Course Specification

— (Bachelor)

Course Title: **Operating Systems**	
Course Code: **501453-3**	
Program: **Bachelor of Computer Science**	
Department: **Department of Computer Science**	
College: **College of Computers and Information Technology**	
Institution: **Taif University**	
Version: **1**	
Last Revision Date: **2024**	

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (3)

2. Course type

A.	☐ University	☐ College	☒ Department	☐ Track	☐ Others
B.	☒ Required			☐ Elective	

3. Level/year at which this course is offered: (7TH)

4. Course general Description:

Introduces the functions and major techniques of a modern multitasking operating system. Topics include operating system structures, process management, process synchronization, multithreading, deadlocks, CPU scheduling, memory management, file systems, and peripheral management.

5. Pre-requirements for this course (if any):

503323-3 Computer Architecture

6. Co-requirements for this course (if any):

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7. Course Main Objective(s):

● Understand basic concepts of operating systems, and interactions among its components.
● Learn algorithms and techniques used by operating systems for resource management, scheduling and data storage.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	-	-
2	E-learning	-	-
3	Hybrid ● Traditional classroom ● E-learning	 2 1	 67% 33%
4	Distance learning	-	-

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define the role of operating systems and describe their services and structures.	**K1**	Lectures Tutorials	**Direct Assessment Tool** Quizzes / Homework/Project/ Exams **Indirect Assessment Tool** Course Exit Survey
1.2	Describe process management and scheduling techniques used by operating system	**K1**	Lectures Tutorials	**Direct Assessment Tool** Quizzes / Homework/Project/ Exams **Indirect Assessment Tool** Course Exit Survey
1.3	Describe memory and storage management techniques used by operating systems.	**K1**	Lectures Tutorials	**Direct Assessment Tool** Quizzes / Homework/Project/ Exams **Indirect Assessment Tool** Course Exit Survey
2.0	**Skills**			
2.1	Use different techniques to deal with process and thread synchronization	**S1**	Lectures Tutorials	**Direct Assessment Tool** Quizzes / Homework/Project/ Exams

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
				Indirect Assessment Tool Course Exit Survey
2.2				
3.0	**Values, autonomy, and responsibility**			
3.1				
3.2				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Operating System and Operating Systems Structures	**4**
2.	Processes and Threads	**5**
3.	CPU Scheduling	**6**
4.	Process Synchronization	**6**
5.	Deadlock	**6**
6.	Main Memory Management	**6**
7.	Virtual Memory Management	**6**
8.	File System	**6**
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	HomeWorks /Student Participation-Attendance	Every Week	10%
2.	Quizzes	Week 4 and 12	10%
3.	Projects	Week 5 and 9	10%
4.	Mid-Term	Week 7	20%
5.	Final Examination	Week 16	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	• Operating Systems Concepts by Silberschatz, Peter Baer Galvin, Greg Gagne.Edition 10
Supportive References	• Understanding Operating Systems by Ann McIver McHoes; Ida M. Flynn
Electronic Materials	Using vi editor of Linux/unix
Other Learning Materials	C++ compiler and IDE

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board.
Technology equipment (projector, smart board, software)	• Video projector / data show
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	• Students • Faculty members • Coordinator • Council • Curriculum Committees	• Course exit survey • Feedback from Faculty members • Feedback from Course Coordinator • Feedback from council • Feedback from Curriculum Committees
Effectiveness of Students assessment	• Students • Faculty members • Coordinator • Council • Curriculum Committees	• Course exit survey • Feedback from Faculty members • Feedback from Course Coordinator • Feedback from council • Feedback from Curriculum Committees
Quality of learning resources	• Students • Faculty members • Coordinator • Council Curriculum Committees	• Course exit survey • Feedback from Faculty members • Feedback from Course Coordinator • Feedback from council • Feedback from Curriculum Committees

Assessment Areas/Issues	Assessor	Assessment Methods
The extent to which CLOs have been achieved	• Students • Faculty members • Coordinator • Council • Curriculum Committees	• Course exit survey • Feedback from Faculty members • Feedback from Course Coordinator • Feedback from council • Feedback from Curriculum Committees
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	CS council
REFERENCE NO.	Meeting #11
DATE	07/03/2024