

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: ESET-344 Department: ESET.AS
Course Title: Communications Systems Semester: Fall Year: 2008

Objectives/Competencies

| Course Objective | Competencies |
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| 1. To become familiar with the concept of a telecommunications/communications system. | a. To be able to describe the components of an electronic communications system and their inter-relationships. |
| 2. To learn about communication system limitations due to noise. | a. To be able to demonstrate knowledge about system limitations due to noise – including the concepts of SNF, NF & NR, and Noise Temperature. |
| 3. To become familiar with electronic filters, dBs, typical test equipment, and Fourier Analysis. | a. To be aware of the various types of electronic filters b. To be conversant with the use of dBs c. To be aware of the use and function of typical test and measurement equipment used in this field d. To be aware of basic Fourier Analysis techniques |
| 4. To become familiar with the concept of modulation. | a. To be able to describe the process of modulation. |
| 5. To become aware of the differences between legacy analog and newer pulse and digital modulation schemes. | a. To be able to describe the differences between analog and pulse and digital modulation. |

| Course Objective | Competencies |
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| 6. To become familiar with the means by which modulation schemes are implemented. | a. To be able to demonstrate a knowledge of transmitter hardware. |
| 7. To become familiar with the operation of the superheterodyne receiver and newer digital based, software defined receivers. | a. To be able to demonstrate a knowledge of receiver hardware. |
| 8. To become familiar with the operation and applications of the Phase-Locked Loop IC. | a. To be able to demonstrate a knowledge of PLL operation and applications. |
| 9. To become familiar with multiplexing techniques | a. To be able to demonstrate a knowledge of various multiplexing schemes. |
| 10. To become familiar with the various types of transmission media | a. To be able to demonstrate knowledge of EM propagation characteristics b. To be knowledgeable about the characteristics and operation of conductor-based transmission lines c. To be knowledgeable about fiber-optics based data transmission systems d. To be knowledgeable about the PSTN and cable TV systems |
| 11. To become familiar with the various types of antenna systems used in wireless communications | a. To be able to demonstrate a knowledge of various antenna schemes |