RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

OPTH-101 OPHTHALMIC MATERIALS II - LECTURE

I. Basic Course Information

A. Course Number and Title: OPTH-101 Ophthalmic Materials II – 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): grade of C or higher in OPTH-100 Ophthalmic Materials I Lecture and OPTH 105 Ophthalmic Materials I Lab
☒ Corequisite (s): OPTH-106 Ophthalmic Materials II Lab

I. Additional Fees**:** No

II. Catalog Description

Prerequisite (s): grade of C or higher in OPTH-100 Ophthalmic Materials I Lecture and OPTH 105 Ophthalmic Materials I Lab
Corequisite (s): OPTH-106 Ophthalmic Materials II Lab

This course builds upon the basic principles of prerequisite courses needed to understand ophthalmic lens development. Topics include prism, gross anatomy and physiology of the eye, history and function of bifocals and trifocals, bicentric grinding, vertex distance compensation, sagitta, surfacing, and mathematical formulas used in lens computation. The course terminates in a complete study of ophthalmic lens design.

If the student is registered with the State Board as an apprentice, Ophthalmic Materials II 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 is a required course 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. Assessment quiz, review prism calculations, review lens power at oblique axes problems.
B. Gross anatomy and physiology of the eye, refractive errors, astigmatisms, aniseikonia.
C. Extrinsic musculature, bifocal history, bifocal terminology, optical function of bifocals, bifocal classifications.
D. Bifocal styles and availability, bifocal image jump, vertical imbalance theory.
E. Vertical imbalance correction, two pairs of spectacles, prism in bifocal segments, and dissimilar segments. .
F. Bicentric grinding, calculations, method of correction, verification technique.
G. Trifocal history, terminology, classifications, trifocal styles and availability.
H. Occupational history, terminology, classifications, trifocal styles and availability.
I. Vertex distance parameters and calculations, resultant prism, splitting prismatic prescription parameters.
J. Surfacing procedure and parameters.
K. Sagitta of a curve, sagitta of a lens, center and edge thickness calculations and applications.
L. Thickness difference prism, absorptive lenses, availabilities, functions, and applications.

VI. A. Course Learning Outcomes:

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

1. Analyze human vision and its abnormalities.
2. Describe lens options available in order to correct human vision.
3. Explain the basics of human eye structure and physiology according to the power point presentation provided in class.
4. Identify the physiological causes of human refractive errors.
5. Demonstrate knowledge of bifocal history, design, function and application.
6. Interpret and correct vertical imbalances according to industry standards.
7. Demonstrate knowledge of trifocal history, design, function and application.
8. Differentiate between types and uses of occupational/vocational lens designs and how it applies to the patient's needs.
9. Interpret and correct vertex distance compensations according to the standards presented in lecture.
10. Demonstrate knowledge of surfacing procedures.
11. Calculate and apply sagitta to determine lens thickness.
12. Explain the use and application of ophthalmic absorptive lenses.

B. <u>Assessment Instruments</u>

1. examinations
2. quizzes

VII. Grade Determinants

A. written examinations
B. written 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

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