EE 5380 Principles of Photonics and Optical Engineering
Fall Semester 2005
Monday/Wednesday 4:00-5:20 pm, NH Room 106

Instructor: Michael Vasilyev, Asst. Prof.
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(This book is on reserve in Science and Engineering Library.)

Reference Texts:
1) “Laser Electronics,”
2) “Fundamentals of Photonics,”
   (These books are on reserve in Science and Engineering Library.)

Course Learning Goals/Objectives: Learn the principles and applications of photonics. This course is the core Technical Proficiency Course for Optical Devices and Systems track in EE Department.

Course Description: The course introduces the basics of optical fields and their applications to lasers, optical fibers, and photonic signal processing, i.e., how light is used in modern systems for encoding, manipulating, transmitting, storing, and retrieving information. It covers light propagation in isotropic and birefringent optical media, behavior at dielectric interfaces, interference, optical cavities and principles of laser action, the basics of optical waveguides (including optical fiber), and electro- and acousto-optic modulation. Emphasis is given to the design and analysis of optical devices, and their applications in communications and signal processing.

Tentative topic schedule:
Review of electromagnetic fields and waves
Optical waves at dielectric boundaries: reflection and transmission
Lenses and mirrors
Propagation in anisotropic media
Electro-optic and acousto-optic modulation
Interference, optical coatings, and optical resonators
Fundamentals of lasers
Dielectric waveguides, including optical fiber

Course Evaluation and Final Grade:
  Homework  20%
  Midterm exam  40%
  Final exam  40%

Attendance Policy: Mandatory
Drop Policy: As per University guidelines. See the Registrar’s Bulletin or the University Calendar in the front part of the UTA catalog for drop dates.

Student Evaluation of Teaching
Students will be asked to complete instructor/course evaluation forms at the end of the semester.

Americans with Disabilities Act:
The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112—The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act – (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “reasonable accommodation” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are properly accommodated.

Academic Dishonesty
It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22).

ANY CHEATING WILL RESULT IN SEVERE PENALTIES.

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. They include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.