

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE  
**ACADEMIC AFFAIRS**

Course Number: TCOM-325 Department: Telecommunications Tech  
Course Title: Physical Layer Transmission Semester: Fall Year: 2009

**Objectives/Competencies**

Course Objective	Competencies
1. To become familiar with the concept of a telecommunications system.	1. To be able to describe the components of an electronic telecommunications system and their inter-relationships.
2. To become familiar with the seven-layer OSI model	1. To be able to describe the seven-layer OSI model and explain the possible interactions between the various layers.
3. To learn about system limitations due to noise.	1. To be able to demonstrate knowledge about system limitations due to noise
4. To become familiar with electronic filters, dBs, typical test & measurement equipment, and Fourier Analysis.	1. To be aware of the various types of electronic filters 2. To be conversant with the use of dBs 3. To be aware of the use and function of typical test and measurement equipment used in this field

Course Objective	Competencies
	4. To be aware of basic Fourier Analysis techniques
5. To become familiar with the concept of modulation.	1. To be able to describe the process of modulation.
6. To become familiar with digital modulation schemes.	1. To be able to describe the different types of digital modulation.
7. To become familiar with the operation of the receivers and transmitters	1. To be able to demonstrate a knowledge of transmitter hardware. 2. To be able to demonstrate a knowledge of receiver hardware.
8. To become familiar with multiplexing techniques	1. To be able to demonstrate a knowledge of various multiplexing schemes.
9. To become familiar with the characteristics of various types of transmission media	1. To be able to demonstrate knowledge of EM propagation characteristics 2. To be knowledgeable about the characteristics and operation of conductor-based transmission lines 3. To be knowledgeable about fiber-optics based data transmission systems 4. To be knowledgeable about the PSTN, cable TV

Course Objective	Competencies
	systems, DSL, and FIOS