

I. COURSE DESCRIPTION:

This course is offered for the Electrical Engineering Technologist students. After an introductory chapter about the general concepts of telecommunications, the dial-up telephone system will be presented and explained. Modem theory, coding, data formats and Fiber Optics will be treated in fair detail. Specific integrated circuits used in data communication will be introduced and examined in the laboratory. The theory in this course is based on Spectrum Analysis, and that topic will be reviewed.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. *Understand the Public Switched Telephone System and Data Communications procedures, over a band limited analog system.***Potential Elements of the Performance:**

- Recall and explain the structure of the Telephone Network.
- Recall the concepts of Time Division and Frequency Division multiplexing
- Familiarity with Data Communications concepts and standards.

2. *Know the structure of The Seven Layer OSI architecture.***Potential Elements of the Performance:**

- Understand the Physical Layer protocols.
- Be familiar with the structure of standard computer serial ports
- Recall the principles of Limited Distance Data Communications.

3. *Utilize Telephone modems***Potential Elements of the Performance:**

- Be familiar with modulation techniques
- Recognize standard Low Speed and High speed modems
- Know the spectral utilization of dial up and leased lines.
- Interpret Shannon's law.

4. *Understand the principles and applications of Fiber Optics in Data Communications***Potential Elements of the Performance:**

- Know the basic terminology of F/O
- Recall the structure of Single mode and Multimode Optical Fiber
- Understand the principles of F/O light sources photo-detectors

III. TOPICS:

1. Introduction to Communications Systems
2. Seven Layer OSI architecture
3. Telephone Modems
4. Fiber Optics
5. Fourier analysis with numerical methods

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Course notes are available for sale in the Campus Book Store. A pdf file of the notes is posted under student data files, ELN317PS. Components necessary for the laboratory experiments are in a parts kit, also available in the Campus Book Store.

V. EVALUATION PROCESS/GRADING SYSTEM:

There will be four theory tests with a weight of 70% of the final grade. The grading of laboratory type objectives will be in two parts: The demonstrated ability to perform a skill function, e.g. use an instrument in a specified role or test a circuit will be graded "C". Subjective evaluation of lab reports, supporting theory, deportment, housekeeping etc. will be used to modify the skill function grade upward, where applicable. The grading weight will be 30% for the laboratory. Both theory and laboratory work must be passed independently for a passing grade.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	

X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. ADVANCE CREDIT TRANSFER:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.