

*NC State Board of Opticians*

**Apprenticeship Program**

<b>RECOMMENDED TRAINING TOPICS &amp; TASKS</b>									
<b>Six – Month Timelines</b>									
<b>1<sup>st</sup> 6 Months</b>	Orientation 20 Hours	Assembly 218 Hours	Repair 243 Hours	Fitting 394 Hours			Maintenance 115 Hours	Record Keeping 50 Hours	
<b>2<sup>nd</sup> 6 Months</b>	Orientation 12 Hours	Assembly 221 Hours	Repair 246 Hours	Fitting 396 Hours			Maintenance 115 Hours	Record Keeping 50 Hours	
<b>3<sup>rd</sup> 6 Months</b>	Orientation 12 Hours	Assembly 88 Hours	Repair 113 Hours	Fitting 262 Hours	Lens Grinding 400 Hours		Maintenance 115 Hours	Record Keeping 50 Hours	
<b>4<sup>th</sup> 6 Months</b>	Orientation 12 Hours	Assembly 88 Hours	Repair 113 Hours	Fitting 262 Hours	Lens Grinding 400 Hours		Maintenance 115 Hours	Record Keeping 50 Hours	
<b>5<sup>th</sup> 6 Months</b>	Orientation 12 Hours		Repair 53 Hours	Fitting 210 Hours		Contacts 600 Hours	Maintenance 115 Hours	Record Keeping 50 Hours	
<b>6<sup>th</sup> 6 Months</b>	Orientation 12 Hours		Repair 53 Hours	Fitting 210 Hours		Contacts 600 Hours	Maintenance 115 Hours	Record Keeping 50 Hours	
<b>7<sup>th</sup> 6 Months</b>		Assembly 280 Hours	Repair 239 Hours	Fitting 361 Hours			Maintenance 110 Hours	Record Keeping 50 Hours	
<b>Total Hours Each Process</b>	<b>80</b>	<b>895</b>	<b>1060</b>	<b>2095</b>	<b>800</b>	<b>1200</b>	<b>800</b>	<b>350</b>	

**This recommended breakdown of training tasks/hours should insure that adequate training is received in all areas of expected competency. Multitasking and the day-to-day activities in an optical shop should/will provide opportunities for these tasks!**

**OPTICAL APPRENTICE (C45520) PROGRAM**  
**Durham Technical Community College**

**PLAN OF STUDY**

(Revised & effective summer semester 2006)

<b>Course</b>	<b>Title</b>	<b>Class</b>	<b>Lab</b>	<b>Credit Hours</b>
OPH 101	Math for Opticians*	3	0	3
OPH 131	Optical Dispensing I	3	0	3
OPH 141	Optical Theory I	3	0	3
OPH 121	Anatomy & Physiology-Eye	3	0	3
OPH 102	Ophthalmic Lab Concepts	2	0	2
OPH 260	Basic Contact Lens Concepts	3	0	3

**TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE** **17**

\* EFL 062, EFL 063, ENG 070, ENG 080, ENG 090, ENG 090A, MAT 050, MAT 060, MAT 070, RED 070, RED 080, or RED 090 may be required, based on placement test results.

Notes:

- Any prerequisite course requirements must be met.
- Deviations from the standard curriculum must be discussed and receive advance-approved from DTCC.
- If accepted students do not enroll for three successive semesters, they must contact the Admissions office to determine if readmission is necessary.
- It is the responsibility of the student to meet requirements for graduation; the student must successfully complete all the required courses, the required credit hours for electives, and have a 2.0 overall grade point average.
- Veterans' Administration Students: An approval signature from the VA office is required before registering. Some courses may not be certifiable.

