MARTHANDAM COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INTERNET LAB

Equipments Available in the Lab

Sl.No	Hardware	Specification	Quantity
1	Desktops	**HCL** Intel Dual core 2.7GHz Processor, Intel G31 Chipset Motherboard, 1GB DDR2 RAM 160GB SATA HDD HCL 17" LCD Monitor HCL Keyboard and Optical Mouse	30 Nos
Software			
1	Open source Linux Operating System		
2	Open Source C++ Programming tool like G++/GCC		
3	ArgoUML that supports UML 1.4 and higher		

COURSES OFFERED

Sl.No	Odd Sem (Course code & Name)	Class	Even Sem (Course code & Name)	Class
1	CP4161 Advanced Data Structures Lab	I ME(CSE)	CP4212 Software Engineering Lab	I ME(CSE)
2			CS8582 Object oriented analysis and Design Lab	III-IT

CP4161 ADVANCED DATA STRUCTURES LAB

OBJECTIVES:

- To acquire the knowledge of using advanced tree structures.
- To learn the usage of heap structures.
- To understand the usage of graph structures and spanning trees.

- To understand the problems such as matrix chain multiplication, activity selection and Huffman coding.
- To understand the necessary mathematical abstraction to solve problems.

OUTCOMES:

- Design and implement basic and advanced data structures extensively
- Design algorithms using graph structures Tentative
- Design and develop efficient algorithms with minimum complexity using design techniques
- Develop programs using various algorithms.
- Choose appropriate data structures and algorithms, understand the ADT/libraries, and use it to design algorithms for a specific problem.

LIST OF EXPERIMENTS

1. Implementation of recursive function for tree traversal and Fibonacci.
2. Implementation of iterative function for tree traversal and Fibonacci.
3. Implementation of quick sort and merge sort.
4.Implementation of binary search trees.
5. Implementation of red-black tree.
6. Implementation of heap.
7. Implementation of Fibonacci heap.
8. Implementation of graph traversal.
9. Implementation of Spanning tree.
10. Implementation of Shortest Path Algorithms (Dijkstra's algorithm, Bellman Ford Algorithm).
11. Implementation of matrix chain multiplication.
12. Implementation of activity selection.

CP4212 SOFTWARE ENGINEERING LAB

OBJECTIVES:

- To impart state-of-the-art knowledge on Software Engineering and UML in an interactive manner through the Web.
- Present case studies to demonstrate practical applications of different concepts.
- Provide a scope to students where they can solve small, real-life problems.

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OUTCOMES:

- Can produce the requirements and use cases the client wants for the software being Produced. Participate in drawing up the project plan.
- The project plan will include at least extent and work assessments of the project, the schedule, available resources, and risk management can model and specify the requirements of mid-range software and their architecture.
- Create and specify such a software design based on the requirement specification that the software can be implemented based on the design.
- Can assess the extent and costs of a project with the help of several different assessment methods.

LIST OF EXPERIMENTS

1. Implementation Write a Problem Statement to define a title of the project with bounded scope of project.
2. Select relevant process model to define activities and related task set for assigned project.
3. Prepare broad SRS (Software Requirement Specification) for the above selected projects.
4.Prepare USE Cases and Draw Use Case Diagram using modelling Tool.
5. Develop the activity diagram to represent flow from one activity to another for software development.
6. Develop data Designs using DFD Decision Table & ER Diagram.
7. Draw class diagram, sequence diagram, Collaboration Diagram, State Transition Diagram for the assigned project.
8. Write Test Cases to Validate requirements of assigned project from SRS Document.
9. Evaluate Size of the project using function point metric for the assigned project.
10. Estimate cost of the project using COCOMO and COCOCMOII for the assigned project.
11. Use CPM/PERT for scheduling the assigned project.
12. Use timeline Charts or Gantt Charts to track progress of the assigned project.

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CS8582 OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY

OBJECTIVES:

- To capture the requirements specification for an intended software system
- To draw the UML diagrams for the given specification
- To map the design properly to code
- To test the software system thoroughly for all scenarios
- To improve the design by applying appropriate design patterns.

OUTCOMES:

- Perform OO analysis and design for a given problem specification.
- Identify and map basic software requirements in UML mapping.
- Improve the software quality using design patterns
- Explain the rationale behind applying specific design patterns
- Test the compliance of the software with the SRS.

LIST OF EXPERIMENTS

1. Identify a software system that needs to be developed.

2. Document the Software Requirements Specification (SRS) for the identified system.

3. Identify use cases and develop the Use Case model.

4. Identify the conceptual classes and develop a Domain Model and also derive a Class Diagram from that.

5. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams

6. Draw relevant State Chart and Activity Diagrams for the same system.

7. Implement the system as per the detailed design

8. Test the software system for all the scenarios identified as per the usecase diagram

9. Improve the reusability and maintainability of the software system by applying appropriate design patterns.

10. Implement the modified system and test it for various scenarios

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DOMAINS OF MINIPROJECT

1. Passport automation system.
2. Book bank
3. Exam registration
4. Stock maintenance system.
5. Online course reservation system
6. Airline/Railway reservation system
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
14. Library management system
15. Student information system