University of Wisconsin - Madison
College of Engineering [EGR]
Last Offered: 2014-2015 Fall [1152]

Direct Link to this Syllabus:

1. E C E 536, Integrated Optics and Optoelectronics
2. Credits: 3  Contact Hours: 2.5
3. Textbook and Materials: Photonics; Yariv and Yeh; Sixth; 2007

a. Other Supplemental Materials: None

• Specific Course Information:

a. Brief description of the content of the course (Course Catalog Description): This course introduces the student to the physical principles, design concepts, and technological consequences of passive, electro-optic, and optic-electronic guided wave devices.
b. Pre-requisites or Co-requisites: ECE 320, 335, & ECE 434 or 420 or cons inst

c. This is a Selected Elective course.

• Specific Goals for the Course:

a. Course Outcomes:

1. Students will be able to design photonic devices, such as vertical cavity micro-resonators, semiconductor lasers, optical couplers, optical modulators, and grating based devices.

• ABET Student Learning Outcomes:

(a) Ability to apply mathematics, science and engineering principles.
(c) Ability to design a system, component, or process to meet desired needs.
(e) Ability to identify, formulate and solve engineering problems.
(i) Recognition of the need for and an ability to engage in life-long learning.
(j) Knowledge of contemporary issues.
(k) Ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

- **Brief List of Topics to be Covered:**
  1. Optical waves in multilayer structures
  2. Positive- and negative-index waveguides
  3. Optical resonators and laser diodes
  4. Optical modulators