**Cost of DTCC Optical Certificate Program:**

\$66.50 per credit hour plus textbook costs (prices subject to change)

**For enrollment requirements and dates, please visit [www.durhamtech.edu/](http://www.durhamtech.edu/) or contact:**

Michael Szczerbiak,  
Program Director  
919-536-7233, x 8134  
[szczerbiakm@durhamtech.edu](mailto:szczerbiakm@durhamtech.edu)

Barry Dark,  
Clinical Coordinator  
919-536-7233, x 8106  
[darkb@durhamtech.edu](mailto:darkb@durhamtech.edu)

**Durham Technical Community College**  
**1637 Lawson Street, Durham, NC 27703 · 919-536-7200**



# NATIONAL ACADEMY OF OPTICIANRY

**DEDICATED TO EDUCATION AND TRAINING**

8401 Corporate Dr #605, Landover, MD 20785 • 301/577-4828 • 800/229-4828 • Fax 301/577-3880 • Website: [www.nao.org](http://www.nao.org) • E-Mail [info@nao.org](mailto:info@nao.org)

## **The National Academy of Opticianry's Ophthalmic Career Progression Program (OCP)**

The Ophthalmic Career Progression Program consists of three study volumes and end of volume tests followed by a cumulative Final Examination. The chapters are a comprehensive study of the background material and knowledge necessary for an individual to perform competently as an ophthalmic dispenser and to help prepare the ophthalmic dispenser for the National Opticianry Competency Examination administered by the American Board of Opticianry (ABO) and examinations for state licensure.

This home study program allows the participant the flexibility to progress at his/her own rate and eliminates the time and costs associated with traditional learning institutions.

### **Why should you participate in the Ophthalmic Career Progression Program? What can it do for you?**

The Ophthalmic Career Progression Program (OCP) was the first contemporary, home study program designed to provide a thorough theoretical education in opticianry for those already working in the optical field.

While on-the-job training provides the practical knowledge to be an optician, it does not always supply the theoretical knowledge needed to become a fully qualified professional in the field. That is where the Ophthalmic Career Progression Program comes in.

The value of the Ophthalmic Career Progression Program has been recognized nationwide:

- \* as preparation for national certification and state licensure examinations;
- \* as a substantive reference by The National Apprenticeship and Training Standards Committee for Ophthalmic Dispensing Opticians;
- \* as the core for several state opticianry apprenticeship programs; and
- \* as a primary training tool for opticians in many parts of the world, including Canada, the Caribbean, and the Middle East.

### **Objectives**

The Ophthalmic Career Progression Program has two (2) primary objectives:

- \* to increase the competency level of ophthalmic dispensers by providing educational opportunities for dispensers who are not attending formal academic programs; and
- \* to improve eyecare through increased knowledge, skill, and competency procedures.

### **Entrance & Completion Requirements**

All applicants **MUST** (no exceptions will be made):

1. Be a high school graduate, or in possession of a GED or foreign equivalent.
2. Be currently employed in an optical position.
3. Have a qualified sponsor.

## Sponsor Qualifications

Each OCPP student must be monitored by a sponsor. The sponsor will help answer questions regarding program material that the student may not understand, administer the end of volume examinations, and assess his/her students' clinical competency. A potential sponsor must have the following qualifications:

1. He/She must be a licensed and practicing optician/optometrist/ophthalmologist in the state from which the student is applying for entrance into the program.
2. The sponsor must work or have daily interaction with his/her student in order to assess the student's clinical competency.

## Time Frame

Although no minimum time limit is set, the general minimum time to successfully complete the course is 9-12 months. A student must complete the program within 36 months.

## Credit

The OCPP curriculum contains much of the same subject matter offered by ophthalmic dispensing school programs, therefore students may be able to receive college credits from some ophthalmic dispensing programs. (Any such credit must be by independent arrangement between the student and the college.) Upon successfully completing the Ophthalmic Career Progression Program, the American Board of Opticianry will grant credit towards its continuing education requirements. Some state licensing boards also grant credit for the OCPP. Students should contact their respective state licensing boards to determine if this type of credit is granted.

## Program Costs

The cost of the Ophthalmic Career Progression Program consists of two tuition payment options: If paid in full at the time of enrollment, the cost of the program is \$800. If paying monthly with an automatic credit card deduction, a \$300 down payment is required, and a monthly payment of \$50 will be deducted from the credit card for 12 months. The total cost of the program is then \$900.

