ALLAMA IQBAL OPEN UNIVERSITY, ISLAMABAD  
(Department of Computer Science)

WARNING
1. PLAGIARISM OR HIRING OF GHOST WRITER(S) FOR SOLVING THE ASSIGNMENT(S) WILL DEBAR THE STUDENT FROM AWARD OF DEGREE/CERTIFICATE, IF FOUND AT ANY STAGE.
2. SUBMITTING ASSIGNMENTS BORROWED OR STOLEN FROM OTHER(S) AS ONE’S OWN WILL BE PENALIZED AS DEFINED IN “AIOU PLAGIARISM POLICY”.

Course: Software Architecture (3482)  Semester: Spring, 2013
Level: BS (CS)  Total Marks: 100

ASSIGNMENT No. 1

Note: All questions carry equal marks.

Q. 1 a) What is software Architecture? Why we study software architecture?
     b) What is the difference between reference architecture and an architectural pattern?

Q. 2 a) Describe the characteristics of module, component-and-connector and allocation structures of software architecture.
     b) Discuss in detail the reference model of software architecture.

Q. 3 a) Differentiate between business and architecture qualities.
     b) Describe the features of different quality attribute scenarios.

Q. 4 Write notes on the following:
   a) Modifiability Tactics
   b) Performance Tactics
   c) Skelton System

Q. 5 a) UML is widely used language. Discuss why it is important for good quality software?
     b) Discuss security requirements for software.
ASSIGNMENT No. 2

Total Marks: 100

Note: All questions carry equal marks.

Q. 1  a) Explain the life cycle of software architecture.
    b) Differentiate Architecture and structure of software.

Q. 2  a) Discuss the role of view fusion in software architecture.
    b) Discuss the process of documenting view.

Q. 3  a) Define Product Lines? Also explain architecture for product lines in detail.
    b) Discuss the need of performance analysis.

Q. 4  a) Compare the ATAM and CBAM methods of architectural analysis.
    b) Define and explain reconstruction.

Q. 5  a) Describe database construction and information extraction in detail.
    b) Compare layered architectural style with shared repository style.

3482 Software Architecture  Credit Hours: 4 (4+0)

Recommended Book:
Software Architecture in Practice by Len Bass, Paul Clements, Rick Kazman

Course Outlines:
Unit No. 1 Introduction to Software Architecture
    Software Processes and the Architecture Business Cycle, Software Architecture
    Architectural Patterns and Structures, Reference Models and Reference
    Architectures, Case Study.

Unit No. 2 Quality Attributes
    Functionality and Architectures, quality Attributes, System Quality Attributes,
    Business and Architecture Qualities

Unit No. 3 Quality Tactics
    Introducing Tactics, Availability and Modifiability Tactics, Performance and
    Security Tactics, Testability and Usability Tactics, Case Study
Unit No. 4 Architecture Design
Life Cycle Architecture, Designing the Architecture, Formatting the Team Structure, Skelton System, Case Study

Unit No. 5 Architecture Documentation
Uses of Architecture Documentation, Views, Documenting a View, Unified Modeling Language

Unit No. 6 Architecture Reconstruction
Information Extraction, Database Construction, View Fusion, Reconstruction,

Unit No.7 Analyzing Architecture
Overview, Analysis Methods, Architecture Evaluation, Architecture Design Decision making, Case Study

Unit No. 8 Software Product Lines
Overview, Software Product Lines, Scoping, Architecture for Product Lines, Case Study

Unit No. 9 Software Architecture in future

==========