

## PRECISION OPTICS 2023-2024

GRADE	COURSES
9, 10, 11 or 12 <sup>th</sup>	<p><b>Precision Optics I</b> 1 Science Credit</p>
10, 11 or 12 <sup>th</sup>	<p><i>Passed Precision Optics I</i> <b>Precision Optics II</b> 1 General Elective Credit</p>
11 or 12 <sup>th</sup>	<p><i>Passed Precision Optics II</i> <b>Physics – Research OR General Physics</b> 1 - Credit</p>
11 or 12 <sup>th</sup>	<p><i>Passed Optics I and passed or is taking Algebra II</i> <b>College Optics *</b> 1 - Credit</p>
	<p><b>Dual Enrollment – MCC Introduction to Optics – OPT 110 (3 College Credits)</b></p>
	<p><b>Careers &amp; Financial Management- BUSINESS</b> 1 - Credit</p>

 **PATHWAY EXAM**

**LOCAL EXAM**

## COURSE DESCRIPTIONS

### **Precision Optics I** 9th – 12<sup>TH</sup> Grade

**Description:** As the first class in the Precision Optics pathway this course introduces and unpacks the elements of the industry; while you learn the basic habits, precautions, and processes to safely and successfully work in a manufacturing environment. You will operate machines and create precision lenses, flats, and prisms. Along with machining skills you will also learn the surfacing, blocking, grinding, polishing, and edging processing skills necessary as an entry level Precision Optics Technician. Also in this course, you will learn how to use basic measuring equipment gauges, test plates, and interferometers to verify part dimensions.

### **Precision Optics II** 10<sup>th</sup>-12<sup>th</sup> Grade

**Description:** In this course, you will further develop the skills learned in Precision Optics I as well as an introduction to the process for designing optical systems, including industry-standard design software. You will manufacture lenses, prisms, and mirrors and will put several elements together to create a specific optical system that meets specifications from a blue print. There will be opportunities to use the milling and coating machines to create novel lenses and mirrors. The use of 3-D printing is introduced so that students may generate their own barrels and housings for optical systems.

### **College Optics** 11-12th Grade

#### **Description: Dual Enrollment MCC Introduction to Optical Technology – OPT 110**

This freshman level college course with MCC is designed to help you learn about the applications of optics and imaging science and the many careers available in this field in Rochester, NY. In this class you will learn about the fundamental theories of light and optics. This content-based course will help you to appreciate the ubiquity of light and optics in the modern world and how a relatively small number of scientific principles explain a wide array of light phenomena.

#### Learning Outcomes

1. Optics concepts in a real-world setting
2. Functions of the human visual system
3. Properties of light
4. Process of Optical Manufacturing
5. Properties of glass
6. Careers in the Optics industry
7. Optics companies in the Rochester Region