



The Hashemite University  
Faculty of Engineering  
Department of Computer Engineering  
Course Syllabus (110408303) / Online Format  
Spring Semester 2020/2021

**Course Title:** Fundamentals of Telecommunication Networks  
**Course Number:** 110408303  
**Prerequisite:** 110409322 or 110403242

**Instructor:** Dr. Ahmad Nahar Quttoum  
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**Office Hours:** (12:30 – 13:00) Mons. , Weds.

**Assessment and Course Grade:**

- Pop-Quizzes & Others 20%
- Midterm Exam 40%
- Final Exam 40%

## Course Description

Data communication is an integral part of telecommunication and has played a significant role in the Information technology revolution. In this course, we will introduce the fundamentals of data communication; this will cover topics like an introduction to data transmission and signals, network models, digital and analog transmissions, concepts of bandwidth utilization and system performance, transmission media, and error detection and correction.

## Textbooks

1. Data Communication and Networking, Behrouz A. Forouzan, 5<sup>th</sup> edition, McGraw-Hill, 2012.
2. Data and Computer Communications, William Stallings, 9<sup>th</sup> edition, Prentice Hall, 2010.

## Course Objectives

Mainly, the objective of this course is to introduce the students to the general theme of telecommunication networks with a concentration on the Physical layer. Accordingly, the students are expected to build a solid background that enables them to pass through subsequent courses that cover higher layers of the different network models.

## Course Plan

Week #	Topic	Chapter
1	<b>Introduction</b>	1
2	<b>Network Models</b>	2
3, 4, and 5	<b>Data and Signals</b> <ul style="list-style-type: none"> <li>- Periodic and Aperiodic Analog Signals</li> <li>- Digital Signals</li> <li>- Transmission Impairments</li> <li>- Data Rate Limits</li> <li>- Performance of Transmission System</li> </ul>	3
6, and 7	<b>Digital Transmission</b> <ul style="list-style-type: none"> <li>- Digital to Digital Conversion</li> <li>- Analog to Digital Conversion</li> <li>- Transmission Modes</li> </ul>	4
8, and 9	<b>Analog Transmission</b> <ul style="list-style-type: none"> <li>- Digital to Analog Conversion</li> <li>- Analog to Analog Conversion</li> </ul>	5
<b>The Midterm Exam</b>		
10, and 11	<b>Bandwidth Utilization</b> <ul style="list-style-type: none"> <li>- Multiplexing</li> <li>- Spread Spectrum</li> </ul>	6
12	<b>Transmission Media</b> <ul style="list-style-type: none"> <li>- Guided and Unguided Media</li> </ul>	7
<b>The Final Exam</b>		

\* This is a tentative list of topics & policies, subject to modification and reorganization.

Prepared By: Dr. Ahmad Nahar Quttoum

Date: Feb. 20, 2021