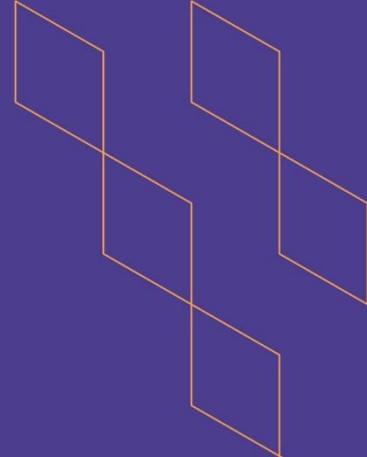




T-104  
2022

## Course Specification



Course Title: <b>Operating System</b>
Course Code: 167CIS-3
Program: <b>Programming and databases</b>
Department: Information Security
College: Applied college
Institution: Najran University
Version: T-104 2022
Last Revision Date: 19 AUG 2023



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## A. General information about the course:

Course Identification	
1. Credit hours:	3( 1 + 2 )
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered:	Third level
4. Course general Description: null	
5. Pre-requirements for this course (if any):no	
6. Co- requirements for this course (if any):no	
7. Course Main Objective(s)	
<ul style="list-style-type: none"> <li>√ Identify the services provided by the operating system.</li> <li>√ Illustrate the structural design of an operating system.</li> <li>√ Identifies and describes the major and common components of an operating system.</li> <li>√ To understand the structure and organization of the Process, Memory, and File system.</li> <li>√ Acquire basic knowledge of Distributed Operating System , Windows, dos and Linux operating system.</li> </ul>	

### 1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	٤ hours per week	٩٥%
2.	E-learning		٥%
3.	Hybrid <ul style="list-style-type: none"> <li>• Traditional classroom</li> <li>• E-learning</li> </ul>		
4.	Distance learning		100%

### 2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	٣0
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60



## 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	<b>Knowledge and understanding</b>			
1.1	Outline of secondary storage and Virtual memory concepts	K3=P	Lecture Individual and group discussions	-Exams -Assignments
1.2	understand the structure and organization of the Process			
...				
2.0	<b>Skills</b>			
2.1	Differentiate between different operating systems.	S3=I	<ul style="list-style-type: none"> <li>Lecture</li> <li>Small Group Work</li> <li>Lab Demonstration</li> </ul>	<ul style="list-style-type: none"> <li>Exam</li> <li>Lab Reports</li> </ul>
2.2	Implementation of various algorithms in CPU and hard disk scheduling to solve problems.			
...				
3.0	<b>Values, autonomy, and responsibility</b>			
3.1	Respects others in various work environments and takes responsibility for decision-making	V1		
3.2				
...				

## C. Course Content

No	List of Topics	Contact Hours
1.	<b>Introduction to Operating System , System Structures</b>	2
	<b>Lab:</b> Operating systems available and introduction to MS-DOS	2
2.	<b>operating system services</b> , types of operating systems	4
	<b>Lab:</b> Exercised on MS-DOS Environmen: check for a single file- check for group of files-list files with the same extensions -changing directories	2



	.	
3	<p><b>Process management:</b> Process Scheduling – Processor Scheduler-Threading, Deadlocks – Inter-Process Communication – Race Condition</p> <p><b>Lab:</b> Exercised on MS -DOS Environment: create, copy, rename directory, create copy rename file, display a file contents, Working on subdirectories.</p>	4 4
4	<p><b>Memory Management:</b> Paging -segmentation-virtual memory</p> <p>Lab: Scheduling Programs , Linux commands</p>	4 4
5	<p><b>File System:</b> File Concept: File Attributes, File Operations, File Types, Access Methods: Sequential Access, Direct Access, Directory and Disk Structure: Single-level Directory, Two-Level Directory, Tree-Structured Directories, Protection: Types of Access, Access Control.</p> <p><b>Lab:</b> Linux commands</p>	4 4
6	<p><b>Secondary Storage Structure:</b> Magnetic Disks, Magnetic Tapes, Network-Attached Storage, Storage-Area Network.</p> <p><b>Lab:</b> Lab: Linux commands</p>	4 2
7	<p><b>I/O Systems:</b> Introduction, I/O Hardware, Pooling , DMA.</p> <p><b>Lab:</b> Services in windows, Device Manager, , Task Manager.</p>	4 2
8	<p><b>Distributed Systems:</b> Introduction, Types of Networks based Operating System: Network Operating System, Distributed Operating System.</p> <p>Lab: Data Backup: <b>System State Data, User Data.</b> <b>Add new Hardware in the Windows 10, Install device driver Software, Installation of Application Software, Install windows component</b></p>	4 4
9	<p><b>System Security:</b> Security Problem, Program Threats, User Authentication.</p> <p>Lab: Device protection in Windows, Windows Security: Firewall, Antivirus</p>	4 2
<b>Total</b>		<b>60</b>





## D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm Exam	8	20%
2.	Course Project, Assignments, Quizzes, . . .	During Semester	10%
3.	Practical Exam	16	20%
4.	Final Exam	17	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	Abraham Silberschatz, Peter B. Galvin , Greg Gagne, Operating System Concepts 9th Edition, John Wiley & Sons, December 7, 2012, ISBN-10: 978-1-118-06333-0.
Supportive References	“Modern Operating Systems”, Andrew S. Tanenbaum., Third Edition , Prentice Hall.
Electronic Materials	
Other Learning Materials	

### 2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A classroom equipped with a projector , (image and sound) and a smart board
Technology equipment (projector, smart board, software)	Business automation lab equipped with computers and connected to the Internet
Other equipment (depending on the nature of the specialty)	



## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	students	Questionnaire
Effectiveness of students assessment	Faculty members / quality committee / peer reviewer	Direct observation/peer review/correction of a sample by another member of a similar programmer
Quality of learning resources	Faculty members and leaders/students	Achievement file / typical tests and answers / assessments and assignments / questionnaires
The extent to which CLOs have been achieved	Planning and curricula committee/students/faculty members	Expert pinion /questionnaires/ workshops
Other		

**Assessor** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## G. Specification Approval Data

COUNCIL /COMMITTEE		
REFERENCE NO.		
DATE		