ECE 404: Experiments in Optical Electronics

**Concepts:**
- Optical cavities
- Gas and semiconductor lasers
- Light propagation through different components photodetectors
- Optical fiber link; frequency response of optical devices
- Holography

**Applications:**
- Lasers, stable cavities; light propagation in fibers
- Detection of optical signals

**Tools:**
- Geometrical and electromagnetic optics
- Signal analysis using different software tools
- Engineering of optical systems
- Oral and written communication

**IN**

**Mathematical Concepts**
- Understand calculus
- Understand matrix algebra

**Physics Concepts**
- Understand electromagnetic waves
- Understand waveguides
- Know basic geometric optics laws

**Pre-requisites**
- ECE 342 with a minimum grade of C

**OUT**

**Optical Electronics Components**
- Know the fundamental concepts that are building blocks of lasers and optical systems
- Acquire hands on skills to assemble optical systems
- Record and analyze data
- Maintain a professional lab notebook
- Present results of experiments

**Analytical and Laboratory Skills**
- Identify, formulate and solve optical engineering problems
- Develop and conduct appropriate experimentation, analyze and interpret data
- Record data on research notebooks
- Present results to a broad audience

Reviewed 2/2024