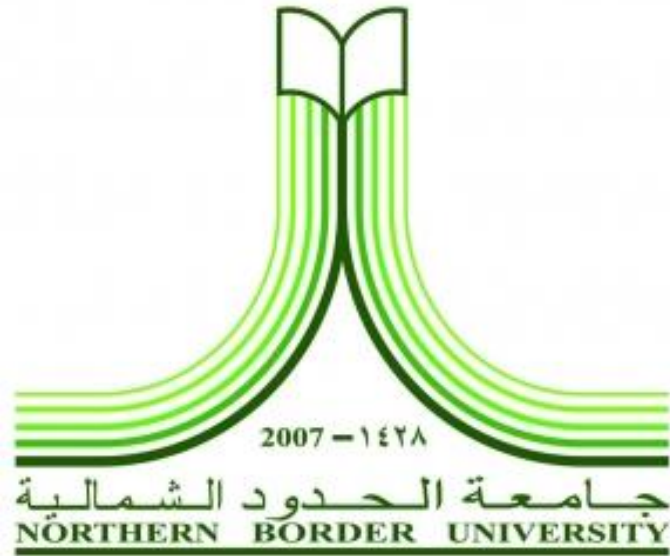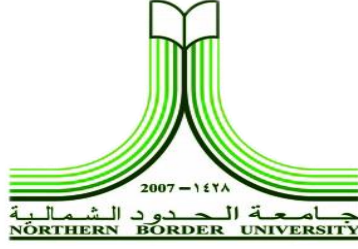المملكة العربية السعودية
جامعة الحدود الشمالية
كليـة العلـوم
قسم علوم الحاسبات

نموذج بيانات المقرر

Faculty of Science

Department of Computer Science

Course Syllabus

Course Title:	Wide Area Networks	**Course Code:**	**1105472**
Course Sections:	Arar (SB1)	**Semester / Year:**	1st Sem.: 1444 – 1445
Instructor:	Dr. Ahmad AL-Omari	**Classroom:**	Class room and Computer Lab
Office:	Computer Dept. Floor 2, S-320	**Website:**	https://faculty.nbu.edu.sa/faculty-member/79
Office Hours:	Sunday: 10:00-11:00, Monday: 9:00-10:00 Tue: 10:30 –12:00	**E-mail:**	alomari@nbu.edu.sa
Class Days & Times:	• SG1 (Sunday& Monday: 11:00-12:15	**Telephone:**	-01 4661 5189

COURSE DESCRIPTION:

This course is a continuation course of Computer Networks (1). The course discusses protocols such as ATM, SONET, ISDN, Frame Relay, Satellite Networks and Global Positioning System (GPS), IPV6, MIP, Wireless LAN (WLAN), Virtual LAN (VLAN), Multicast, X over IP (XoIP), and other related topics such as Quality of Service (QoS). The course discusses peer-to-peer protocols in the context of various protocols and applications

COURSE OBJECTIVES:

The course intends to extend student's knowledge in major protocols in the data, wireless, and multimedia areas. The course takes a number of protocols and a detailed and thorough study is performed in most of the protocols in order to build the skills and knowledge base for the student and to enable students' ability to appreciate the differences, similarities, and applications of these protocols.

Upon successful completion of this course, students should have the knowledge to**:**

A- Knowledge and Understanding:
- Be able to understand telecommunications related protocols.
- Be able to understand Internet based protocols.
- Be able to distinguish protocol features.
- Be able to understand additional protocols that are not covered in class.

B- Intellectual Skills:
- To discuss protocol features and options.
- To justify protocol features and options.
- To analyze protocol variations and applicability in different real-time scenarios.
- To analyze new features' applicability to protocols.
- To detect deficiencies in existing protocols and propose alternatives.

C) Subject Specific Skills:
- To design new protocols of similar features.
- To write software which implements some protocol features?
- To understand protocol standard documentation.

D) Transferable Skills:
- To discuss protocol issues and alternatives.
- To design new protocols for variant applications.

TOPICS TO BE COVERED:
- Overview
- Wireless LAN (WLAN) and Bluetooth
- Wireless WWAN and Satellites Networks
- X over IP (XoIP)
- IPv6
- Telecommunications Networks
- SONET/SDH
- Virtual Circuit (VC): ATM & Frame Relay
- Cellular Telephone and Satellite Networks

Course Calendar (**Tuesday, Wednesday**)

Week	Topics	Topic Details	Reference (chapter)	Assessment
1	**Overview**	Course overview and basic concepts behind studied protocols and its usability.	[1]Chp.1-32	
2&3	**Wireless LAN (WLAN) and Bluetooth**	Applications, types, frame format, CSMA/CA. Bluetooth networks, applications, types and characteristics Applications, types, frame format, CSMA/CA.	[1]Chp.14	Homework 2
4&5	**WWANs Cellular Telephone and Satellite Networks**	Cellular phones: types, data rates, generations and applications. Satellite Networks: Introduction to different satellite networks, and GPS	[1]Chp.16	Midterm Exam
6&7	**Next Generation: IPv6 and ICMPv6**	Protocol, header format, comparison and inter-working with IPv4, industry trends. And extension headers	[1]Chp.27	Homework 3
8&9	**SONET/SDH**	Applications, architecture, stack, virtual connectivity, and, virtual circuits, switching.	[1]Chp.17	
10&11	**Telecommunications Networks**	Architecture, components, functions	[1]Chp.9	Homework 4
12-15	**X over IP (XoIP)**	Voice, data, and video over Internet Protocols.	[1]Chp.29	Homework 5
16	**Final Exam**			

REQUIRED TEXTBOOK:

1. Data Communications and Networking: Behrouz A. Forouzan, McGrawHill, Fifth Edition, (**2012**). ISBN-10: 0071326286, ISBN-13: 978-0071326285

SUPPLEMENTARY TEXTBOOKS:

2. TCP/IP Protocol Suite: Behrouz A. Forouzan, McGrawHill, Third Edition, 2006. [3] Data and Computer Communications: William Stallings, Prentice Hall, Fifth Edition, 1997.
3. Computer Networking: Stanford H. Rowe and Marshs L. Schuh, Prentice Hall, First Edition, 2005.
4. Computer Network A top-down approach featuring the Internet: James F Kurose, Pearson Education, Third Edition, 2005.
5. Computer Networks: Andrew Tenebaum, Pearson Eduction, Fourth Edition, 2003.
6. Corporate Computers and Network Security: Rymond Panko, Pearson Education, 2004

COURSE ASSESSMENT:

Mid-Term Exam	30% marks (20 theory and 10 Lab)
Class work	30% marks
Final Exam	40% marks (30 theory and 10 Lab)
Total	100%

ATTENDANCE POLICY:
- Students are expected to be punctual and attend all classes.
- Being absent for more than 20% of allocated course time means that the student will receive a DN (denied from final exam).