هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

Course Specification
(Bachelor)

Course Title:	Network Administration
Course Code:	CS1771
Program:	Computer Science
Department:	Computer Science and Engineering
College:	Computer Science and information technology
Institution:	Al-Baha University
Version:	V1
Last Revision Date:	October 2023

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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: (Level 9 / 3rd Year)					
4. Course general Description:					

Lecture:
This course will focus on the design, installation, configuration, and operation of local area networks. It provides students with the knowledge and skills necessary to install and configure a stand-alone and client computer that are part of a workgroup or domain. Students will explore topics in network administration in theoretical and practical way, study different software platforms, control, shared resources, administration, security, anti-virus procedures and methodologies.

Lab.
The lab gives students practical experiments on managing a network. Performing measurement of the network is an important challenge, thus the lab will cover the measurement using utility software, including

- **Performance measurement**
- **Defense the network: configuring firewalls, anti-virus, proxy servers, servers.**
- **Managing users in different operating systems.**

Back up procedure and disaster recovery

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

Network Design (CS1767)

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

None

7. Course Main Objective(s):

The main purpose for this course is to:

- **Describe the concept and roles of network and system administration.**
- **Demonstrate an understanding of hardware and software configuration basics.**
- **Demonstrate an understanding of the importance of network security policies in Linux and Windows environment.**
- **Modify, configure, implement and verify networking services for Intranet and Internet domains.**
- **Analyze, assess, and troubleshoot network performance, connectivity and security issues.**
- **Interact in groups collaboratively.**

Communicate concepts and techniques in discussion.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	22	50%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning	22	50%

3. 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	Describe the concept of network and system administration.	K1	● Lecture/ Slide Presentations ● Exercises ● Assignments Lab Exercises	● Midterm exam ● Quiz ● Final Exam ● Rubric Lab Exam
1.2	Describe the roles of network and system administrator.	K1	● Lecture/ Slide Presentations ● Exercises ● Assignments Lab Exercises	● Midterm exam ● Quiz ● Final Exam ● Rubric Lab Exam
1.3	Describe SNMP protocol	K2	● Lecture/ Slide Presentations ● Exercises ● Assignments Lab Exercises	● Midterm exam ● Quiz ● Final Exam ● Rubric Lab Exam
1.1	Describe the concept of network and system administration.			
2.1	Demonstrate an understanding of	S1	● Lecture/ Slide Presentations ● Exercises	● Midterm exam ● Quiz ● Final Exam

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	hardware and software configuration basics.		● Assignments Lab Exercises	● Rubric Lab Exam
2.2	Demonstrate an understanding of the importance of network security policies in Linux and Windows environment.	S2	● Lecture/ Slide Presentations ● Exercises ● Assignments ● Lab Exercises	● Midterm exam ● Quiz ● Final Exam ● Rubric Lab Exam
2.3	Modify, configure, implement and verify networking services for Intranet and Internet domains.	S3	● Lecture/ Slide Presentations ● Exercises ● Assignments ● Lab Exercises	● Midterm exam ● Quiz ● Final Exam ● Rubric Lab Exam
2.4	Communicate concepts and techniques in oral presentations	S4	Oral Presentations	Project evaluation form (Rubric)
3.0	**Values, autonomy, and responsibility**			
3.1	Work both independently and collaboratively	V1	Oral Presentations	Project evaluation form (Rubric)

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction and role of system administrators	2
2.	Network Address Translation (NAT)	3
	Dynamic Host Configuration Protocol (DHCP)	3
	Domain Name Service (DNS)	3
	Web Server , Mail Server, File And Print Server	2
	Administration Architecture, Administration Via WWW, Network Management Protocol	3
	Security Planning, Identify Assets, Determine Vulnerabilities	1
	Survey and control new controls	1
	Types of maintenance, maintenance tasks, scope of network maintenance	1
	Backup and disaster recovery	1
	Maintenance contracts	2
Total	22	
No	List of Topics - Lab	Contact Hours
	Network Interface Card	4
	ICMP Protocol	4
	Address Resolution Protocol	5

	DHCP Server configuration	4
	Backups: evaluate alternative policies and mechanisms for providing reliability features of computer system services and operations.	5
Total		

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework	Periodically (every two weeks)	5%
2.	Midterm exam	Week 6	15%
3.	Quiz	Week 7	10%
4.	Project	Week 8	10%
5.	Lab activities and Exam	Week 9	20%
6.	Final Exam	Week 11	40%
	Total		100%

*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	T. A. Limoncelli, C. J. Hogan, and S. R. Chalup, The Practice of System and Network Administration (3rd Ed.), Addison-Wesley, 2016.
Supportive References	● E. Nemeth, G. Snyder, T. R. Hein, and B. Whaley, *UNIX and Linux System Administration Handbook:* (4th Ed.), Prentice Hall, 2011. ● W. Soyinka, *Linux Administration A Beginners Guide* (6thEd.), McGraw Hill, 2012. ● C. Hunt, *TCP/IP Network* Administration (3rd Ed.), O'Reilly, 2002. T. Carpenter, *Microsoft Windows Server Administration Essentials*, Sybex, 2011.
Electronic Materials	● IEEE Xplore: https://ieeexplore.ieee.org/ ● IEEE Communications Society (ComSoc): https://www.comsoc.org/ ● ACM (Association for Computer Machinery) web site - http://www.acm.org/ Open access course material online
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	● A classroom or lecture hall with whiteboard. ● An instructor computer station with ○ High speed Internet connection ○ A desktop computer with a common database managements system access ○ Power outlets for instructor's laptop plug-in ○ A digital image projection system with connection and switches to desktop computer and laptop computer ○ All laboratories should have computers with access to at least one major database management system
Technology equipment (projector, smart board, software)	Students are supposed to have ● A laptop or access to a desktop computer with access to a major database management system ● High speed Internet connection Power outlets for student's laptop plug-in
Other equipment (depending on the nature of the specialty)	A lab with high speed internet connection and installed the last version of Android Studio

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	● Students ● Faculty ● Peer Reviewers ● Program Leader Course Coordinator	● Surveys (indirect). ● Direct feedback from students (interview between Program leader and students). ● Course evaluation by Peer Reviewers (indirect). ● Class visit by Program Leader Comprehensive Course report (where we can find information about teaching difficulties and action plan, …)

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of students assessment	● Students ● Faculty ● Peer Reviewers ● Course Coordinator ● Exam Evaluation Committee Course Coordinator	● Surveys (indirect). ● Direct feedback from students (interview between Program leader and students). ● Assessment results (direct) ● Course evaluation by Peer Reviewers (indirect). ● Comprehensive Course report (where we can find information about assessment difficulties and action plan, …) Exam evaluation by the Exam Evaluation Committee (indirect)
Quality of learning resources	● Students ● Faculty ● Peer Reviewers Course Coordinator	● Surveys (indirect) ● Course evaluation by Peer Reviewers (indirect). Comprehensive Course report (where we can find information about difficulties and challenges about learning resources as well as consequences and action plan, …)
The extent to which CLOs have been achieved	● Faculty ● Program Leader Course Coordinator	● Student Results (direct) Comprehensive Course report (where we can find the CLO assessment results)
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Curriculum Committee Meeting
REFERENCE NO.	
DATE	**6 OCTOBER 2023**