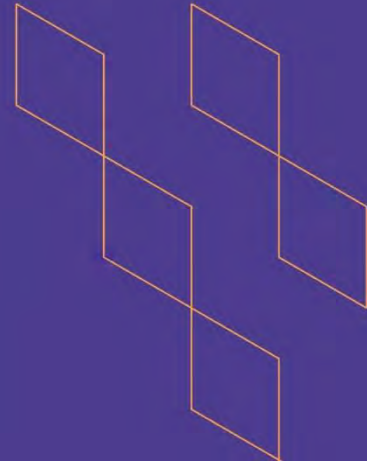




T-104
2022

Course Specification



Course Title: Advanced Systems Administration
Course Code: IT1766
Program: Information Technology
Department: Information Technology
College: Faculty of Computer Science and Information Technology
Institution: Albaha University
Version: version1
Last Revision Date: 29 - 03 - 2023



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A. General information about the course:

Course Identification

1. Credit hours: 3 H

2. Course type

a. University College Department Track Others

b. Required Elective

3. Level/year at which this course is offered: Elective

4. Course general Description

This course will move you from working on only one computer to a whole fleet. Advanced Systems administration role is to maintain reliable computers systems in a multi-user environment. In this course, you will learn about the infrastructure services that keep all organizations, big and small, up and running. You will learn how to manage and configure servers, how to use industry tools to manage computers, user information, and user productivity. Finally, you will learn how to recover your organization's IT infrastructure in the event of a disaster.

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

System Administration IT1504

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

7. Course Main Objective(s)

Upon successful completion of the course, the student will be able to:

- Outline the basics of systems administration
- Recognize the IT infrastructure services as well as their role in system administration
- Memorize the types of software and platform services and how to manage them.
- Define the concept of centralized management and how this can help System Admins maintain and support all the different parts of an IT infrastructure.
- Describe how to backup and recover data.
- Analyze criteria and specifications appropriate to the assigned project, and plan strategies for completing the project.
- Demonstrate deadline respect on assignments and projects, work both independently and collaboratively, give and receive constructive comments and make presentations to their peers
- Illustrate capability to gather, interpret, and communicate information and concepts as well as communicate concepts and techniques in writing assignments, in oral presentations, and class discussions.





1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	22
2.	Laboratory/Studio	22
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	44



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	Illustrate the basics of systems administration	K2	Lectures · Assignments · Lab Exercises	Quizzes · Midterm exams · Final Exam
1.2	Realize the IT infrastructure services as well as their role in system administration	K1	Lectures · Assignments · Lab Exercises	Quizzes · Midterm exams · Final Exam
1.3	Recall the types of software and platform services and how to manage them.	K1	Lectures · Assignments · Lab Exercises	Quizzes · Midterm exams · Lab Exam · Final Exam
2.0	Skills			
2.1	Discuss the concept of centralized management and how this can help System Admins maintain and support all the different parts of an IT Infrastructure	S2	Lectures · Assignments · Lab Exercises	Quizzes · Midterm exams · Lab Exam · Final Exam
2.2	Explain how to backup and recover data.	S4	Lectures · Assignments · Lab Exercises	Quizzes · Midterm exams · Lab Exam · Final Exam
2.3	Analyze criteria and specifications appropriate to the assigned project,	S5	Lectures · Assignments	Quizzes · Midterm exams · Lab Exam · Final Exam





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	and plan strategies for completing the project			
2.4	Use capability to communicate information and concepts in oral presentations and class discussions.	S6	Assignments · Small Groups	Reports · Presentations · Class Discussions
3.0	Values, autonomy, and responsibility			
3.1	Adapt to work independently and collaboratively	V1	Assignments Oral Presentations	Reports · Presentations · Class Discussions

