

## **Course Description**

### **OPT2420 | Eyewear Fabrication 1 | 2.00 credits**

This course covers the theory of ophthalmic surfacing procedures. Students acquire knowledge to arrange single vision lenses; use lensometers and lens clock; operate project-o-makers for single vision lens layout; select or fabricate frame patterns; and utilize several systems for edging lenses for ophthalmic frames. Prerequisite: OPT1110; Corequisite: OPT2420L

### **Course Competencies:**

**Competency 1:** The student will learn the theory of what fabrication entails by:

1. Listing the steps in the fabrication process
2. Recognizing and identifying the equipment, supplies, and tools needed for fabrication
3. Explaining the terminology used in an ophthalmic laboratory

**Competency 2:** The student will learn the theory of what creates lens power, surface power, and the formulas needed in the fabrication process by:

1. Explaining lens curves (front, back, total power, and base curves)
2. Calculating surfacing formulas
3. Calculating power formulas
4. Explaining aberrations
5. Explaining the power cross and how it relates to the patient prescription

**Competency 3:** The student will learn to explain if the eyewear made by the laboratory is dispensable to the patient by:

1. Explaining ANSI Standards (American National Standards Institute)
2. Calculating Prentis' Rule
3. Comparing Prentis' Rule calculation with ANSI Standards and being able to explain if glasses meet ANSI standards

**Competency 4:** The student will learn how to explain the difference between traditional (molded) lenses, free-form lenses, and digital lenses by:

1. Explaining traditional molded lenses (single vision and multifocal)
2. Explaining free form and digital lens manufacturing

**Competency 5:** The student will learn about progressives by:

1. Explaining the major points of the lens
2. Explaining the methods to measure a progression in a patient
3. Explaining the tools needed to measure a progression in a patient
4. Explaining how to identify and locate the lens markings
5. Explaining how to adjust a progressive on a patient and consider face form and pantoscopic tilt
6. Explaining to the patient how to best use the lens to be a successful wearer
7. Explaining errors to avoid and how to troubleshoot when patients complain
8. Explaining ANSI standards of a multifocal and a progressive and how they differ from a single vision lens

**Competency 6:** The student will learn about lens treatments, lab processes, and lens impact-resistant standards by:

1. Explaining heat treatments, tempering, and drop ball testing requirements
2. Explaining the different types of eyewear (dress, safety)
3. Recognizing the frame labeling per the manufacturer
4. Explaining the impact resistance standards and methods to ensure safety

**Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data