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

Course: Software Engineering (3575) **Semester: Spring, 2014**
Level: PGD **Total Marks: 100**

ASSIGNMENT No. 1
(Units: 1 – 4)

Note: All questions are compulsory. Each question carries equal marks.

Q. 1 a) Define Software. Also explain the types of Software with the help of suitable examples.
   b) Describe Software Engineering Layers with the help of suitable examples. **(20)**

Q. 2 a) When is the Waterfall Model an appropriate software life cycle model to use? **(05)**
   b) How spiral model is different from WINWIN spiral model. Give only logical reasons. **(05)**
   c) What are the major difficulties in the spiral model led to the introduction of the Win Win spiral model? **(05)**
   d) In which conditions RAD model is used give three examples? **(05)**

Q. 3 Suppose you are responsible for developing a set of desktop tools that would be similar to MS Office Suite of tools but would be based on UNIX operating System. What team structure would you choose and why? What software process model(s) would you choose and why? **(20)**

Q. 4 a) Explain the characteristics of a System in detail.
   b) Define Computer Based Information System. Also explain the different types of Computer Based Information System in detail with the help of two suitable examples of each type. **(20)**

Q. 5 Explain the Software Requirement Elicitation Techniques in detail with the help of suitable examples. **(20)**

ASSIGNMENT No. 2
(Units: 5 – 8)

Total Marks: 100

Note: All questions are compulsory. Question 1 & 2 has 20 marks each, Question 3 has 10 marks and   Question 4 has 50 marks.

Q. 1 a) Elaborates Control Specification and Process Specification with the help of suitable examples.

   b) Elaborate Data Design with the help of suitable examples. **(20)**

Q. 2 Draw 1st and 2nd level DFD, ERD and Behavioral Diagram for Student Information System that consists of five entities such as Students, Attendance, Marks, Faculty and Administration. **(20)**

Q. 3 What is meant by Software Testing? Also explain the different techniques of White box Testing with the help of suitable Examples. **(10)**

Q. 4 You are responsible for the Design of Online CV (Curriculum Vitae) Builder Application. The CV Builder Application will enable users to create his CV with cover letter. CV can be read, Download, Update, Delete and the like and shared with others. And also give option to user to arrange his CV according to his on requirement. Using these distributions as a starting point, derive a set of requirements and create a top level design for CV Builder Application. **(50)**

3575 (Old 3420) Software Engineering

Recommended Book: *Software Engineering 5th Edition by Roger Pressman*

Course Outlines:
Unit # 1   Introduction
   a) Introduction to Software, Role of Software
   b) Characteristics of Software, Need for Software
   c) Introduction to Software Engineering

Unit # 2   Software Engineering Models
   a) Software Process.
   b) Software Process Models (Linear Sequential Model, Prototyping Model, RAD Model, Evolutionary Software Process Models).

Unit # 3   Project Management
   a) System, Types of System, Elements of System.
   b) Project Management Concept

c)   Software Management Team.
d)   Common Software Management Problems.
e)   Basic Management Techniques.

Unit # 4   Analysis Concepts and Principles
a)   Requirements Analysis, Communication Techniques, Analysis Principles
b)   Software Prototyping, Specification, Specification Review

Unit # 5   Analysis Modelling
a)   Introduction to Analysis Modelling, Data Modelling
b)   Functional Modelling and Information Flow (DFD).
c)   Behavioural Modelling STD
d)   Entity Relationship Diagram (ERD)
e)   Data Flow Model and Control Flow Model (Structured)
f)   Control Specification and Process Specification
g)   The Data Dictionary

Unit # 6   Design Concepts and Principles
a)   Design Concepts, Design Process.
b)   Effective Modular Design
c)   Design Principles for Effective Modularity,
d)   Introduction to Design Model

Unit # 7   Design Methods
a)   Data Design, Architectural Design
b)   Analyzing Alternative Architectural designs
c)   Mapping Requirements into a Software Architecture
d)   Refining the Architectural Design

Unit # 8   Software Testing Methods
a)   Software Testing Fundamentals
b)   Testing objectives, Testing principles.
c)   Test Case Design.
d)   White-Box Testing, Basis Path Testing, Control Structure Testing, Black-Box Testing.

Unit # 9   Case Study (Small Project)

=======