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

Course: Operating System (3439/903)   **Semester: Autumn, 2013**
Level: Bachelor   **Total Marks: 100**

ASSIGNMENT No. 1
(Units: 1–4)

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

Q. 1 (a)   What is meant by operating system? Define it in detail with the help of suitable examples.

(b)   Also explain the structure of an operating system.

Q. 2 (a)   Explain the different functions of an operating system in detail.

(b)   Generally describe the characteristics of an operating system.

Q. 3 (a)   What is difference between terms "files" and "directories"? Define it in detail with the help of different examples.

(b)   Explain the concept of "File System Implementation".

Q. 4   Introduce the term "Processes" and also describe the "Classic IPC Problems" in detail.

Q. 5   Write a note on the following topics:
* Paging
* Swapping
* Virtual Memory
* Process Scheduling

ASSIGNMENT No. 2
(Units: 5–8)   **Total Marks: 100**

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

Q. 1   Generally describe the principles of I/O hardware as well as principles of I/O software.

Q. 2   What are those operating systems which have become very popular at the time of their releases? Name at least ten of them and also explain three popular operating systems in detail along with their important features.

Q. 3 Differentiate between the terms "Network Operating System" and "Distributed Operating System". Explain it in detail.

Q. 4 Explain the term "Deadlock". Also define Deadlock Detection and Deadlock Recovery with the help of different examples.

Q. 5 Write a note the following topics:
- UNIX
- Terminals
- Deadlock Prevention
- Protection Mechanisms

3439/903 Operating Systems　　　　　　Credit Hours: 4 (4+0)

Recommended Book: Modern Operating System 3rd Edition by Andrew S. Tanenbaum

Course Outlines:
Unit–1 Introduction
What is an Operating System, History of Operating System, Operating System Concepts, Operating System Structure

Unit–2 Process
Introduction to Processes, Inter-Process Communication, Classic IPC Problems, Process Scheduling

Unit–3 Memory Management
Memory Management without Swapping or Paging, Swapping, Virtual Memory, Page Replacement Algorithms

Unit–4 File Systems
Files, Directories, Files System Implementation, Security, Protection Mechanisms

Unit–5 Input/Output
Principles of I/O Hardware, Principles of I/O Software, Disks, Clocks, Terminals

Unit–6 Deadlock
Resources, Deadlocks, Deadlock Detection, Deadlock Recovery, Deadlock Avoidance, Deadlock Prevention, Other Issues

Unit–7 An Overview of Major Operating Systems
O/S2, UNIX, NT, Os/400, Windows

Unit–8 Distributed Operating Systems
Network Operating System, Distributed Operating System

Unit–9 Case Studies
UNIX, NT, Windows