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Advanced System Administration. 1 · Servers and Clients Revisited · KVM switch · The Cloud · Organizational Policies · IT Infrastructure Services · User and Hardware Provisioning · Routine Maintenance · Troubleshooting and Managing Issues	3
2.	Network and Infrastructure Services · Types and Role of IT Infrastructure Services in SysAdmin · Physical and Virtual Infrastructure Services · Server Operating Systems · Remote Access and SSH Network Protocols: NTP, DNS & DHCP	5
3.	Software and Platform Services · Configuring and Managing Services in Linux and Windows	5



	<ul style="list-style-type: none"> · Chat, Email, Print & User Productivity Services · Network File Services · FTP, SFTP, and TFTP servers and clients · Database Server Admin · Cloud Concepts <p>Managing Cloud Resources</p>	
4.	<p>Directory Services</p> <ul style="list-style-type: none"> · Introduction to directory server. · Implementing Directory Services · Using Active Directory · Managing Active Directory · Managing Active Directory Users and Groups · Group Security Principles · Managing Active Directory User Passwords · Joining an Active Directory Domain · Lightweight Directory Access Protocol LDAP · LDAP Authentication and Kerberos · Centralized Management and LDAP · Managing Group Policies · Group Policy Creation and Editing · Group Policy Inheritance and Precedence <p>Group Policy Troubleshooting</p>	5
5.	<p>Data Recovery & Backups</p> <ul style="list-style-type: none"> · Backup Solutions · Types of Backup · RAID Backup Levels · User Backups · Testing Backups · Planning for Data Recovery · Disaster Recovery Plan · Designing a Disaster Recovery Plan <p>Writing a Post-Mortem</p>	4

Total		22



No	List of Topics (LAB)	Contact Hours
6.	Network and Infrastructure Services	3
7.	Software and Platform Services	5
8.	Directory Services	5
9.	Data Recovery & Backups	5
10.		4
Total		22

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Weekly Homework and assignments	Weekly	10%
2.	Midterm Exam	7th week	20%
3.	Quiz	9th week	10%
4.	Lab Exam	10th week	20%
5.	Final Exam	11th week	40%

*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	The Practice of System and Network Administration: Volume 1: DevOps and other Best Practices for Enterprise IT
Supportive References	The Practice of System and Network Administration Principles of Network and System Administration
Electronic Materials	<p>Access to the Saudi Digital Library (SDL).</p> <ul style="list-style-type: none"> • Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/). • ACM (Association for Computer Machinery) web site - http://www.acm.org/ • ACM SIGCSE (Special Interest Group on Computer Science Education) resource web site - http://www.sigcse.org/SIGresources • IEEE Computer Society web site - http://www.computer.org/portal/web/guest/home • Intel <i>The Journey Inside</i> web site (has a collection of interactive, online lessons about technology, computers, and society) - http://educate.intel.com/en/TheJourneyInside/ • <i>Google Code University</i> Curriculum Resource web site - http://code.google.com/edu/resources/index.html
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<p>A classroom or lecture hall with whiteboard.</p> <ul style="list-style-type: none"> • A laboratory with computers that have installed Windows, MAC OSX, and Linux • An instructor computer station with <ul style="list-style-type: none"> · High speed Internet connection; · A desktop computer with system administration software installed; · Power outlets for instructor's laptop plug-in; · A digital image projection system with connection and switches to desktop computer, laptop computer and DVD/Blu Ray player.





Items	Resources
Technology equipment (projector, smart board, software)	All students shall have <ul style="list-style-type: none"> · A computer with Microsoft Project © software installed; This software comes with the textbook. · High speed Internet connection; · Power outlets for student's laptop plug-in.
Other equipment (depending on the nature of the specialty)	A laboratory with multiple computers/servers, with a variety of operating systems: <ul style="list-style-type: none"> · Windows · Linux · Mac OSX - A whole IT infrastructure

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students Peer Reviewer Program Leader	Indirect: Survey Direct: Peer Review Direct: Class Visits
Effectiveness of students assessment	Exams Evaluation Committee Students	Direct: Exam Review Indirect: Survey
Quality of learning resources	Faculty	Direct: Exams
The extent to which CLOs have been achieved	Jodah Platform	Electronic
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	30 – 3 – 2023

