

OPH 102 OPHTHALMIC LAB CONCEPTS

COURSE DESCRIPTION

Prerequisites: OPH 141 and Enrollment in the Optical Apprentice Certificate program

Corequisites: None

This course introduces the operations of the ophthalmic laboratory. Emphasis is on surfacing and finishing formulas; materials, procedures, and equipment used to fabricate glasses; and ANSI, EPA, and OSHA requirements. Upon completion, students should be able to perform laboratory-related calculations, describe safety and environmental regulations, and identify materials and procedures used in ophthalmic laboratories. Course Hours Per Week: Class, 2. Semester Hours Credit, 2.

COURSE OBJECTIVES:

Upon completion of the course the student will be able to:

- a. Describe layout and blocking for surfacing and finishing of single vision and multifocal lenses.
- b. Describe surfacing procedures.
- c. Describe finishing procedures.
- d. Use formulas involved in surfacing and finishing operations.
- e. Neutralize single vision, multifocal, and prismatic eyewear.

OUTLINE OF INSTRUCTION:

- I. Laboratory safety
 - A. Clothing safety
 - B. Eye safety
 - C. MSDS sheets, OSHA and EPA requirements

- II. Lens design
 - A. Plus, minus, compound lens characteristics
 - B. Optical power cross
 - C. Single vision and multifocal lens designs
 - D. Measurements and terminology
 - E. Indices of common Ophthalmic materials

- III. Lensmeter
 - A. Lensmeter nomenclature and operation
 - B. Neutralizing spherical, compound and multifocal lenses
 - C. Optical Center and Major Reference Point (Prism Reference Point)
 - D. Prism base notation and identification
 - E. ANSI standards for power, axis, and prism

- G. Mounting lenses
- H. Interpreting prescriptions of multifocal lenses
 - 1) Measurements and calculations
 - 2) Franklin style bifocal design
- I. Layout using boxing system
- J. Mark-up and blocking multifocal lenses
- K. Heat and chemical tempering of glass lenses
- L. Lens tinting-dyes and their application
- M. Benchwork
- N. Progressive lens finishing
- O. Final Inspections
 - 1) ANSI standards

REQUIRED TEXTBOOKS AND MATERIALS:

Brooks. Understanding Lens Surfacing. Butterworth-Heinemann, 1992.

Brooks. Essentials for Ophthalmic Lens Finishing. 2nd ed. Elsevier, 2003.

EQUIPMENT REQUIRED:

Non-programmable Scientific Calculator. The least complicated calculator that contains the keys ‘sin,’ ‘cos,’ and ‘tan’ will do.

STATEMENT FOR STUDENTS WITH DISABILITIES:

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