

## Syllabus EE 5365 - 001 FIBER OPTIC TRANSMISSION SYSTEMS

**Course description:** Propagation in optical fibers, characteristics and manufacture of fibers, semiconductor light-wave sources and detectors, optical transmitters and receivers, light-wave transmission systems for wide area and local area networks.

**Prerequisites:** EE 5306 and EE 5361.

Time : MoWe 4:00PM - 5:20 PM  
Room : GACB 103  
Instructor : Dr. Nikolai Stelmakh  
Office : room 509 NH  
Office hours : Monday 1 PM - 4 PM and by appointment  
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**Course website:** <http://www-ee.uta.edu/online/stelmakh/ee5365>

### Textbooks:

- "Optical Fiber Communications," Gerd Keiser, McGraw-Hill.
- "Fiber-Optic Communication Systems," 3<sup>rd</sup> Edition, Govind Agrawal, Wiley.

### Recommended reading:

- "City of Light: The Story of Fiber Optics." Jeff Hecht, Oxford University Press.
- "Understanding Fiber Optics," 3rd ed. Jeff Hecht, Prentice-Hall.

### Fundamental references:

- "Fundamentals of Optical Fibers," John Buck, Wiley.
- "Fundamentals of Photonics," Bahaa E. A. Saleh, Malvin Carl Teich, Wiley.
- "Modern Optical Engineering - the Design of Optical Systems," Warren Smith, McGraw Hill.
- "Guided-wave Photonics," A. Buckman, Oxford Press.
- "Introduction to Optical Fiber Communication System," William Jones, etc. Jovanorich College Publisher.

**Lecture outlines:** Introduction of optical fiber communications, Ray optics and wave equations, Wave equations for slab waveguide and optical fibers, Wave solutions for optical fibers, LP modes, Dispersions, Fiber loss and fiber manufacturing, Optical transmitters, LED and Laser diodes, Laser modes and optical receivers, Photo-detectors, Noises and sensitivity, System performance, Light-wave systems, Optical amplifiers, WDM systems

**Policy Grading:** Homework 20%, Midterm 40%, Final Project 40%

**Attendance and Drop Policy:** Attendance is required.

### Ethics and conducts of students: 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).