## Leave of Absence

Extensions of the 36-month program completion period may be granted at the written request of the student. In order to grant this extension, the Academy must be informed of the reason for the request, the amount of time required, and the estimated rate of progress. This request should be approved by the student's sponsor.

The Academy's policy states that as long as a student maintains reasonable contact with the Academy and shows a steady rate of progress, he/she will be considered an "active" student in good standing.

## Tuition Assistance

The Academy does not offer any scholarships and is not approved for government grants or loans. However, a payment plan is available.

**If you have any questions or would like to download the enrollment agreement, go to our website at [www.nao.org](http://www.nao.org), or call the office at (800) 229-4828.**

### VOLUME ONE:

Introduction, How to Study, History  
Basic Optic Principles  
Ophthalmic Terminology  
Anatomy and Physiology of the Eye  
Optical Math Review

### VOLUME TWO:

Ophthalmic Frames  
Ophthalmic Instrumentation  
Lens Ordering Considerations  
Final Inspection – Quality Control

### VOLUME THREE:

Dispensing Procedures  
Presbyopia  
Low Vision Correction  
Understanding Today's Anti-Reflective Lenses  
Special Vision Problems

# NC State Board of Opticians

## Proficiency Standards for a NC-Licensed Optician

(and necessary for preparation/successful completion of the  
NC Board of Opticians Licensure Examination)

An individual who has completed training and/or formal education in opticianry should be able to demonstrate proficiency (a comprehensive “working knowledge”) in the subjects listed below. (*Note: these subject areas may be included in more than one component of the Licensure Exam.*)

- I. Ophthalmic lens surface grinding
- II. Prescription interpretation
- III. Practical Anatomy of the eye
- IV. Theory of light
- V. Edge grinding and tempering ophthalmic lenses
- VI. Ophthalmic Lenses
- VII. Measurements of the face
- VIII. Benchwork, fitting, realignment of frames to face, final quality inspection of eyewear
- IX. Contact Lenses

### **I. Ophthalmic Lens Surface grinding**

The applicant must demonstrate a workable knowledge of all phases of an ophthalmic surfacing laboratory by:

- A. making proper lens/blank selection
- B. determining layout, thickness, prism compensation, blocking techniques, etc
- C. fining/polishing techniques
- D. inspecting lenses for blemishes, readiness for edging process, etc.

### **II. Prescription Interpretation**

The applicant shall:

- A. understand the theory and application of lens forms; single vision, bifocals, trifocals, variable focus, low vision aids and segment compensation in anisometropia, i.e. Compensated bifocal segments, prism control, bicentric or slab off
- B. demonstrate a workable knowledge of basic frame materials and their properties
- C. demonstrate a knowledge of all frame types: saddle, keyhole, rimless mounting, combination, metal tension mount, rim mount including sub-normal visual aids
- D. have a workable vocabulary of ophthalmic terminology
- E. be able to perform and compute the following values:
  - 1. Positional effective power
  - 2. Back vertex power
  - 3. Prismatic calculations:
    - a. prism for decentration
    - b. image jump
    - c. thickness difference
    - d. prism away from optical center
  - 4. Lens/edge, center/thickness
  - 5. Flat transposition
  - 6. Toric transposition
  - 7. Cylindrical power in oblique meridians
  - 8. Incorporation of “adds” and “distant” prescriptions to create reading prescriptions
  - 9. Bicentric treatment of anisometropia.

### III. Practical Anatomy of the Eye

The applicant shall demonstrate a practical knowledge of the basic anatomy of the eye and its relation to the process of sight.

### IV. Theory of Light

The applicant shall demonstrate a knowledge of the theory of light and its laws with application to ophthalmic lens prescriptions.

- A. Reflections and Refractions
- B. Aberrations
  - 1. spherical
  - 2. chromatic
  - 3. marginal or oblique
  - 4. curvature of field
  - 5. distortion
- C. Spectacle magnification
- D. Effects of pantoscopic tilt upon eyeglass prescriptions.

