



الجامعة الافتراضية السورية
SYRIAN VIRTUAL UNIVERSITY

Course Definition

Operating Systems II Lab

Information

Technology

Engineering



Powered by:



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1. Basic Information:

Course Name	Operating Systems II Lab
Course Code	NOSL601
Number of Presentational Sessions*	10
Number of Synchronous Sessions**	12
Number of Shorter Tests***	0
Number of Exams***	0
Theoretical Sessions Work Load (hrs.)	20
Practical Sessions Work Load (hrs.)	24
Credit Hours	4

*Each presentational session comprises both recorded lecture (1.5 hrs.) and interactive learning content (1.5 hrs.).

**Each synchronous session comprises the interactive lecture carried out in real time in a virtual class (1.5 hrs.).

***Each shorter test is 0.5 hr. long. The final exam is 2 hrs. long.

N.B.

Generally, each chapter requires two presentational sessions: one for the recorded content and one for the interactive content (unless the chapter is too long, in which case it may require more sessions (. This note applies to synchronous sessions as well, where each chapter requires one synchronous session generally.

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2. Prerequisites courses:

Course	Code
In synchronization with Operation System II course.	NOS601

3. Course Objectives:

OS Lab (2) course is a complementary course that expands the skills acquired in the OS Lab 1 course. It aims to train students on operating systems, especially the "Linux" and provide advanced training on the "Windows" system. It allows experimenting the theoretical concepts given in the course Operating Systems 2 through practical examples.

The main objectives of this course are:

1. Learn advanced Linux and user management.
2. Work on the process, memory, and storage management in Linux.
3. Experience with Windows server 2019 and Active Directory.
4. Acquire experience in virtualization software.

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4. Learning Outcomes (LO):

By the end of this course, the student is expected to acquire and learn the following:

1. Linux advanced shell instructions (command interpreter shell).
2. Advanced concepts for Windows.
3. Implementing Memory Management concepts.
4. Implementing Advanced Storage Management Concepts.
5. Implementing Virtualization by using Hyper-V and ESXI.

5. Assessment Results:

Chapter Number	Chapter Title	General Objectives	Assessment Type				
			Interactive Content & Recorded Sessions	Applied Activities (Synch. Sessions)	Final Exam* / Shorter Tests**	Presentations and Interviews**	Reports ***
CH1	User Management	Learn User Types in Linux and how to manage them	√	√		√	
CH2	Process Management	Implementing advanced process Management on Linux Systems.	√	√	√	√	
CH3	Memory Management	Principal Memory Management on Linux systems.	√	√	√	√	√

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CH4	Storage Management	Implementing LVM on Linux systems	✓	✓	✓	✓	
CH5	Windows: Active Directory (AD)	Windows server Review & installation. Active Directory concepts and installation.	✓	✓	✓	✓	
CH6	Active Directory Objects Management	Understand & management AD objects	✓	✓	✓	✓	
CH7	Active Directory Group Policy	Dealing with GPO	✓	✓	✓	✓	
CH8	Disk Management	Disk Types and Learn RAID Concepts and implements it.	✓	✓	✓	✓	
CH9	File Sharing and NTFS permissions	Configuring and managing shared folders on Windows Server 2019.	✓	✓	✓	✓	
CH10	Distributed File System	Configure DFS on Windows server 2019.	✓	✓	✓	✓	
CH11	Hyper-V Server	Learn Virtualization techniques and how it works	✓	✓	✓	✓	
CH12	ESXI Server	Learn differences between virtualization	✓	✓	✓	✓	✓

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		techniques and how use ESXI					
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***The final exam is two hours long and is given at the end of the course.**

****Shorter tests are about 30 minutes long and are given after three or four lectures throughout the semester during synchronous sessions.**

*****Presentations, interviews, and reports are submitted once after each three or four lectures throughout the semester during synchronous sessions.**

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6. Course Syllabus:

Chapter	Subject	Content	Number of Learning Objects	Number of synchronous Learning Objects
CH1	User Management	<ol style="list-style-type: none"> 1. Linux command line Review 2. User types in Linux. 3. Learn environments variables. 4. Manage users and manage user profiles. 		
CH2	Process Management	<ol style="list-style-type: none"> 1. Linux Processes and Signals. 2. Advanced commands for Process Management. 3. Deadlocks example. 		
CH3	Memory Management	<ol style="list-style-type: none"> 1. Memory types. 2. Managing Memory by command line. 		
CH4	Storage Management	<ol style="list-style-type: none"> 1. Disk Types in Linux. 2. Logical Volume Management (LVM) concept on Linux. 3. Configure and implement LVMs. 		
CH5	Windows: Active Directory (AD)	<ol style="list-style-type: none"> 1. Quick introduction of Windows server. 2. Windows server installations. 		

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		<ol style="list-style-type: none"> Working with MMC and install AD service Learn AD partitions 		
CH6	Active directory Objects Management	<ol style="list-style-type: none"> Basic objects in AD. Concept of users and groups into AD Deal with AD Domain partition 		
CH7	Active Directory Group Policy	<ol style="list-style-type: none"> What is GPO. Create and apply multiple kinds of GPO. 		
CH8	Disk Management	<ol style="list-style-type: none"> Learn RAID. RAID types. Implement RAID on Windows server. 		
CH9	File sharing and NTFS Permissions	<ol style="list-style-type: none"> Configure File sharing Manage Files Manage permissions 		
CH10	Distributed File System	<ol style="list-style-type: none"> Learn about DFS. Configure and implement DFS on Windows server 2019. 		
CH11	Hyper-V server	<ol style="list-style-type: none"> Virtualization techniques Configure and implement Hyper-v Manage Hyper-v 		
CH12	ESXI Server	<ol style="list-style-type: none"> Configure and implement ESXi Manage esxi network and storage 		

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7. Practical Activity:

- **Tools and Labs:**

Tool Name	Description
VMware workstation , Linux(centos), Windows Server 2019, Hyper-V, and ESXi.	

- **Practical Activities per Chapters:**

Chapter	Activities Type	Remarks
CH1	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH2	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH3	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project	

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	<input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH4	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH5	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH6	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH7	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	

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CH8	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH9	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH10	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH11	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH12	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework	

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	<input type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
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8. References:

1. Asghar Ghori, RHCSA Red Hat Enterprise Linux 8: Training and Exam Preparation Guide (EX200), First Edition, 2020.
2. Fiona Allen et al., Red hat enterprise Linux 8.0 (RH134), Red Hat System administration II. 2019.
3. William Panek, MCSA Windows server 2016 complete study guide, 2018.