**ESSEX COUNTY COLLEGE**

**Nursing and Allied Health Division**

**OPH 127 *–* Ophthalmic Materials II**

**Course Outline**

**Course Number & Name:**  OPH 127 Ophthalmic Materials II

**Credit Hours:**  3.0 **Contact Hours:**  3.0 **Lecture:** 3.0 **Lab:**  N/A **Other:**  N/A

**Prerequisites**:  Grade of “C” or better in OPH 126

**Co-requisites:** None **Concurrent Courses:** OPH 124

**Course Outline Revision Date:** Fall 2010

**Course Description:** This course is a continuation of Ophthalmic Materials I. it includes calculations and formulae to compute marked and true power, lens thickness, and the relation of center to edge thickness. Performance of higher power lens and the importance of lens position will be considered, as well as the function of bifocals and multifocal lenses along with the proper management of their related optical effects. Lectures will include optical standards, tolerance, and an introduction to absorptive lenses with their applications.

**Course Goals:** Upon successful completion of this course, students should be able to do the following:

1. identify and describe use of the different types of lens; and
2. describe and perform ophthalmic calculations.

**Measurable Course Performance Objectives (MPOs)**: Upon successful completion of this course, students should specifically be able to do the following:

1. Identify and describe use of the different types of lens:

1.1 *discuss a brief history of spectacles and the manufacture of glass and plastic lenses*;

1.2 *explain lens surfacing, bifocals and different methods of manufacture;*

1.3 *choose base curve selection in both SV and bifocal lenses;*

1.4 *explain the characteristics of image jump and its effects on different prescriptions;* and

1.5 *discuss bifocals and the effect of prism on binocular vision*

1. Describe and perform ophthalmic calculations:

2.1 *describe the center to edge thickness relationship and Sag formulae and their use in both spherical and cylindrical lenses;*

2.2 *calculate prism, splitting prism, compound prism and object displacement in bifocal lenses;*

2.3 *define and equate lenses used to correct vision errors;*

2.4 *describe spherical equivalent and its use;*

2.5 *demonstrate crossed cylinders and their calculation into sphero-cylindrical form;* and

2.6 *explain effective power due to thickness and position*

**Methods of Instruction**: Instruction will consist of lectures, demonstrations, guest speakers, and audio-visual aids.

**Outcomes Assessment:** Test and exam questions are blueprinted to course objectives. Data is collected and analyzed to determine the level of student performance on these assessment instruments in regards to meeting course objectives. The results of this data analysis are used to guide necessary pedagogical and/or curricular revisions.

**Course Requirements:** All students are required to:

1. Maintain regular attendance.
2. Complete assigned homework on time.
3. Take part in class discussions.
4. Take all tests, and exams given.

**Methods of Evaluation:** Final course grades will be computed as follows:

**% of**

**Grading Components final course grade**

* 3 or more Written Tests (dates specified by the instructor) 75%

Tests will show evidence of the extent to which students meet course objectives, including but not limited to identifying and applying concepts, analyzing and solving problems, and stating appropriate conclusions using correct terminology.

* **1 Written Final Exam** **25%**

The same objectives apply as with tests, but it is anticipated that students will provide increased evidence of synthesizing a combination of concepts.

Note: Students must obtain an overall average of at least 70% to pass the course.

**Academic Integrity:** Dishonesty disrupts the search for truth that is inherent in the learning process and so devalues the purpose and the mission of the College.  Academic dishonesty includes, but is not limited to, the following:

* plagiarism – the failure to acknowledge another writer’s words or ideas or to give proper credit to sources of information; could result in a
* cheating – knowingly obtaining or giving unauthorized information on any test/exam or any other academic assignment;
* interference – any interruption of the academic process that prevents others from the proper engagement in learning or teaching; and
* fraud – any act or instance of willful deceit or trickery.

Violations of academic integrity will be dealt with by imposing appropriate sanctions.  Sanctions for acts of academic dishonesty could include the resubmission of an assignment, failure of the test/exam, failure in the course, probation, suspension from the College, and even expulsion from the College.

**Student Code of Conduct:** All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time all class meetings. No cell phones or similar electronic devices are permitted in class. Please refer to the Essex County College student handbook, *Lifeline*, for more specific information about the College’s Code of Conduct and attendance requirements.

**Course Content Outline:** based on the text **Systems for Ophthalmic Dispensing**, 3rd edition, by Brooks and Borish; published by Butterworth and Heinemann; IBSN #: 13 978-0-7506-7480-5

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| **Week** | **Class Topics** | **Assignments** |
| 1 | Review materials  Discussion of frame types and materials | Read ch 1 in text & handouts  Homework problems |
| 2 | True and marked powers, center and edge thickness relationship | Read ch 16 in text & handouts  Homework problems |
| 3 | Sagitta | Read ch 16 in text & handouts (continued)  Homework problems |
| 4 | Cross cylinders to prescription and vice versa, spherical equivalents | Homework problems |
| 5 | **Test 1**  Bifocal types and materials & dimensions | Read ch 19 in text & handouts  Homework problems |
| 6 | Image jump, prentice’s rule and law, begin object displacement | Read ch 19 in text & handouts (continued)  Homework problems |
| 7 | Object displacement (continued) | Read ch 19 in text & handouts (continued)  Homework problems |
| 8 | Vertical imbalance and slab off | Read ch 20 in text & handouts (continued)  Homework problems |
| 9 | **Test 2** |  |
| 10 | Edge thickness difference, start resultant prism | Read ch 18 in text & handouts  Homework problems |
| 11 | Resultant prism vertex, distance effective prescription | Read ch 17 in text & handouts  Homework problems |
| 12 | Vertex distance compensated prescription | Read ch 17 in text & handouts (continued)  Homework problems |
| 13 | **Test 3** |  |
| 14 | Lens manufacturers & trade names, effective powers for thickness | Read ch 17 in text & handouts (continued)  Homework problems |
| 15 | **Final Exam** |  |