VCT2311 – Ophthalmic Materials III (1 hr per week)
Course Outline and Reading Assignment

Text: Optical Formulas Tutorial 2\textsuperscript{nd} edition by Stoner, Perkins and Ferguson
Systems for Ophthalmic Dispensing, 3\textsuperscript{rd} edition, by Brooks and Borish
Essentials of Ophthalmic Lens Finishing, 2\textsuperscript{nd} edition, by Brooks

Week 1 – Course introduction, distribution of reading assignment, grading and college policies.

Grading: Two class examinations = 40\% of final grade
Review questions/assignments = 10\% of final grade
Final examination = 20\% of final grade.
Laboratory = 30\% of final grade (70\% final grade required in lab)

\textit{Makeup examinations will be given with a documented excuse or at the discretion of the instructor.}

Attendance and Lateness Policy: Standard college policy (Please refer to college catalog for further details.)

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Class Meets & Allowable Absence \\
1 time/week & 2 classes \\
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Class Meets & Allowable Lateness \\
1 time/week & 4 classes \\
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Office Hours for all full-time and part-time faculty are posted on the department bulletin board in front of P-312

\textbf{New York City College of Technology Policy on Academic Integrity}

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, and expulsion. The complete text of the College policy on Academic Integrity may be found in the catalog.
Characteristics of Ophthalmic Lens Materials and Properties (Specific Gravity, Abbe Number, Index of Refraction)

Reading Assignment: Optical Formulas, Index of Refraction, pg. 27, Abbe Value, pg. 36
System for Ophthalmic Dispensing, 3rd edition, pg. 569

Week 2 – Topic:  Ophthalmic Frame Parts and Frame Styles, Screw Types, Nosepad Replacement and Basic Frame Repairs

Reading Assignment: Chapter 1, Chapter 10 – Frame Repairs, System for Ophthalmic Dispensing, 3rd edition,

Week 3 – 4 – Topic: Rimless Frames, Parts, Styles and Fabrication


Week 5 – Topic: A Guide to Frame Materials

Reading Assignment: Chapter 1 – System for Ophthalmic Dispensing, 3rd edition, pgs. 9-15, Lens Insertion of Frame Materials, pg. 121.

Week 6 – Topic: Test I

Week 7-8 - Lens Coatings and Tinting and Edge Treatments


Week 9 – Topic: Introduction to Governing Bodies related to the Optical Profession (FDA, OSHA, FTC, EPA, ANSI) Impact Resistance, Drop Ball Test, Heat Treating And Chemical Treating


Week 11 – Test II

Week 12 – Topic: Marked vs. True Power

Reading Assignment: Optical Formulas, pg. 148-149.

Week 13 -14 – Topic: Progressive Lenses and Aspheric Lenses, Advanced Surfacing Technology (Digital and Freeform surfacing), Ophthalmic Lens And Resources

Reading Assignment: Department Handouts and Trade Magazine articles

Week 15 – Final Examination
Week 1  Course introduction, distribution of reading assignment, grading and college policies, Distribution of Department Safety Document

Grading: Laboratory = 30% of final grade (70% final grade required in lab)

*Makeup examinations will be given with a documented excuse or at the discretion of the instructor.*

Attendance and Lateness Policy: Standard college policy (Please refer to college catalog for further details.)

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**Topic: Introduction to VCT2311L laboratory:**

Students will be given a copy of the department’s laboratory safety handout and will be required to sign the safety handout form.

- Safety requirements, lab coat requirements with department arm patch, safety eyeglasses, student name tag requirements
- Location and importance of MSDS sheets and OSHA requirements for edger waste removal
- Location of First Aid kit, eyewash station and use, demonstration of red shut off switches, Security phone number
- Students will receive a copy of the department’s laboratory safety handout procedures Fire exits and emergency evacuation procedures
- Laboratory work procedure including seating assignments and job trays

**Topic: Processing a finished single vision lens prescription in a metal frame with high minus lenses using Hide-a-Bevel**

- Review laboratory layout and edging procedures including completing laboratory job ticket
- Review laboratory grading procedures in relation to ANSI Z80.1 standards. In addition, students will be made aware of the ANSI Z80.1 standards as it relates to unwanted horizontal or vertical prism tolerances in finished fabricated eyeglasses.
- Layout and edge single vision lens prescription in metal frame based on pupillary measurements, frame measurements and decentration.
- Complete job ticket based on instructor’s specifications
- Introduction to new equipment and patternless edger
- Instructor will evaluate lens job for prescription verification, PD accuracy, standard bench alignment, bevel and safety bevel accuracy design

