

**Bergen Community College**  
**Division of Math, Science and Technology**  
**Department Industrial Design Technology**

**Course Syllabus**  
**ELC 214 Communication Systems I**

Semester and year:  
Course Number:  
Meeting Times and Locations:

Instructor:  
Office Location:  
Phone:  
Office Hours:  
Email Address:

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<b>COURSE TITLE:</b>	<b>ELC-214</b> Communication Systems I
<b>COURSE CREDIT:</b>	4 Credits
<b>COREQUISITE:</b>	<b>ELC-204</b> , Electronics II
<b>COURSE DESCRIPTION:</b>	Communication Systems I emphasizes the application of electronic communication theory to practical systems. This first course of a two-course sequence covers AM and FM systems, television, and telephony. Digital and data communication will be introduced, and continued in Communication Systems II.
<b>SPECIFIC OBJECTIVES:</b>	<ol style="list-style-type: none"><li>1. To balance enough detail with practical skills to enable the student to do useful work in the field.</li><li>2. To consider the elements common to all electronic communication systems, a transmitter, a receiver, and a communications channel, and to investigate the various ways of implementing each of these three basic elements.</li></ol>
<b>TEXT:</b>	<ol style="list-style-type: none"><li>1. <u>Comprehensive Electronic Communication</u>, Roy Blake, West Publishing Company, 1997.</li><li>2. Laboratory Manual for above text.</li></ol>
<b>SYLLABUS:</b>	<ol style="list-style-type: none"><li>1. Introduction: Modulation, multiplexing, bandwidth, frequency bands, time and frequency domains, noise, test equipment.</li><li>2. Radio-Frequency Circuits: High-frequency effects, RF amplifiers, multipliers, oscillators, mixers, and synthesizers.</li><li>3. Amplitude Modulation: Time and frequency domains, RMS and peak voltages and currents, quadrature.</li><li>4. AM Transmitters: Spectral purity, power output, efficiency, modulation, stages, output impedance matching, AM citizens' band, AM stereo.</li><li>5. AM Receivers: Types, characteristics, variations, transceivers, troubleshooting.</li><li>6. Suppressed-Carrier AM Systems: Single-sideband transmitters and receivers.</li></ol>

7. Angle Modulation: Frequency and phase modulation, FM and FM stereo.
8. FM Equipment: Transmitters, receivers and transceivers.
9. Television: Video and sound signals, broadcasting and receiving, test equipment and troubleshooting, cable and high-definition TV.
- 10 Telephone Systems: Switched networks, frequency-division multiplexing
11. Digital Communications: Pulse modulation, coding and decoding, digital switching, digital video transmission.
12. Data Transmission: Data coding, error detection and correction, data compression.

ELC214SCO

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