

## **ENG EC591 Photonics Lab I**

### **2008-2009 Catalog Data:**

Prereq: CAS PY 313; coreq: ENG EC 560. Introduction to optical measurements. Laser safety issues. Laboratory experiments: introduction to lasers and optical alignment; interference; diffraction and Fourier optics; polarization components; fiber optics; optical communications; beam optics; longitudinal laser modes. Optical simulation software tools. 2 cr.

**Status in the Curriculum:** Elective

### **Class/Lab Schedule:**

1 (lectures), 4 (labs)

### **Textbooks and other required materials:**

#### **Reference:**

B.E.A. Saleh & M.C. Teich, "Fundamentals of Photonics" (Second Edition, Wiley, NY, 2007)

#### **Coordinator:**

Roberto Paiella, Assistant Professor, Electrical and Computer Engineering

#### **Prerequisites by topic:**

Modern Physics

#### **Goals:**

The objective of this course is to provide the students with hands-on experience with modern optical components and experimental techniques. Laser safety issues and computer-aided optical design will also be emphasized.

#### **Course Outcomes:**

As an outcome of completing this course, students will:

1. become familiar with laser safety issues
2. become familiar with basic optical measurement components and techniques
3. learn how to interpret and analyze data from optical measurements
4. verify in practice some of the laws and applications of photonics studied in EC560
5. learn how to use computer-aided tools for the design of integrated optical elements

**Course Outcomes mapped to Program Outcomes:**

<b>Program:</b>	a	b	c	d	e	f	g	h	i	j	k
<b>Course:</b>	3,4	1,2,3,5	1,2,5	2	2,3,5	1	3	1,2,5	2,5	1,2,5	1,2,3,5
<b>Emphasis:</b>	5	5	4	1	4	3	4	3	2	4	5

1=not at all; 5=a great deal;

**Contribution of Course to Meeting the Professional Component:**

Engineering topics: 60%

Math & Basic Science: 20%

General Education: 20%

**Prepared by:** Roberto Paiella

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