

# LASER TECHNOLOGY

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## LASER TECHNOLOGY (LASR)

DIVISION: Natural Sciences

### LASR 215 FUNDAMENTALS OF LIGHT AND LASERS

#### 3 unit

Fundamental properties of light, including its interaction with and generation from materials. Review of essential components of optical systems, including lenses, mirrors, prisms, windows, sources, detectors, optoelectronics, polarizers, fibers, and gratings. Construction of basic optical test setups from industrial grade components and systems in the laboratory. Hands-on experiences with industrial equipment and tools. Total of 36 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

### LASR 230 OPTICAL DEVICES

#### 3 unit

Exploration of principal tools used when working with lasers and other light sources, cameras and sensors. Study of optical hardware and its constituent components; fundamentals of lasers to gain media, pump sources, and mirror cavities; investigation of camera components and essential chemistry. Hands-on experience with industrial hardware and tools. Total of 36 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

### LASR 245 QUALITY ASSURANCE OF PRECISION OPTICS

#### 3 unit

Overview of relevant industry and manufacturing specifications for precision optics. Introduction to quality assurance (QA) practices required to identify, inspect, and measure optical components. Hands-on experience with industrial materials and quality assurance tools. Total of 36 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

### LASR 260 METROLOGY OF OPTICAL SYSTEMS

#### 3 unit

Detailed review of the measurement techniques required to ensure that a fabricated assembly or system meets its procurement specifications. Design and application of optical metrology instrumentation such as interferometers and modulation transfer function measurement systems with emphasis on test applications required in optical engineering and manufacturing. Hands-on experience with industrial hardware and tools in the laboratory. Provides industrially relevant laboratory experience to measure precision optical components and optical systems. Focus on hands-on use of technical, industry-standard equipment. Total of 36 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*