RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

OPTH-105 OPHTHALMIC SCIENCE MATERIALS I LAB

I. Basic Course Information

A. Course Number and Title: OPTH-105 Ophthalmic Science Materials I Lab

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2025

D. Effective Term: Fall 2026

E. Sponsoring Department: Health Science Education

F. Semester Credit Hours**: 3**

G. Weekly Contact Hours**:** 6 Lecture**:** 0
Laboratory**:** 6
Out of class student work per week: 3

H. ☐ Prerequisite (s): None
☒ Corequisite (s): OPTH100 Ophthalmic Materials I Lecture

I. Additional Fees**:** No

II. Catalog Description

Co-requisite: OPTH100 Ophthalmic Materials I Lecture

This course will cover computations and theories concerning basic lens formulas; preparation of prescription lab orders; operation of the lensometer/vertometer and the neutralization process; and operation of lens fabrication equipment including the automatic lens edger, blocking, marking and hand bevel edgers. Fabrication of eyeglass prescriptions involving spherical and compound lenses in plastic and metal frames; interpretation, computation and creation of prismatic prescriptions through decentration will also be addressed. The course will include lecture time on appropriate optical principles. (Students will be required to supply their own tools.)
If the student is registered with the State Board as an apprentice, Ophthalmic Materials I must be successfully completed to be eligible for the State Board Qualifying Technician Exam. Minimum grade of C required,

III. Statement of Course Need

A. This is a required course for the Ophthalmic Science (Opticianry) AAS degree and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.
B. This is a required lab course.
C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

A. Free elective
B. This course meets a program requirement for the Ophthalmic Science- AAS degree, Ophthalmic Certificate Apprenticeship Option.
C. This course is not designed for transfer. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

A. Diopter system, focal length, lens characteristics, lens form, abbreviations, refractive errors, optical surfaces, convex and concave lenses.
B. MBS, centration, blocking, edging, optical cross, lens graphs, transposition, vertometer readings.
C. Boxing system, horizontal and vertical decentration, patterns, lensometer practice.
D. Blocking techniques, pattern fabrication, edging, set minus calculations, edger settings, bevel placement.
E. Deblocking, hand edging, safety beveling, lens insertion, bench alignment, lensometer.
F. Lens clock, caliper, laboratory practice and project fabrication.
G. Kirk hardening unit, chemical tempering, F.D.A. drop-ball test, New Jersey minimum standards and tolerances, base curves, project fabrication.
H. Markup and verification of vertical prism, industrial safety glasses, project fabrication.

VI. A. Course Learning Outcomes:

At the completion of the course, the student will be able to:

1. Demonstrate understanding of the ophthalmic laboratory setting and all of its components in order to learn the fabrication process.
2. Explain the complexity of correcting human vision.
3. Demonstrate the knowledge and skills required to accurately fabricate single vision prescriptions according to industry standards.
4. Demonstrate the knowledge and skills to operate the instrumentation of the profession.
5. Utilize different types of optical equipment which is widely used in the profession.
6. Demonstrate an introductory foundation in lensometry skills according to the standards set by the NJ State Board of Ophthalmic Dispensers.

7. Describe an understanding of ethics and minimum standards and tolerances according to the NJ Statutes.
8. Explain the lens tempering processes.
9. Perform proper frame bench alignment and prescription verification according to the NJ minimum standards and tolerances.
10. Demonstrate and explain proper safety procedures utilized in an Ophthalmic Lab as outlined in the Ophthalmic Safety manual.
11. Explain state and federal OSHA requirements.

B. <u>Assessment Instruments</u>

1. laboratory projects
2. exams/quizzes

VII. Grade Determinants

A. laboratory projects
B. exams/quizzes

Given the goals and outcomes described above, LIST the primary formats, modes, and methods for teaching and learning that may be used in the course:

A. lecture/discussion
B. small group work
C. laboratory work

VIII. Texts and Materials

A. Brooks, Clifford. <u>Essentials of Ophthalmic Lens Finishing</u>. Stoneham, MA: Butterworth-Heineman, 2003, 2nd Ed.
B. Department literature

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

A. Ophthalmic laboratory facilities
B. Lenses and ophthalmic frames.

X. Check One: ☐Honors Course ☒ N/A