

**NEWARK COLLEGE OF ENGINEERING**

**SYLLABUS AND COURSE INFORMATION**

**Course Name:** Transmission Systems

**Course Number:** ECET 418

**Course Structure:** 2-2-3 (lecture hr/wk – lab hr/wk – course credits)

**Course Description:** A study of wireless and terrestrial transmission systems with an emphasis on fiber optics and the latest wireless techniques. The lectures examine the technologies as well as the advantages and disadvantages of the various transmission techniques. The laboratories are a mixture of fiber optic, microwave, and wireless experiments providing hands-on experience in these important areas.

**Prerequisites:** ECET 214

**Corequisites:** None

**Required, Elective,  
or Selected Elective:** Elective

**Required Materials:** **Text:** Name: Fiber Optic Communication  
Author: Joseph Palais  
Year: 2005  
ISBN: 978-0-13-008510-8  
**Text:** Name: Wireless Communications: Principles and Practice  
Author: Rappaport  
Year: 2002  
ISBN: 978-0-13-042232-3

**Course Outcomes:** By the end of the course students are able to:

1. Use an RF spectrum analyzer.
2. Use various optical test instruments including: OTDR, optical power meter, optical spectrum analyzer, and monochromator, etc.
3. Understand how to increase capacity in wireless networks.
4. Understand wave propagation and fading.
5. Understand various modulation formats.
6. Understand basic optical properties.
7. Understand the fundamentals of optical networks.
8. Understand optical elements, such as fibers, couplers, EDFAs, WDMs, LASERS, detectors, etc.

<b>Class Topics:</b>	Wireless Systems	Terrestrial Transmission Systems
	Fiber Optics	Modulation
	Antennas	Transmission Equipment
	Encoding	Reception

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**Student Outcomes:** The Course Learning Outcomes support achievement of the following Student Outcomes from the ETAC of ABET Criterion 3 requirements.  
**Student Outcome d:** An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.

**Related Course Learning Outcomes: 8**

**Student Outcome f:** An ability to identify, analyze, and solve broadly-defined engineering technology problems.

**Related Course Learning Outcomes: 3**

**Student Outcome n:** The ability to analyze, design, and implement one or more of the following: control systems, instrumentation systems, communications systems, computer systems, or power systems.

**Related Course Learning Outcomes: 7**

**Academic Integrity:** NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. Please visit the Dean of Students website at <http://www.njit.edu/doss> for a list of student policies relating to academic integrity and student conduct.

**Modification to Course:** The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course Outline.

**Prepared By:** Daniel Brateris

**Course Coordinator:** Daniel Brateris