Princess Sumaya University for Technology
The King Hussein School for Information Technology
Computer Science Department

ABET Course Syllabus – 1st Semester 2021/2022
CS 11335 Operating Systems

1. Course Information

Catalog Description	This course aims to introduce the fundamentals of Operating System (OS) design and implementation. In this course, students will explore the importance of the operating system and its functions. Topics include an overview of the modern operating systems, types of operating systems, operating system structures, process management and threads (concepts of, communication, synchronization and deadlock), CPU scheduling, memory management and virtual memory, file systems, I/O systems and security and protection. Some topics in the course are implemented by writing programs to practically know how. At the end of this course, the students are expected to be familiar with many of the principles and concepts related to most of the actual operating systems and how these are applied in real OSs.
Credit Hours	3 hours
Prerequisite	11212 (Data Structures and Introduction to Algorithms)
Course Type	Lectures
Required/Elective	Required for all computer science students
Textbook	Silberschatz, Galvin, and Gagne "Operating Systems Concepts", Addison Wesley – 9th Edition
References	1. Bryant, O'Hallaron, "Computer Systems: A Programmer's Perspective", Pearson – 3rd Edition, 2015. 2. Deitel & Deitel, "Operating Systems", Pearson – 3rd Edition, 2003
Instructors	Dr. Mohammad Ababneh
Class Schedule	Section 1: S T Th: 12:00-13:00 Section 2: M W: 12:30-14:00
Class Location	Section 1: 301 Section 2: 301
Office Hours	TBA
Teaching Assistant	TBA

3. Course Contents

No. of Week(s)	Topic(s)	Chapter in Text
1	Introduction to Operating Systems	CH1 and CH2
2	Processes and Threads	CH3 and CH4
2	CPU Scheduling	CH5
3	Process Synchronization and Dead-Locks	CH6 and CH7
2	Memory Management Virtual Memory	CH8 and CH9
2	Secondary Storage Management	CH10 and CH12
2	I/O Systems	CH13
2	Protection and Security	CH14 and CH15

4. Course Outcomes

Upon completion of the course, students will be able to:

1. Devise efficient and secure solutions to computing problems using knowledge about Operating Systems types and structures, process management, threads and deadlocks **@2**.
2. Evaluate, compare and apply different CPU scheduling algorithms **@2**.
3. Explain memory management and virtual memory concepts **@2**.
4. Explain storage concepts and input/output operations **@2**.
5. Design a working OS module and demonstrate functionality **@2**.
6. Work within or lead a team to design an OS module **@5**.
7. Analyze user requirements from an OS perspective **@1**.
8. Write a project report and present findings to committee or professor **@3**.

5. Assessment Policy

Assessment Tool	Expected Due Date	Weight	
Midterm Exam		30%	
Assignments and Quizzes		20%	
Project		10%	
Final Exam		40%	
Total		100%	

6. Contribution of the Course to the Professional Component

Computer Science Topics	75%
General Education	20%
Mathematics & Basic Sciences	5%

7. Expected level of proficiency from students entering the course

Mathematics	Some
Physics	Some
Technical writing	Not applicable
Computer programming	Good

8. Material available to students, instructors, TAs, and department at end of course

	Students	Department	Instructors	TA(s)
Course objectives and outcomes form	X	X	X	X
Lecture notes, homework assignments, and solutions	X	X	X	X
Samples of homework solutions from 3 students		X		
Samples of lab reports of 3 students				
Samples of exam solutions from 3 students		X		
Course performance form from student surveys		X	X	
End-of-course instructor survey		X	X	