

# PENNSYLVANIA COLLEGE OF TECHNOLOGY

## COURSE SYLLABUS

### Dates:

08-19-92

Preparation

08-31-93

Revision 1

02-18-94

Revision 2

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Revision 3

Course Number: EET 286

Course Title: Optical 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 282

Corequisites: Recommend concurrent enrollment in associated laboratory course EET 287.

### Course Description

Examination and analysis of fiber optic cable as a transmission medium for telecommunications signals. Special requirements of this transmission mode with regard to passive and active electronic component usage. 3 Cr. (3-0). Prerequisite: EET 282. Corequisite: Recommend concurrent enrollment in associated laboratory course EET 287.

### 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 SYLLABUS: EET286

### Course Competencies

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

1. Describe optical wave propagation through single and multiple mode glass and plastic fibers.
2. Select visible or infrared emitters and detectors appropriate to a given communications application.
3. Specify active and passive optical components for analog and digital links.
4. Troubleshoot fiber optic systems at both the block diagram and the circuit levels.

Logistics                      3 credits - 48 hours of theory.

### Text

Fiber Optics. Communications and Other Applications. First Edition, by Zanger and Zanger, (c) 1991, Merrill/Macmillan, New York.

### Student Outcomes

The student can expect three unit examinations, 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%
Unit One Exam	25%
Unit Two Exam	25%
Unit Three Exam	<u>25%</u>
	100%

A	=	86-100	%
B	=	76-85	%
C	=	66-75	%
D	=	51-65	%
F	≤	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 279.

# PENNSYLVANIA COLLEGE OF TECHNOLOGY

## COURSE SYLLABUS

Dates:	
<u>08-20-92</u>	Preparation
<u>08-31-93</u>	Revision 1
<u>02-18-94</u>	Revision 2
_____	Revision 3

Course Number: EET 287

Course Title: Optical Communications Lab

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 283

Corequisites: Prior or concurrent enrollment in the associated theory course, EET 286.

Course Description

Application of active and passive electro-optical components, and skills to install and apply these components in fiber optic communications. Use of specialized test instruments for measurement of fiber optic systems. 1 Cr. (0-3). Prerequisite: EET 283. Corequisite: EET 286.

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
- Communicate in team atmosphere

## COURSE SYLLABUS: EET287

### Course Competencies

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

1. Install connectors on single and multiple mode glass and plastic fiber optic cables.
2. Splice fiber optic cables so as to minimize loss.
3. Perform bandwidth, rise time, power, insertion loss, and time domain reflection measurements in fiber optic communications systems.
4. Troubleshoot fiber optic systems at both the block diagram and the circuit levels.

### Logistics

1 credit - 48 hours of laboratory.

### Text

Fiber Optics Lab Manual, by Terry G. White, (c) 1989, Industrial Fiber Optics, ScottsdaleAZ.

### Student Outcomes

The student will perform and document no fewer than seven laboratory experiments, and can expect two individualized lab tests. In addition, the student will participate in a hardware based class project.

### Evaluation

Lab Experiments	25%
First Lab Test	25%
Second Lab Test	25%
Class Project	<u>25%</u>
	100%

A	=	86 - 100	%
B	=	76 - 85	%
C	=	66 - 75	%
D	=	51 - 65	%
F	≤	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 293.