

# PENNSYLVANIA COLLEGE OF TECHNOLOGY

## COURSE SYLLABUS

### Dates:

08-19-92 Preparation

08-31-93 Revision 1

02-18-94 Revision 2

\_\_\_\_\_ Revision 3

Course Number: EET 284

Course Title: Microwave 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 280

Corequisites: Recommend concurrent enrollment in associated laboratory course EET 285.

### Course Description

An examination of microwave components associated with satellite and point-to-point communications systems. Other advanced communication system techniques will be examined. 3 Cr. (3-0). Prerequisite: EET 280. Corequisite: Recommend concurrent enrollment in associated laboratory course EET 285.

### 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: EET284

### Course Competencies

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

1. Analyze active and passive microwave components and circuits, utilizing scattering parameters. Smith Chart computations, and appropriate microcomputer software.
2. Select the most appropriate hardware and analytical tools to implement a variety of microwave communications and instrumentation applications.
3. Demonstrate acquired analytical and measurement skills.

### Logistics

3 credits - 48 hours of theory.

### Texts

UHF/Microwave Experimenter's Manual, First Edition, by H. Paul Shuch et. al. (c) 1990, American Radio Relay League, Newington CT.

Satellite Experimenter's Handbook, Second Edition, by Martin Davidoff, (c) 1990, American Radio Relay League, Newington CT.

### 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 258.

# PENNSYLVANIA COLLEGE OF TECHNOLOGY

## COURSE SYLLABUS

### Dates:

<u>08-20-92</u>	Preparation
<u>09-01-93</u>	Revision 1
<u>02-18-94</u>	Revision 2
_____	Revision 3

Course Number: EET 285

Course Title: Microwave 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 281

Corequisites: Prior or concurrent enrollment in the associated theory course, EET 284.

### Course Description

Laboratory experiments in microwave components, circuits and systems. Manual and automated measurement techniques in the time and frequency domains. Communications satellite applications, and computer simulation of microwave systems. 1 Cr. (0-3). Prerequisite: EET 281. Corequisite: EET 284.

### 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
- Function independently
- Demonstrate systematic planning skills
- Use mathematics systematically to evaluate and solve problems
- Adapt to computer applications

## COURSE SYLLABUS: EET 285

### Course Competencies

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

1. Perform to industry standards, measurements of microwave transmission and reflection characteristics in coaxial and waveguide systems.
2. Operate and maintain satellite communications systems.
3. Demonstrate acquired analytical and measurement skills.

Logistics          1 credit - 48 hours of laboratory.

### Text

Microwave Training System. Training Manual, (c) 1968, Antenna and Radome Research Associates Corporation, Bay Shore NY (provided in the Laboratory)

### Student Outcomes

The student will perform and document no fewer than ten laboratory experiments, and can expect two individualized lab tests. In addition, the student will participate in a hardware based class project, and perform a computer simulation of a microwave communications system.

### 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 259.