Education

Asia, 2007

2. Steven S. Muchnick, “Advanced Compiler Design & Implementation”, Morgan Kaufmann Publishers, 2000.
3. C. N. Fisher and R. J. LeBlanc “Crafting a Compiler with C”, Pearson Education, 2000.

CS2353 OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT I

WEEK 1: Introduction to OOAD – What is OOAD?–What is UML?- What are the Unified process(UP) phases - Case study- The Next Gen POS system, Inception -Use case Modeling- Relating Use cases – include, extend and generalization

WEEK 2:UNIT TEST-1

UNIT II

WEEK 2: Elaboration - Domain Models - Finding conceptual classes and description classes

WEEK 3:Associations – Attributes – Domain model refinement

WEEK 4: Finding conceptual class hierarchies- Aggregation and Composition

WEEK 5: UML activity diagrams and modeling

WEEK 6: UNIT TEST-2

UNIT III

WEEK 6: System sequence diagrams - Relationship between sequence diagrams and use cases Logical architecture and UML package diagram –

WEEK 7: Logical architecture refinement

WEEK 8: UML class diagrams - UML interaction diagrams

WEEK-9:UNIT TEST-3

UNIT IV

WEEK 10: GRASP: Designing objects with responsibilities – Creator – Information expert – Low Coupling –Controller – High Cohesion

WEEK 11: Designing for visibility - Applying GoF design patterns – adapter, singleton, factory and observer patterns

WEEK 11: UNIT TEST-4

UNIT V

WEEK 12: UML state diagrams and modeling

WEEK 13: Operation contracts- Mapping design to code- UML deployment component diagrams

WEEK 14:UNIT TEST-5

WEEK 15: MODEL PRACTICAL EXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY 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

REFERENCES

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.

CS2354 ADVANCED COMPUTER ARCHITECTURE

UNIT I INSTRUCTION LEVEL PARALLELISM

WEEK 1: ILP – Concepts and challenges – Hardware and software approaches- Dynamic scheduling – Speculation - Compiler techniques for exposing ILP- Branch prediction

WEEK 2:UNIT TEST-1

UNIT II MULTIPLE ISSUE PROCESSORS

WEEK 2: VLIW & EPIC – Advanced compiler support

WEEK 3: Hardware support for exposing parallelism

WEEK 4: Hardware versus software speculation mechanisms –

WEEK 5: IA 64 and Itanium processors –Limits on ILP

WEEK 6: UNIT TEST-2

UNIT III MULTIPROCESSORS AND THREAD LEVEL PARALLELISM

WEEK 6: Symmetric and distributed shared memory architectures – Performance issues

WEEK 7: Synchronization – Models of memory consistency

WEEK 8: Introduction to Multithreading.

WEEK 9: UNIT TEST -3

UNIT IV MEMORY AND I/O

WEEK 10: Cache performance – Reducing cache miss penalty and miss rate – Reducing hit time- Main memory and performance

WEEK 11: Memory technology. Types of storage devices- Buses – RAID – Reliability, availability and dependability – I/O performance measures –Designing an I/O system

WEEK 11: UNIT TEST-4

UNIT V MULTI-CORE ARCHITECTURES

WEEK 12: Software and hardware multithreading – SMT and CMP architectures- Design issues –Case studies – Intel Multi-core architecture

WEEK 13: SUN CMP architecture heterogenous multi-core processors- case study: IBM Cell Processor

WEEK 14: UNIT TEST-5

WEEK 15:MODEL PRACTICAL EXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY EXAM

TEXT BOOK

1. John L. Hennessey and David A. Patterson, “Computer architecture – A quantitative approach”, Morgan Kaufmann / Elsevier Publishers, 4th. edition, 2007.

REFERENCES

1. David E. Culler, Jaswinder Pal Singh, “Parallel computing architecture: A hardware/software approach”, Morgan Kaufmann /Elsevier Publishers, 1999.
2. Kai Hwang and Zhi.Weì Xu, “Scalable Parallel Computing”, Tata McGraw Hill, New Delhi, 2003.

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

WEEK 2 : Style Sheets: CSS-Introduction to Cascading Style Sheets-Features-Core Syntax-Style Sheets and HTML Style Rle Cascading and Inheritance-Text Properties

WEEK 3: Box Model Normal Flow Box Layout-Beyond the Normal Flow-Other Properties-Case Study. Client-Side Programming: The JavaScript Language-

WEEK4: History and Versions Introduction JavaScript in Perspective-Syntax-Variables and Data Types-Statements.

WEEK5:Operators-Literals-Functions-Objects-Arrays-Built-in Objects-JavaScript Debuggers.

