

SAMPLE SYLLABUS

This syllabus is to be used as a guideline only. The information provided is a summary of topics to be covered in the class. Information contained in this document such as assignments, grading scales, due dates, office hours, required books and materials may be from a previous semester and are subject to change. Please refer to your instructor for the most recent version of the syllabus.

ABET Course Syllabus EEE448

1. **Course: EEE 448 Fiber Optics**
2. **Credits and Contact Hours:** 3 Credit Hours (lecture), Topics: Engineering
3. **Course Coordinator:** Dr. J.C. Palais, Professor
4. **Textbook:** *Fiber Optic Communications*, Joseph C. Palais, Prentice-Hall, 2005, 5th edition.
Supplemental materials: None
5. **Specific course information**
 - a. **Catalog description:** Number systems, conversion methods, binary and complement arithmetic, Boolean algebra, circuit minimization, ROMs, PLAs, flipflops, synchronous sequential circuits. Lecture, lab. Cross-listed as CSE 120.
 - b. **Prerequisites or co-requisites:** EEE341.
 - c. **Required/elective/selected elective:** Elective
6. **Specific goals for the course**

To give students the ability to understand, specify, and design fiber-optic communications components and systems.

 - a. **Outcomes of instruction:**
 - i. Students will learn the fundamentals of fiber optic communications.
 - ii. Students will learn the applications of fiber optic communications
 - iii. Students will be able to converse with technologists in the field of fiber optic communications.
 - b. **Outcomes of Criterion 3 addressed by the course:**

(1) Students do numerous problems in homework and exams requiring them to critically evaluate technical problems and their possible solutions. The students are required to apply basic mathematical and scientific principles to the understanding of fiber optic components, systems, and design.
7. **Brief list of topics to be covered**
 - 1.Fiber optic communications systems (1 week)
 - 2.Optics review (2 weeks)
 - 3.Lightwave fundamentals (2 weeks)
 - 4.Integrated optic waveguides (2 week)
 - 5.Optic fiber waveguides (4 weeks)
 - 6.Optical sources and amplifiers (2 weeks)
 - 7.Light detectors (2 weeks)

Computer Usage:

A number of simulation programs are available to students on the Internet. Many of the simulations are used to demonstrate principles during the lectures. Students are allowed, but not required, to complete homework problems on the computer.

Laboratory Experiments: None

Course Contribution to Engineering Science and Design:

Students learn to analyze dielectric waveguides by applying appropriate boundary conditions to solutions of the electromagnetic wave equation. Students learn the capabilities of various types of fiber optic structures in terms of information capacity and transmission efficiency.

Person preparing this description and date of preparation: J. Palais, K. Tsakalis, June, 2021.