

**Microcredential in Optics and Precision Manufacturing (Physics)**  
**Four Courses (12 Credits)**

**Faculty Steward (Physics and SPDI Dept Chair, Harfenist and Hix)**

- OPTC-101: Introduction to Optics (4cr)
- OPTC-110: Laser Optics (2cr)
- OPTC-120: Thin Films in Optics (2cr)
- INSPDI-183: Ultra-Precision Manufacturing (4cr)

**Objectives/Rationale:** This group of courses provides the student with the knowledge and hands-on experience for gainful employment in the optics industry, one of the fastest growing industries worldwide. The Monadnock and surrounding regions are home to a great number of optics firms that are in need of entry-level optical engineers with a fundamental understanding of and hands on experience with; light/matter interactions, geometric optics and ray tracing, laser handling and safety, optical component handling and cleaning, production and analysis of thin film optical filters and high-precision manufacturing in optics. This program provides this broad-based education in optics local and regional employers are looking for.

**Outcomes:** #1: Demonstrate an understanding of how optics plays a role in our lives and isn't limited to just the light we can see. Students will determine how cameras, light and different wavelengths are used in industry to solve everyday problems.

#2: Develop and demonstrate the skills needed to solve problems in, handle and safely work with laser optical systems.

#3: Demonstrate knowledge of how thin films are manufactured and used as optical interference filters.

#4: Demonstrate an understanding of, and hands-on experience with, high-precision manufacturing, especially in regards to producing optical components from diamond turning lathes.