Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Body

Quality Assurance and Academic Accreditation Office

Course Description Sample

Subject: ----------Operating Systems----------

This course description provides a brief survey of the most important characteristics, expected learning output, showing whether students have made full use f the learning opportunities. These characteristics have to be matched with the description of the program.

1. Educational Institution	Shatt Al-Arab University College
2. Department / Center	Computer science
3. Course Title /Code	Operating Systems
4. Lecturer Name	:Asst. prof. Dr. Mazin Abdulelah Alawan
5. Type of Teaching	Attendance
6. Academic Year /Term	Year
7. Total No. of Teaching Hours	60
8. Date f Preparing this Course Description	2022/9/28

9. **Course Objectives**

Enabling the 97 students of the fourth stage of the Department of Computer Science in the morning and evening studies to understand Operating systems and the basis of their work and structures.

10. **Course Output, Methodology and Evaluation**

(A) **Cognitive Objectives**

A1- Describe the basic organization of computer systems
A2- To provide a great tour of the major components of operating systems
A3- To give an overview of the many types of computing environments
A4- To explore various open source operating systems
A5- Memory management
A6- Operations management

(B) **Skill Objectives Related to the Program**:

B1 - What do operating systems do?
B2 - Operating system processes
B3 - Computer System Storage Management

Methods of Teaching and Learning

a. Using already- prepared lectures.
b. Using up-to-date data shows.
c. Homework
d. Adopting group discussions.

Methods of Evaluation

a. Oral tests
b. Monthly tests
c. Daily quizzes
d. Students' Regular Attendance

(C) **Sentimental and Value Objectives**

C1- Describe the basic organization of computer systems
C2 - To provide a great tour of the main components of operating systems
C3- To give an overview of the many types of computing environments
C4 - To explore various open source operating systems

Methods of Teaching and Learning

a. Lectures on university instructions.
b. Educational guidance lectures.
c. Continuous directing.
d. Visiting State and private institutions.
e. Showing practical cases.

Methods of Evaluation

a. Daily quizzes.
b. Classroom discussions and commitment to ethics and sublime values.
c. Special marks for class activities.
d. Monthly and quarterly evaluation.

D) **General and Qualitative Skills (other skills related to the ability of employment and personal development)**

D1- The structure of the operating system
D2- Memory management
D3- Storage Management
D4 - Operations management

11. **Course Structure**

Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
1	2	Operating System definition + Computer System Structure +Computer Startup		- lectures - case study -discussions	- oral tests -questions
2	2	Common Functions of Interrupts +Interrupt Handling + I/O Structure +Storage Structure		- lectures - case study -discussions	- oral tests -questions
3	2	Storage-Device Hierarchy + Direct Memory Access Structure		- lectures - case study -discussions	- oral tests -questions
4	2	Operating System Services + User Operating System Interface		- lectures - case study -discussions	- lectures - case study -discussions
5	2	System Calls + Types of System Calls		- lectures - case study -discussions	- lectures - case study -discussions
6	2	Operating System Structure + Operating system early (simple-monolithic) structure + Operating system Layered Approach structure		- lectures - case study -discussions	- lectures - case study -discussions
7	2	Operating system Microkernel structure + Operating system Modules structure + operating system Virtual Machines structure		- lectures - case study -discussions	- lectures - case study -discussions
8	2	Process Concept + Process in Memory + Process State		- lectures - case study -discussions	- lectures - case study -discussions
9	2	Process Control Block (PCB) + CPU		- lectures - case study	- lectures - case study

		Switch From Process to Process + Context Switch		-discussions	-discussions
10	2	Process Scheduling + Representation of Process Scheduling + Process Creation		- lectures - case study -discussions	- lectures - case study -discussions
11	2	Process Termination + Cooperating Processes		- lectures - case study -discussions	- lectures - case study -discussions
12	2	Producer-Consumer Problem +		- lectures - case study -discussions	- lectures - case study -discussions
13	2	Threads		- lectures - case study -discussions	- lectures - case study -discussions
14	2	single thread		- lectures - case study -discussions	- lectures - case study -discussions
15	2	Multi-threaded applications		- lectures - case study -discussions	- lectures - case study -discussions
16	2	Multithreading Models		- lectures - case study -discussions	- oral tests -questions
17	2	•1-First- Come, First-Served (FCFS) Scheduling		- lectures - case study -discussions	- oral tests -questions
18	2	•2-Shortest-Job-First (SJF) Scheduling		- lectures - case study -discussions	- oral tests -questions
19	2	•Non-Preemptive SJF + Preemptive SJF		- lectures - case study -discussions	- lectures - case study -discussions
20	2	•Round Robin (RR)		- lectures - case study -discussions	- lectures - case study -discussions

21	2	Deadlocks + Deadlock Characterization + Methods for Handling Deadlocks		- lectures - case study -discussions	- lectures - case study -discussions
22	2	Deadlock Prevention + Deadlock Avoidance		- lectures - case study -discussions	- lectures - case study -discussions
23	2	Deadlock Detection + Recovery from Deadlock		- lectures - case study -discussions	- lectures - case study -discussions
24	2	Swapping + Contiguous Memory Allocation		- lectures - case study -discussions	- lectures - case study -discussions
25	2	Segmentation + Paging		- lectures - case study -discussions	- lectures - case study -discussions
26	2	nStructure of the Page Table		- lectures - case study -discussions	- lectures - case study -discussions
27	2	Base and Limit Registers + Hardware Address Protection		- lectures - case study -discussions	- lectures - case study -discussions
28	2	nOverview of Mass Storage Structure + Disk Structure + Disk Attachment		- lectures - case study -discussions	- lectures - case study -discussions
29	2	Disk Scheduling + Disk Management		- lectures - case study -discussions	- lectures - case study -discussions
30	2	Swap-Space Management + RAID Structure + Stable-Storage Implementation		- lectures - case study -discussions	- lectures - case study -discussions

12.**Infrastructure**

a. Textbooks	Operating System Concepts 8th Edition
b. References	Operating System Principles Paperback – January 1, 2004
c. Recommended books and periodicals (journals, reports, etc.)	Operating Systems: Three Easy Pieces Remzi Arpaci-Dusseau
d. Electronic references, internet websites, etc	google

13. **The Plan of Improving the Course**

1- A study can be added to the operating systems used in modern mobile devices
2- The course needs more supporting sources and a variety of examples