### V. Edge Grinding and Tempering Ophthalmic Lenses

The applicant shall be able to:

- A. neutralize all ophthalmic lenses in the focimeter and record in proper prescription form
- B. perform computation of centration
- C. perform computation of lens size required to obtain desired decentration
- D. perform computation of size to edge grind
- E. use the "boxing method\*" of frame and lens measurement
- F. establish datum line with reference to cylinder axis
- G. establish segment placement for inset, height and total reading inset
- H. apply prism calculation when prescribed by a doctor
- I. determine the effective diameter of frame for edging purposes
- J. block up and process lens for edge grinding.
  - 1. The applicant shall be able to block a lens using the following methods:
    - a. Alloy blocking with sprayed surface
    - b. Suction blocking
    - c. Pressure blocking
    - d. Adhesive blocking.
  - 2. The applicant shall be capable of evaluating, truing and resizing of edger.
  - 3. The applicant shall be able to maintain the edging equipment i.e. lubricate machine and cleaning of unit and care of recycle apparatus.
- K. determine the edge design - hideabevel, bevel centering, forward center, rimless design
- L. inspect lenses for chips, uniformity, shape, axis, slippage, scratches and fractures, water marks, flakes and waves
- M. successfully temper lenses.
  - 1. The applicant will need to perform the following tasks when heat treating a lens:
    - a. accurately measure the lens according to manufacturer's recommendations
    - b. set the correct temperature for heat treating unit
    - c. inspect heat treated lens for scratched lens or other defects such as clamp warpage
    - d. drop ball test the lens according to Food and Drug Administration regulations
    - e. final inspection of lenses and recording of procedure.
  - 2. The applicant will need to perform the following tasks when chemically hardening a lens:
    - a. completely clean lens
    - b. set temperature of chemical
    - c. record time of immersion
    - d. removal and clean up of lenses
    - e. drop ball test according to Food and Drug Administration regulations
    - f. final inspection of lens and recording of procedure.

---

\*On January 1, 1962, the Optical Manufacturers Association adopted frame and lens measurements.

## VI. Ophthalmic Lenses

The applicant shall be able to:

- A. identify lens forms including single vision, bifocals, trifocals, variable focus and low vision aids
- B. identify lens materials, i.e. hard resin, polycarbonate, trivex, high index plastic, or glass
- C. identify absorption lenses, their purposes, individual characteristics and practical usage, as well as cosmetic tints, polarizing lenses and photochromatic lenses and lens coatings.

## VII. Benchwork

- A. The applicant shall be able to perform, as follows, all benchwork procedures necessary prior to dispensing:
  1. insert lenses into zyl frames
  2. inset lenses into metal frames
  3. mount, drill, notch lenses, groove
  4. assemble all frames and put into standard alignment checking:
    - a. cutting line positions
    - b. lens positions as seen from the side
    - c. lens positions as seen from the top
    - d. positions of the open temples
    - e. positions of the closed temples
  5. demonstrate the ability to utilize ophthalmic lens standard to inspect completed eyeglasses
  6. demonstrate a working knowledge of the ophthalmic frame reference books
  7. verify the optical accuracy of completed eyeglasses
  8. verify the mechanical quality of completed eyeglasses
  9. replace and repair temples
  10. replace nose pads on frames
  11. solder metal frames
  12. install hinges on frames.

## VIII. Measurements of The Face

The applicant shall be able to:

- A. take accurate monocular and binocular pupillary distances, both near and distant
- B. take accurate facial bridge measurements
- C. determine accurate frame size (eye size) to fit facial features
- D. take accurate temple lengths
- E. take facial abnormalities into consideration
- F. fit a pair of eyeglasses properly noting that the following criteria are met:
  1. lens planes remain identical
  2. lens vertex distances are equal
  3. the pantoscopic angle is correct and as required
  4. the proper amount of bend of temple is executed if skull temples are used
  5. the proper amount of pressure is applied if library temples are used
  6. the correct amount of nose pad contact and pressure is applied
  7. checking hinge screws
- G. realign a frame to attain proper fit and execute the following:
  1. necessary repairs to frames
  2. necessary bending of frame to ensure correct fit
    - a. correct positioning of bend
    - b. avoiding stress on frame and lenses
  3. nose pad angling
  4. screw tightening
- H. perform a quality inspection on a pair of eyeglasses
  1. Inspection of frame
    - a. color
    - b. bridge
    - c. eyesize
    - d. temple length and style
    - e. alignment
    - f. eyewires
      - (1) rolled
      - (2) bead marks

