

# King Saud University, College of Engineering, Al-Muzahimiyah Branch, Academic Year 1439/40 (2018/19), Semester 1

# $Data\ Communication\ and\ Networking\ (AEE\ 3610)$

اتصالات البيانات والشبكات (هكت 3610) AEE 3610 Nar

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Course:	Code:	AEE 3610		Name:	Dr. Ali H. Alqahtani	
	<b>Credit Hours:</b>	3(2,0,2)		E-mail:	ahqahtani@ksu.edu.sa	
	Level:	7	Instructor	Website:	http://fac.ksu.edu.sa/ahqahtani	
	Pre-requisites:		Instructor:	Office:	1st floor, F-088	
	Co-requisites:			Office:	1 11001, F-088	
	Section #			Office hour:	See my website	
Text Books	1- *Data Co	ommunications and Networki	ng. Behrouz A	A. Forouzan, 4 <sup>th</sup>	edition.	
&		nication Networks, Leon-Gard				
References:		y y				
		· · · · · · · · · · · · · · · · · · ·				
	5- https://ccnav6.com/ccna-1-introduction-to-networks-v5-1-v6-0-exams-answers-2017					
	6- https://co	dd.tvtc.gov.sa/sites/default/file	es/document/_	lbynt_wlshbkt. <sub>1</sub>	pdf	
Course		rovides the students with the r				
description		including: Computer networks protocols (ISO-OSI reference model, LAN protocols, Management and Security), Sharing of resources techniques (circuit & packet switching), and Network flow and Design.				
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	Note: The materials of the course are based on CISCO CCNA ver 6.					
		would acquire the following as				
		knowledge in computer netw				
Objectives		wledge on the current state of		of computer net	works.	
<b>y</b>		ytical tools for basic computer				
	4- Deali	ing with practical computer ne	etworks desig	n and assessmen	nt problems	
	By completion	n the course, students will be a	able to perfor	m the following	functions:	
			P			
		work technologies.		<b></b>		
		v devices access local and ren basic network connectivity be				
Outcomes					m attrioule	
Outcomes	4-Design an IP addressing scheme to provide network connectivity for a network. 5-Describe router hardware.					
	5 Describe res			inicotivity for a	not work.	
		uter hardware.				
	6-Explain hov	uter hardware. v switching operates in a smal	l to medium-	sized business n	etwork.	
	6-Explain how 7-Configure n	uter hardware. v switching operates in a smal nonitoring tools available for s	l to medium- small to medi	sized business n	etwork.	
	6-Explain how 7-Configure n 8-Configure in	uter hardware.  v switching operates in a smal monitoring tools available for s mitial settings on a network de	l to medium- small to medi	sized business n	etwork.	
	6-Explain how 7-Configure n 8-Configure in <b>The topics de</b>	uter hardware.  v switching operates in a small monitoring tools available for shitial settings on a network destails are as following:	l to medium- small to medi vice.	sized business n	etwork. ess networks.	
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	6-Explain how 7-Configure n 8-Configure ii  The topics de  Week  1 Int Ch 1.1	uter hardware. v switching operates in a small conitoring tools available for smitial settings on a network destails are as following:  Lectures (CISCO: CCNA croduction capter 1: Exploring a network to Globally Connected	l to medium-small to medivice.	sized business no um-sized busine troduction	etwork. ess networks.  Laboratory  ng started with Packet Tracer	
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	6-Explain how 7-Configure in 8-Configure ii The topics de Week  1 Int Ch 1.1 2 1.2	uter hardware. v switching operates in a small monitoring tools available for shitial settings on a network destails are as following:  Lectures (CISCO: CCNA roduction Lapter 1: Exploring a network of Globally Connected of LANs, WANs, and the Interest of The Network as a Platform	l to medium-small to medivice.  v6)  In  net  F	sized business no um-sized busine troduction	etwork. ess networks.  Laboratory  ng started with Packet Tracer and Navigation Tips	
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### King Saud University, College of Engineering, Al-Muzahimiyah Branch, Academic Year 1439/40 (2018/19), Semester 1

	<ul><li>5.2 LAN Switches</li><li>5.3 Address Resolution Protocol</li></ul>	
7	Chapter 6: Network Layer 6.1 Network Layer Protocols 6.2 Routing	<ul> <li>Packet Tracer - Configure Initial Router Settings</li> <li>Packet Tracer - Examine the ARP Table</li> <li>Examples</li> </ul>
8	6.3 Routers 6.4 Configure a Cisco Router	Packet Tracer - Connect a Router to a LAN     Packet Tracer - Troubleshooting Default Gateway Issues     Examples
9	Chapter7: IP Addressing 7.1 IPv4 Network Addresses	<ul> <li>Packet Tracer - Investigate Unicast, Broadcast, and Multica Traffic</li> <li>Packet Tracer - Configuring an Integrated Router</li> <li>Examples</li> </ul>
10	Midterm Exam	Midterm Exam
11	Chapter7: IP Addressing 7.2 IPv6 Network Addresses 7.3 Connectivity Verification	<ul> <li>Packet Tracer - Configuring IPv6 Addressing</li> <li>Packet Tracer - Verifying IPv4 and IPv6 Addressing</li> <li>Packet Tracer - Troubleshooting IPv4 and IPv6 Addressing</li> </ul>
12	Chapter 8: Subnetting IP Networks 8.1 Subnetting an IPv4 Network 8.2 Addressing Schemes 8.3 Design Considerations for IPv6	Packet Tracer - Subnetting Scenario     Packet Tracer - Designing and Implementing a VLSM     Addressing Scheme     Packet Tracer - Implementing a Subnetted IPv6 Addressing Scheme
13	Chapter 9: Transport layer 9.1 Subnetting an IPv4 Network 9.2 Addressing Schemes	<ul> <li>Packet Tracer - Subnet Scenario 2</li> <li>Packet Tracer Simulation - TCP and UDP Communications</li> <li>Examples</li> </ul>
14	Chapter 10: Application Layer 10.1 Application Layer Protocols 10.2 Well-Known Application layer Protocols and Services	<ul> <li>Packet Tracer - Web and Email</li> <li>Packet Tracer - DHCP and DNS Servers</li> <li>Packet Tracer - FTP Servers</li> </ul>
15	Chapter 11: Build a Small Network 11.1 Network Design 11.2 Network Security	<ul> <li>Packet Tracer – Configuring Secure Passwords and SSH</li> <li>Packet Tracer Multiuser – Tutorial</li> <li>Packet Tracer Multiuser - Implement Services</li> </ul>
16	Final Exam	Final Exam

