

Introduction to Communication Systems (8022305-3)

Course Syllabus

Prerequisites:	Electronics (1) (8021110-4) & Signal Analysis (8021305-3).
Course Units:	Lecture Units: 3 Lab Units: 0 Total Units: 3 Contact Hours: 3
Instructor Details:	Name: Dr. Mouaaz Nahas Office: Room 1207 (First Floor, Electrical Engineering Department) Email: mmnahas@uqu.edu.sa Webpage: https://uqu.edu.sa/mmnahas
Course Contents:	<i>Note that the topics outlined here may be adjusted as necessary.</i> <ol style="list-style-type: none">1. Communication Systems and Basic Background.2. Double Side Band Suppressed Carrier (DSBSC) technique.3. Amplitude Modulation (AM) technique.4. Single Side Band (SSB) and Super heterodyne system.5. Noise effects on the amplitude modulation systems.6. Concept of instantaneous frequency.7. Bandwidth of angle modulated waves and generation of FM waves.8. Noise effects on the angle modulation systems.9. Sampling theory.
Course Learning Outcomes (CLOs):	<ol style="list-style-type: none">1. Identify the components of the communication system and explain different concepts such as noise, distortion, bandwidth, modulation and demodulation.2. Analyze the functionality of the block diagrams of different systems that are usually used in the linear modulation and demodulation techniques.3. Describe different types of linear modulation, including DSBSC, DSB with carrier, and SSB techniques.4. Describe the Superheterodyne receiver and Phase Locked Loop (PLL) principle.5. Recognize the basics of angle (exponential) (frequency and phase) modulation and important concepts such as instantaneous frequency to learn the angle (Frequency and phase) modulation.6. Analyze the behavior of the linear modulation and angle modulation in the presence of noise.7. Describe the block diagram of systems that are usually used in the angle modulation and demodulation techniques.8. Perform independent research on one of the current issues related to Communication Systems and present research paper in written form as well as orally in the class.
Textbooks:	Lathi B.P., Zhi Ding, <i>Modern Digital And Analog Communication Systems</i> , 4th Ed., Oxford University Press, 2009.
References:	<ol style="list-style-type: none">1. Haykin S., Moher M., <i>Communication Systems</i>, 5th Ed., NY: John Wiley & Sons, Inc, 2009.2. Michael P. F. <i>Fundamentals of Communications Systems</i>, NY: McGraw-Hill Professional, 20073. Horak R., Newton H., and Miller M. A., <i>Communications Systems and Networks</i>, 3rd Ed., NY: John Wiley & Sons, Inc, 2002.
Grading System:	See the professor's webpage listed above.