- (3) burnt
- (4) file marks, scratches, cracks
- (5) faulty soldering
- 2. Inspection of lenses
  - a. correct prescription
    - (1) base curve
    - (2) lens form (+ and/or – cylinder)
    - (3) tint
    - (4) lens style
      - (a) single vision
      - (b) multifocal
      - (c) variable focus
      - (d) low vision
    - (5) location of optical center in reference to the pupil
    - (6) refractive material of lenses.

## **IX. Contacts Lenses**

The applicant shall be able to demonstrate, show knowledge of, and/or understand the reasoning for, the following tasks:

- A. Conduct a patient's prefit evaluation
  - 1. Interview patient and record case history
  - 2. Observe, evaluate and record:
    - a. lid and pupil considerations
    - b. blink rate and type
    - c. tear film evaluation
    - d. corneal evaluation and sensitivity
- B. Recommend proper lens for patient wear
  - 1. Determine/select lens type
    - a. Rigid
    - b. Gas Permeable
    - c. Soft
    - d. Toric
    - e. Multifocal
  - 2. Demonstrate knowledge of each lens type's materials, and conduct patient education regarding selected lenses' advantages
  - 3. Educate patient on modifications of lens parameters that may be necessary
- C. Demonstrate proper/effective use of equipment
  - 1. Keratometer
  - 2. Radiuscope
  - 3. Lensometer
  - 4. Diameter Gauge (V-gauge)
  - 5. Thickness Gauge
- D. Educate patient regarding lens insertion & removal technique, lens hygiene & care, and follow-up evaluation
  - 1. Perform I&R instruction, observe and coach patient regarding technique
  - 2. Observe and evaluate lens centration and movement
  - 3. Demonstrate cleaning/disinfecting regimes for selected contact lens types
  - 4. Inform patient of statutorily-required release form, and follow-up evaluation by the prescribing physician for the approval of the fit & Rx release
  - 5. Recognize indicators of non-compliance with lens care and wearing schedule.





# R E M E M B E R . . .

## As an Apprentice Optician in North Carolina –

- **As an Apprentice you are enrolled in a 2-part program**

Think of it like a 2-pronged fork; it requires:



NC Opticians'  
Apprenticeship  
Program

- **3 ½ years “on-the-job” training (OJT)** under a trainer (optician/optometrist/ophthalmologist) registered with the Board; and,

- **completion of a Board-approved opticianry certificate program.** Generally, the Board advises enrollment in the selected certificate program during the 2<sup>nd</sup> year of apprenticeship.

The options for the certificate program are:

- NAO’s CPP (Career Progression Program) (800-229-4828), a self-guided home study course; or
- the Optical Apprenticeship Program conducted by Durham Tech (919-536-7233, x 8134) taken primarily on-line but with access to instructors and hands-on/practical experience on campus.
- Brochures for the two program options are attached.

**Both components must be finished for apprenticeships to be certified complete,** and you must continue to register as an Apprentice (even if you’ve completed the OJT) until completion of your certificate course. **You cannot qualify to sit for the Licensure Exam without documentation of a completed program.**

- **Both you and your trainer are responsible for notifying the Board office of any employment changes.** If you change locations with your current employer, or change employers totally, appropriate documentation must be completed by you and your trainer. Failure to do so will result in the loss of some of your valuable training time.
- **Your registration expires June 30 of each year.** Late renewals (received after July 1) have equivalent number of days subtracted from your total training time.
- **You are responsible for notifying the Board office of a change in your home address.** The Board cannot send your yearly registration, or any other correspondence, without your current address.

*Contact the NC State Board of Opticians office (919-733-9321)  
with any questions.*