**Week 2 – Topic: Common frame repairs including replacing screws, temple modification, nose pad replacement, metal frame repair, screw extractions and broken screws**

- Review extent of frame repair decision (replacement or new)
- Temple modification
- Overview of screw sizes, replacements, hinges, barrel size
- Overview of various nose pair replacements types
- Extracting a broken screw from a metal or plastic frame
- Review of replacement and parts catalogs (Hilco, Western Optical, Sadler catalogs)

Reading Assignment: System for Ophthalmic Dispensing, 3rd edition, Chapter 10 – Frame Repairs
Week 3 - 5 – Topic: Processing single vision lenses into a Nylon cord mounting

- Layout and edge single vision lens prescription into Nylon cord mounting based on pupillary measurements, frame measurements and decentration.
- Complete job ticket based on instructor’s specifications
- Introduction to lens grooving and mounting methods
- Introduction to new equipment and patternless edger
- Nylon cord replacement and repair
- Instructor will evaluate lens job for prescription verification, PD accuracy, standard bench alignment, bevel and safety bevel accuracy design


Week 6 - Topic: Lens Tinting

- Students will be given sample prescriptions that will require tinting both plus and minus lenses
- Students will be asked to tint various lens materials into various projects throughout the remainder of the semester
- Students will be evaluated on their assessment of tinting single vision lenses in various rimless projects throughout the semester
- Review of Environmental concerns as it relates to OSHA standards

Reading Assignment: Chapter 22, System for Ophthalmic Dispensing, 3rd edition, Lens Coatings, pg. 539, Tinting Plastic Lenses, pg. 538
Chapter 11 – Lens Tinting, Essentials of Ophthalmic Lens Finishing, 2nd edition

Week 7-12 – Topic: Processing single vision lens prescriptions in Drilled, Notched and Slotted Frame Mountings

- Layout and edge single vision lens prescription into drilled, notched and slotted mountings based on pupillary measurements, frame measurements and decentration.
- Complete job ticket based on instructor’s specifications
- Introduction to lens drilling and mounting methods. Use of Hand drill, Smart drill will be demonstrated
- Introduction to new equipment and patternless edger
- Introduction to tools necessary to fabricate and finish drilled mountings including: reamer, chamfer, various files, cone tool for smoothing drilled holes
Instructor will evaluate lens job for prescription verification, PD accuracy, standard bench alignment, bevel and safety bevel accuracy design as outlined in the ANSI standards

Reading Assignment: Chapter 13 – Drilled, Slotted and Notched Mountings, Essentials of Ophthalmic Lens Finishing, 2nd edition

**Week 13 - 14 – Topic: Neutralization and Layout of Progressive lenses**

- Students will be introduced to lens identification, layout and neutralization of various progressive lenses
- Students will be introduced to various progressive lens designs and the various parts of the progressive lens template that will include: Fitting mark, distance power location, prism mark, horizontal reference guide, reading power location, trade mark identifier and reading add identifier mark
- Students will be introduced to the PAL Identifier
- Students will be introduced to “The Progressive Identifier” that is a resource for identifying the various types of progressive lens designs
- Students will be introduced to the website: “The Lens Guru.com” that is a website resource for identifying the various type of progressive lens designs
- Students will be evaluated on their assessment to verify the type of progressive lens and neutralize a pair of eyeglasses with progressive lenses. Students will be expected to identify the type of progressive, manufacturer, reading add and neutralize the distance prescription


**Week 15 – Final Practical Exam**

- Final Lab Practical - Students will be required to neutralize three pair of finished eyeglasses with progressive lenses. In the progressive lens neutralization, the student will be expected to identify the progressive lens type, manufacturer, neutralize the distance and near prescription.
- Students will be evaluated on their assessment to verify the type of progressive lens and neutralize a pair of eyeglasses with progressive lenses. Students will be expected to identify the type of progressive, manufacturer, reading add and neutralize the distance prescription
- The final grade will be determined by laboratory assignments and the final practical examination. A minimum of 70% is required in the laboratory to pass the course.