PENNSYLVANIA COLLEGE OF TECHNOLOGY

COURSE SYLLABUS

Course Number: EET 282

Course Title: Digital Communications

Curriculum:

This course is intended for use in the Electronics Engineering Technology curricula, at the associate degree level in the Communications / Fiber Optics (FO) specialty. It may also be used at the baccalaureate level, as a lower division course in the proposed Electronics program.

Division: Industrial and Engineering Technologies

Prerequisites: EET 115, EET 150.

Corequisites: Recommend concurrent enrollment in associated laboratory course EET 283.

Course Description

Digital communications circuits, systems, standards and techniques. A-to-D and D-to-A conversion, time and frequency division multiplexing, modems, terminals, and networks. Serial and parallel data transfer, synchronous and asynchronous protocols. The effects of noise on telecommunications systems, and error detection and correction techniques. 3 Cr. (3-0). Prerequisites: EET 115, EET 150. Corequisites: Recommend concurrent enrollment in associated laboratory course EET 283.

Elective Status

Restricted to students in AI, BI, CM, EG, FO, and LS associate degree programs, as well as all baccalaureate Engineering Technology programs.

Core Competencies

Upon successful completion of this course, the student will demonstrate command of the following core competencies:

Apply scientific reasoning
Demonstrate systematic planning skills
Use mathematics systematically to evaluate and solve problems
Evaluate the function and impact of technology

Course Competencies

Upon successful completion of this course, the student will demonstrate the following course competencies:

1. Perform performance evaluations of digital communications circuits, systems and networks.
2. Interface analog and digital communications devices.
3. Evaluate error detection and correction alternatives.
4. Troubleshoot telecommunications systems to the component level.

Logistics

3 credits - 48 hours of theory.

Text

Telecommunication. First Edition, by Warren Hioka, (c) 1990, Prentice/Hall International, Englewood Cliffs NJ.

Student Outcomes

The student can expect a midterm examination, a comprehensive final examination, and no fewer than ten weekly quizzes. In addition, homework problems from the textbook will be assigned on a weekly basis.

Evaluation

Weekly Quizzes	25%
Homework Assignments	25%
Midterm Exam	25%
Final Exam	25%
	100%

A	=	86-100 %
B	=	76-85 %
C	=	66-75 %
D	=	51-65 %
F	$\leq$	50 %

Attendance Policy

The College Policy on Attendance will apply to this course. Daily attendance records will be maintained by the instructor.

Crosswalk

This course replaces ENT 281.

Dates:

08-19-92 Preparation
07-22-93 Revision 1
02-18-94 Revision 2
_____   Revision 3

Course Number: EET 283

Course Title: Digital Communications Lab

Curriculum:

This course is intended for use in me Electronics Engineering Technology curricula, at the associate degree level in the Communications /Fiber Optics (FO) specialty. It may also be used at the baccalaureate level, as a lower division course in the proposed Electronics program.

Division: Industrial and Engineering Technologies

Prerequisites: EET 116, EET 151.

Corequisites: Prior or concurrent enrollment in associated theory course EET 282.

Course Description

Analysis and troubleshooting of digital communications circuits. Signal sampling, filtering, D-to-A and A-to-D Converter circuit operation. Time Division Multiplexing, PAM, and PCM systems. Synchronization, signal conditioning, error detection and correction schemes. ASK, FSK, PSK and QPSK Transmitters and receivers are explored. 1 Cr. (0-3). Prerequisites: EET 116, EET 151. Corequisite: EET 282.

Elective Status

Restricted to students in AI, BI, CM, EG, FO, and LS associate degree programs, as well as all baccalaureate Engineering Technology programs.

Core Competencies

Upon successful completion of this course, the student will demonstrate command of the following core competencies:

Identify a problem
Define and evaluate alternative solutions
Demonstrate systematic planning skills
Use mathematics systematically to evaluate and solve problems
Communicate in team atmosphere

COURSE SYLLABUS: EET283

Course Competencies

 Upon successful completion of this course, the student will demonstrate the following course competencies:

 1. Evaluate Analog-to-Digital and Digital-to-Analog converter circuits.
 2. Contrast and compare alternative signal conditioning techniques.
 3. Analyze time and frequency division multiplexed communications networks.
 4. Troubleshoot telecommunications circuits and systems.

Logistics   1 credit - 48 hours of laboratory.

Text

 An Introduction to Digital Communications. Vols 1-3, by L. J. Electronics, L. J. Technical Systems Ltd., Norwich England (provided in the Laboratory)

Student Outcomes

 Working in a group environment, the student will perform and document fourteen laboratory experiments. Group members will alternate between the roles of Supervisor, Technician, and Recording Secretary. Each student will maintain a laboratory journal, which will be submitted for grading periodically throughout the semester.

Evaluation

Signal Sampling experiments	25%
Multiplexing experiments	25 %
Pulse Code experiments	25 %
Modulation experiments	25%
	100%

A	=	86-100	%
B	=	76-85	%
C	=	66-75	%
D	=	51-65	%
F	$\leq$	50	%

Attendance Policy

 The College Policy on Attendance will apply to this course. Daily attendance records will be maintained by the instructor.

Crosswalk   This course replaces ENT 283.