Grading
Policy of
Activities
and
Assessment

Assessment task	Date due	Grades	Total
Quizzes (5 – average mark)	During weeks 3, 6, 8, 10, 12	10%	
Homework (3 – average mark)	End of week3, week7, week 11	5%	
Midterm Exam	Within the 6 <sup>th</sup> week	25%	100 %
Laboratory		20 %	
Final Exam	As scheduled by the registrar	40 %	

- All coursework activities including assignments and quizzes will be announced in class and online together with deadlines for submission.
- Course materials including lecture notes, presentations, assignments, etc. will be posted regularly on the University Learning Management System (LMS) portal at <a href="http://lms.ksu.edu.sa">http://lms.ksu.edu.sa</a>
- Students are required to regularly check their University emails and the online Learning System (LMS) for course announcements and assignments, in addition to the course website: <a href="http://fac.ksu.edu.sa/ahqahtani/course/260392">http://fac.ksu.edu.sa/ahqahtani/course/260392</a>

#### Coursework:

- All assignments should be submitted on time. Late submission will be penalized as follows: 20% off attained mark for every day late. After 5 days from the submission deadline, no assignment will be accepted and a zero mark will be recorded for the particular assignment.
- Copying others' work is plagiarism which is illegal. Plagiarised assignments will not be marked and instead a zero mark will be given to all students involved.
- Marked coursework will be returned to students after one week from the submission deadline.
- Where practical, coursework solutions (of numerical and multiple choice nature) will be posted online one week after the submission deadline.
- Students are required to check their answers against the posted solutions and immediately inform the instructor of any discrepancies they may find in their marked coursework.



# King Saud University, College of Engineering, Al-Muzahimiyah Branch, Academic Year 1439/40 (2018/19), Semester 1

Attendance Policy	<ul> <li>Punctual attendance of all classes is crucial for achieving the objectives and learning outcomes of this course. The correlation between attendance and performance is well established.</li> <li>Attendance is compulsory for all classes including lectures and tutorials.</li> <li>Any student who arrives after 10 minutes from the start of class will be considered absent.</li> <li>Any student whose overall attendance in a particular course is below 75% will not be allowed to sit the final exam for that course.</li> <li>Absence from tutorials will be included in the overall attendance record.</li> <li>If a student misses a class due to a medical reason, then he must provide a medical certificate from a public hospital within 10 days after his return to University. The certificate must be handed to the course instructor personally.</li> <li>Non-medical reasons for absence will not be accepted unless approved by the Students' Affairs.</li> </ul>
General Rules:	<ul> <li>In addition to the study material posted online and recommended textbook, the students are also required to consult the other suggested references/sources on a regular basis.</li> <li>Students are required to regularly check their University emails and the online Learning System (LMS) for course announcements and assignments.</li> <li>Use of mobile phones or other electronic devices is not allowed during class. Unless permitted by the instructor, all such electronic devices must be switched off or put on silence during class.</li> <li>Students are strongly encouraged to ask questions during lessons when prompted to do so by the instructor. If further clarification is needed, the students could consult the instructor during his assigned office hours.</li> <li>Where applicable, formulas will be provided in the exams. However, students are required to understand them, recognize their relevance and know how to apply them.</li> <li>Transparency, honesty and trustworthiness are expected to be upheld by both staff and students at all times.</li> <li>cell phones should be turned off during class, active participation in this class is a vital part of your success. Mobile phones may be put on silent mode but using it during class is allowed. Mobile phone usage will affect the marks negatively.</li> </ul>
Make-up Policy	<ul> <li>There will be no makeup for missed quizzes or unsubmitted assignments. Missed quizzes or unsubmitted assignments will receive zero marks.</li> <li>Missed quizzes or unsubmitted assignments for eligible reasons will not be considered when calculating the average mark of the related coursework.</li> <li>Makeup for missed exams will be done according to the University Examination Policy. Any evidence for excused absence must be submitted to the instructor within one week from the date of the missed exam.</li> </ul>

\*Note: The corresponding chapters covered from the textbook: Data Communications and Networking, Behrouz A. Forouzan, 4<sup>th</sup> edition.

Topic	Chapters
Part1: Introduction to networks	Ch 1
Part1: OSI model	Ch 2
Part 2:Physical Layer	Ch 3-Ch 9
Part 3:Data link Layer	Ch 10-Ch 18
Part 4: Network layer	Ch 19-Ch 22
Part 5:Transport layer	Ch 23-Ch 24
Part 6:Application Layer	Ch 25-Ch 29
Part 7: Security	Ch 30-Ch 32