

**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: Spring Year: 2017

D. **Effective Term: Fall 2017**

E. Sponsoring Department: Health Science Education

F. Semester Credit Hours: 3

G. Weekly Contact Hours: Lecture: 3

Out of class student work per week: 6

H. Prerequisites/Corequisites: OPTH-100 Ophthalmic Materials I Lecture

I. Laboratory Fees: None

J. Name and Telephone Number or E-Mail Address of Department Chair at time of approval: Beryl Stetson: 908-526-1200 ext 8877

II. Catalog Description

Prerequisites/Corequisites: OPTH-100 Ophthalmic Materials I Lecture

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.

III. Statement of Course Need:

- A. This is a required course for the Ophthalmic Science- AAS degree, Ophthalmic Laboratory Technician, Certificate of Completion-Apprentice Option, and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.
- B. There is no lab component.
- C. 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- AAS degree, Ophthalmic Laboratory Technician, Certificate of Completion-Apprentice Option, and Ophthalmic Science (Opticianry) Certificate-Apprenticeship Option.

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, astigmatism, 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, Fresnel press-on prisms, and dissimilar segments.
- F. Dissimilar segments, r-compensated segments.
- G. Bicentric grinding, calculations, method of correction, verification technique.
- H. Trifocal history, terminology, classifications, trifocal styles and availability.
- I. Occupational history, terminology, classifications, trifocal styles and availability.
- J. Vertex distance parameters and calculations, resultant prism, splitting prismatic prescription parameters.
- K. Surfacing procedure and parameters.

L. Sagitta of a curve, sagitta of a lens, center and edge thickness calculations and applications.

M. Thickness difference prism, absorptive lenses, availabilities, functions, and applications.

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

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

1. Students will analyze the complexity of human vision and its abnormalities (GE-NJ 1, 2).
2. Students will describe the myriad of lens options available in order to correct human vision (GE-NJ 1, 3).

B. Course Learning Outcomes:

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

1. Explain the basics of human eye structure and physiology according to the powerpoint presentation provided in class.
2. Identify and appreciate the physiological causes of human refractive errors.
3. Demonstrate knowledge of bifocal history, design, function and application.
4. Interpret and correct vertical imbalances according to the standards discussed in lecture.
5. Demonstrate knowledge of trifocal history, design, function and application.
6. Describe the concept and application of occupational/vocational lens designs and how it applies to the patient's needs.
7. Interpret and correct vertex distance compensations according to the standards presented in lecture.
8. Demonstrate a thorough understanding and appreciation for the surfacing procedure as presented in the workbook and on video.
9. Calculate and apply sagitta and prism values according to the formula presented in the workbook.

10. Explain the use and application of ophthalmic absorptive lenses.
11. Demonstrate a firm foundation in the study of Ophthalmic Optics in order to facilitate more advanced study.

C. Assessment Instruments

1. examinations
2. quizzes

VII. Grade Determinants

1. written examinations
2. written quizzes
3. essays
4. opinion writing assignments

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. Text: Ophthalmic Materials I & II Workbook and Studyguide (In-house publication)
- B. Powerpoint presentation
- C. Video

(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. Computer
- B. Projection equipment