Course Specifications

Course Title:	Fundamentals of Operating Systems
Course Code:	502321-3
Program:	Bachelor in Information Technology
Department:	Department of Information Technology
College:	College of Computers and Information Technology
Institution:	Taif University

Table of Contents

A. Course Identification

1. Credit hours: 3	
2. Course type	
a. University ☐ College ☐ Department ☐ Others ☐	
b. Required ☐ Elective ☐	
3. Level/year at which this course is offered: **8/3**	
4. Pre-requisites for this course (if any)**: 501324-3**	
5. Co-requisites for this course (if any)**:None**	

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	6	100%
2	**Blended**	0	0
3	**E-learning**	0	0
4	**Distance learning**	0	0
5	**Other**	0	0

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	30
2	**Laboratory/Studio**	30
3	**Tutorial**	0
4	**Others** (specify)	0
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description
This course provides an introduction to the fundamentals of operating systems. Topics include operating system components; concurrency, mutual exclusion and synchronization, CPU scheduling algorithms, deadlock, and memory management.
2. Course MainObjective
The main objective of this course is to: ● Understand the basic components of a computer operating system, and the interactions among the various components.   ● Know the main tasks carried out by the operating systems Process and thread management, CPU scheduling algorithms, memory management and deadlocks.   ● Analyze, compare and implement different algorithms used in an operating system.   ● Compare between different operating systems such as Windows, and Linux.

3. Course Learning Outcomes

	CLOs	AlignedPLOs
1	**Knowledge and Understanding**	
1.1	Define the role of operating systems and describe their services and structures.	K1

	CLOs	AlignedPLOs
2	**Skills :**	
2.1	List different states of processes and compare different algorithms for scheduling them.	S1
2.2	Explain basic concepts related to process synchronization and deadlocks.	S2
2.3	Describe different schemes used for memory management.	S2
3	**Values:**	

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Operating Systems	2
2	Operating Systems Structures	4
3	Process, Threads, CPU Scheduling	8
4	Process Synchronization and Deadlock	8
5	Main Memory Management	6
6	Virtual Memory Management	2
Total		**30**

D. Teaching and Assessment
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	TeachingStrategies	AssessmentMethods
1.0	**Knowledge and Understanding**		
1.1	Define the role of operating systems and describe their services and structures.	Lecture Discussion	Written Exams Assignments
2.0	**Skills**		
2.1	List different states of processes and compare different algorithms for scheduling them.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.2	Explain basic concepts related to process synchronization and deadlocks.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.3	Describe different schemes used for memory management.	Lecture Discussion Lab work	Writing Exam Assignments Practical Exam
3.0	**Values**		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments (4 assignments)	1 week after delivering	10%
2	Mid Exam	8	20%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
3	Attendance/ class activities	weekly	10%
4	Labs	10	10%
5	Final Exam	16	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Operating System Concepts, Silberschatz, A., Galvin, P. & Gagne, G, John Wiley & Sons, 2009
Essential References Materials	Modern Operating Systems, Andrew Tanenbaum, 2009
Electronic Materials	Presentation slides
Other Learning Materials	None

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	● A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. ● A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.

Item	Resources
Technology Resources (AV, data show, Smart Board, software, etc.)	● Lab materials and required software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	None

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	● Review CAF (Course assessment file) ● Alumni surveys. Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes,Quality oflearning resources, etc.)
Evaluators (Students,Faculty, Program Leaders,Peer Reviewer, Others (specify)
Assessment Methods(Direct, Indirect)

H. Specification Approval Data

Council / Committee	IT Department Council/ Executive program committee
Reference No.	11
Date	23/10/21443