Information System Design

IT60105

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Objective of the Course

- To learn the state-of-the-art techniques of developing large information system
  - Planning
  - Analysis
  - Design
  - Tools and Techniques
  - Maintenance
    - Software reliability
    - Quality assurance
    - Review

Objective of the Course

- To learn the standard techniques for designing an information system
  - Function-oriented design
    - Methodologies
    - DFD, ERD, Structured Chart, Decision Diagram etc.
  - Object-oriented design
    - UML
    - Pattern etc.

Objective of the Course

- To learn how to test a system?
  - Traditional testing methodologies
  - Testing for OO systems

- Case study with recent applications
  - Designing standard information systems
  - Distributed information systems
    - Client/Server systems
  - Real time systems

Topics to be covered .....

- Topic 1
  - Introduction
  - Basic elements of information system design
- Topic 2
  - Project planning
  - Project documentation
    - ISPP, SRS, SDD etc.
- Topic 3
  - Analysis
    - Cost estimation, time estimation, resource analysis, risk analysis etc.

Topics to be covered .....

- Topic 4
  - Function-oriented design approaches
    - Structured analysis and design
    - ERD, DFD, Decision diagram, Structure chart etc.
- Topic 5
  - Object-oriented design
  - Function-oriented design vs. Object-oriented design
- Topic 6
  - Object-oriented design using UML
  - UML Diagrams

Topics to be covered .....

- Topic 7
  - Procedural testing strategies
    - Unit testing
    - Integration testing
    - System testing
- Topic 8
  - Object-oriented testing
    - Procedural testing vs. Object-oriented testing
    - Testing OOS from design model

Topics to be covered .....

- Topic 9
  - Case Studies
  - IT-enabled information system design
  - Web-enabled information system design
  - Real time systems

- Topic 10
  - Distributed software system design
  - DCOM, RMI, CORBA

Information Systems for Practices
(Not limited to)

1. Office automation software
2. Shop automation software
3. Health care management software
4. Transport reservation system
5. Service & maintenance automation system
6. Network printer management system
7. Clinical diagnosis system
8. Intelligent decision support system for LIC

Evaluation Plan

Assignment 1	5%
Mid-Semester Test	30%
Assignment 2	5%
End-Semester Test	50%
Assignment 3	10%

Important Dates

Assignment 1	10.08.2007
Mid-Autumn Test	16.09.2007
Assignment 2	07.09.2007
Assignment 3	15.10.2007
End-Autumn Test	21.11.2007

References

Object-Oriented Analysis & Design with Applications (2E)

Grady Booch (Pearson Education)

Software Engineering – A Practitioner Approach (6E)

Roger S. Pressman (Mc Graw Hill International)

References

Software Engineering (7E)

Sommerville (Pearson Education)

UML Distilled (2E)

Martin Fowler (Pearson Education)

The Unified Modeling Language User Guide

Grady Booch, James Rumbaugh and Ivar Jacobson (Pearson Education)

References

Distributed Systems: Concepts and Design (3E)

George Coulouris, Jean Dollimore and Tim Kindberg

(Pearson Education)

Client/Server Programming with Java and CORBA

Robert Orfali and Dan Harkey (SPD/O'Reilly)

Lecture slides:

http://www.facweb.iitkgp.ernet.in/~dsamanta