RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

OPTH 100 OPHTHALMIC MATERIALS I - LECTURE

I. Basic Course Information

A. Course Number and Title: OPTH 100 Ophthalmic Materials I – Lecture

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**:** 3 Lecture**:** 3
Laboratory**:** 0
Out of class student work per week: 6

H. ☐ Prerequisite (s):

☒ Corequisite (s): OPTH105 Ophthalmic Materials I Lab

I. Additional Fees**:** No

II. Catalog Description

Co-requisite: OPTH105 Ophthalmic Materials I Lab

An introduction to the basic principles of ophthalmic lenses. Topics include a history of development, definition of terminology, the geometry of lens designs, physical characteristics of lens materials, optical characteristics, and mathematical formulas used in lens computation. 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 course has no lab component.
C. Please describe the transferability of this course:
    a. 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 (Opticianry) AAS degree and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.
C. This course is not designed for transfer. To see course transferability: a) 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. Historical review, manufacturing process, light theory and conventions.
B. Electromagnetic spectrum, ultraviolet spectrum, refraction.
C. Index of refraction, speed of light, Snell's law.
D. Dioptric System, metric system review, focal length.
E. Lens Characteristics, history of lens form, radius of curvature.
F. Cylindrical surfaces, types of cylinder power, optical cross, lens graphs.
G. Trade names, axis, refractive errors, Rx, astigmatism, classifications of astigmatism, interval of Sturm, review lens parameters.
H. Nominal power of lenses, transposition, spherical equivalent, crossed cylinders.
I. True power, marked power, back vertex thickness formula, lens clock, lensometer.
J. Cylinder power at oblique axes, percentage rules, review lens parameter effect on Rx.
K. Prism definition, components and effect on light, thickness difference prism vs. decentration.
L. Prism component of lenses, prism measurement system, displacement, Prentice's rule, creating prism, prismatic development through errors, base direction, decentration problems.

VI. A. Course Learning Outcomes:

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

1. Demonstrate an ability to communicate using the language of opticianry.
2. Apply knowledge of ophthalmic prescriptions for the correction of human vision.
3. Demonstrate a historical perspective on the materials used for corrective eyewear.
4. Describe the electromagnetic spectrum and the impact on human vision.
5. Explain the characteristics of ophthalmic lenses and these apply to the ophthalmic prescription.

6. Identify human refractive errors and how ophthalmic lenses correct these errors.
7. Explain the Diopter System and its application to ophthalmic lenses.
8. Describe the components of lens power and the effects of lens power on the prescription.
9. Explain prismatic power and its relationship to ophthalmic lenses and the patient's pathology.

B. <u>Assessment Instruments</u>

1. Tests
2. Quizzes

VII. Grade Determinants

A. tests
B. 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

VIII. Texts and Materials

LIST which of the following types of course materials will be used. Specify title and publication information about textbooks and any other major text sources or other materials.

A. Lecture Videos
B. Scripts of Lecture Videos
C. Other videos

(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. RVCC Library
B. Canvas Course

X. Check One: ☐Honors Course ☒ N/A