BERGEN COMMUNITY COLLEGE
DEPARTMENT OF SCIENCE AND TECHNOLOGY

STUDENT COURSE OUTLINE

COURSE TITLE: **ELC-215** Communication Systems II

COURSE CREDIT: 4 Credits

PREREQUISITE: ELC-214 Communication Systems I

COURSE DESCRIPTION: Communication Systems II follows the first course in this sequence, continuing work in digital and data communication, and then covers transmission lines, radio-wave propagation, antennas, microwave systems, satellite communications, fiber-optic systems, and cellular communication systems.

SPECIFIC OBJECTIVES:

1. Complete the work started in Communication Systems I concerning analog and digital communication techniques.
2. After having studied the two ends, the transmitter and receiver, move into a study of the middle, the channel, which includes free-space transmission, optical fiber, and metallic cable.

TEXT:

1. Comprehensive Electronic Communication, Roy Blake, West Publishing Company, 1997.
2. Laboratory manual for above text.

SYLLABUS:

1. Modems: Modulation techniques, data compression with modems, file transfers, communications software, fax modems.
2. Local-Area Networks: Topologies, high-speed LANs, broad band networks, and software.
3. Wide-Area Data Networks: Structures and protocols, the internet.
4. Transmission Lines: Step and pulse response of lines, wave propagation on lines, losses and impedance matching, transmission-line measurements.
5. Radio-Wave Propagation: Electromagnetic waves, propagation, reflection, refraction, diffraction.
6. Antennas: Characteristics, types, matching, arrays.
7. Microwave Devices: Waveguides, components, tubes, antennas, radar.
8. Terrestrial Microwave Systems: Siting, system gain, equipment.
9. Satellite Communication: Orbital calculations, applications.
10. Fiber Optics: Fiber-optic cables, splices, connectors, optical couplers, switches, emitters, detectors.
11. Fiber-Optic Systems: Types and applications
12. Cellular and Wireless Personal Communication Systems.