

# SYLLABUS FOR TLEN 5480 INTRODUCTION TO OPTICAL COMMUNICATIONS

Frank S.Barnes

- 1 Introduction Optical Communications Systems
  - A. A review of the components and overall system.
  - B. Define Coherence
2. Optics Review
  - A. An introduction to ray tracing for common optical elements
  - B. An introduction to diffraction
3. Light wave Fundamentals
4. Integrated optical waveguides
5. Optical Fiber Waveguides
6. Optical sources and amplifiers
7. Light Detectors.
- 8.Couplers and Connectors
- 9.Distribution Networks and Fiber components
10. Modulators
- 11.Noise and Detection
- 12 System Design

The course is taught using “Fiber Optic Communications” Joseph Palais as a text plus notes to provide a little more depth. There are Homework problems once a week and some lab experiments that can be operated over the Internet will be assigned as homework. There are two one hour midterms, a term paper and a final. The final is a take home design problem for an optical fiber communications system. The term paper is on a subject of the students choice to take one part of the course to greater depth and to get outside the text into the literature.