WEEK 6: UNIT TEST-2

UNIT III

WEEK 6: Host Objects: Browsers and the DOM-Introduction to the Document Object Model DOM History and Levels-Intrinsic Event Handling-Modifying Element Style-The Document Tree

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

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

WEEK 9:UNIT TEST-3

UNIT IV

WEEK 10: 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

WEEK 11: XSLT-Displaying XML Documents in Browsers-Case Study-Related Technologies. Separating Programming and Presentation: JSP Technology-Introduction-JSP and Servlets-Running JSP Applications Basic JSP-JavaBeans Classes and JSP-Tag Libraries and Files-Support for the Model-View- JSP-JavaBeans Classes and JSP-Tag Libraries and Files-Support for the Model-View. Controller Paradigm-Case Study-Related Technologies

WEEK 11:UNIT TEST-4

UNIT V CODE GENERATION

WEEK 12: Web Services: JAX-RPC-Concepts-Writing a Java Web Service-Writing a Java Web Service Client- Describing Web Services: WSDL- Representing Data Types- XML Schema.

WEEK13:Communicating Object Data: SOAP Related Technologies – Software Installation-Storing Java Objects as Files-Databases and Java Servlets.

WEEK 14:UNIT TEST-5

WEEK 15: MODEL PRACTICALEXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY EXAM

TEXT BOOK

1. Jeffrey C. Jackson, "Web Technologies--A Computer Science Perspective", Pearson Education, 2006.

REFERENCES

1. Robert. W. Sebesta, "Programming the World Wide Web", Fourth Edition, Pearson Education, 2007.
2. Deitel, Deitel, Goldberg, "Internet & World Wide Web How to Program", Third Edition, Pearson Education, 2006.
3. Marty Hall and Larry Brown, "Core Web Programming" Second Edition, Volume I and II, Pearson Education, 2001.
4. 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

WEEK 2: 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

WEEK 6: Multiple tasks and processes – Context switching

WEEK 7: Scheduling policies - Inter Process Communication Mechanism

WEEK 8: Performance Issues

WEEK 9:UNIT TEST-3

UNIT IV EMBEDDED SOFTWARE

WEEK 10: Programming embedded systems in assembly and C.- Meeting real time constraints- Multi-state systems and function sequences

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

WEEK 11:UNIT TEST-4

UNIT V EMBEDDED SYSTEM DEVELOPMENT

WEEK 12: Design issues and techniques

WEEK 13: Case studies-Complete design of example embedded systems

WEEK14:UNITTEST-5 **15:.**

WEEK 15: MODEL PRACTICAL EXAM

WEEK 16: MODEL THEORY EXAM

WEEK 17: MODEL THEORY EXAM

TEXT BOOK

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.

CS2357 OOAD LAB

LIST OF EXPERIMENTS

1. To develop a problem statement.
2. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).
3. Identify Use Cases and develop the Use Case model.
4. Identify the business activities and develop an UML Activity diagram.
5. Identify the conceptual classes and develop a domain model with UML Class diagram.
6. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.
7. Draw the State Chart diagram.
8. Identify the User Interface, Domain objects, and Technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.
9. Implement the Technical services layer.
10. Implement the Domain objects layer.
11. Implement the User Interface layer.
12. Draw Component and Deployment diagrams.

GE2321 COMMUNICATION SKILLS LABORATORY

LIST OF EXPERIMENTS

A. English Language Lab (18 Periods)

1. Listening Comprehension: (6)

Listening and typing – Listening and sequencing of sentences – Filling in the blanks -Listening and answering questions.

2. Reading Comprehension: (6)

Filling in the blanks - Close exercises – Vocabulary building - Reading and answering questions.

3. Speaking: (6)

Phonetics: Intonation – Ear training - Correct Pronunciation – Sound recognition exercises – Common Errors in English. Conversations: Face to Face Conversation – Telephone conversation – Role play activities (Students take on roles and engage in conversation)

B. Discussion of audio-visual materials (6 periods)

(Samples are available to learn and practice)

1. Resume / Report Preparation / Letter Writing (1)

Structuring the resume / report - Letter writing / Email Communication - Samples.

2. Presentation skills: (1)

Elements of effective presentation – Structure of presentation - Presentation tools – Voice Modulation – Audience analysis - Body language – Video samples

3. Soft Skills: (2)

Time management – Articulateness – Assertiveness – Psychometrics – Innovation and Creativity - Stress Management & Poise - Video Samples

4. Group Discussion: (1)

Why is GD part of selection process ? - Structure of GD – Moderator – led and other GDs - Strategies in GD – Team work - Body Language - Mock GD -Video samples

5. Interview Skills: (1)

Kinds of interviews – Required Key Skills – Corporate culture – Mock interviews – Video samples

I. PC based session (Weightage 40%) 24 periods

II. Practice Session (Weightage – 60%) 24 periods

1. Resume / Report Preparation / Letter writing: Students prepare their (2) own resume and report.
2. Presentation Skills: Students make presentations on given topics.(8)
3. Group Discussion: Students participate in group discussions. (6)
4. Interview Skills: Students participate in Mock Interviews (8)

CS2358 INTERNET PROGRAMMING LAB

LIST OF EXPERIMENTS

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:
5. 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
6. To invoke servlets from Applets
7. 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.
8. Programs using XML – Schema – XSLT/XSL
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 using Web Services and Data base.