Vision Care (VC) III
COURSE SYLLABUS
Curriculum Outline

2023-2024
Grades: 11-12
Prerequisite(s): Vision Care II, Vision Care I

Course Description

Description: This class in Vision Care is an extension of Vision Care II. As a student in VC III, they will continue to hone their skills in manufacturing various types of glasses but will also learn how to apply anti-reflective coating to lenses, and tint lenses, and developing and printing 3D versions of frames for personal choice. As in Vision Care II, they will be responsible for working with eye doctors during the vision screening events that are scheduled. However, they will take on the role of manager, helping to lead and direct students in Vision Care II as they participate in these visits. As an exit performance portfolio piece, they will develop plans for an optical store including layout of the store, equipping the store with necessary machines and tools as well as determining frame selection and inventories.

Course Units/Skills & Knowledge

This course is broken into 4 units:

UNIT 1: Advanced Manufacturing
UNIT 2: Advanced Clinical Skills
UNIT 3: Contact Lenses
UNIT 4: Clinical Practice Management

SEP	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE

Unit 1		Unit 2		Unit 3		Unit 4	
Advanced Manufacturing		Advanced Clinical Skills		Contact Lenses		Clinic Practice Management	

Grading

20% - Career Readiness, 30% - Classwork, 50% - Performance Tasks/Assessments

UNIT 1 UNDERSTANDINGS:
1. Semi-rimless rimless eyeglasses and full-frame eyeglasses all use edgers to cut the lenses, but post-cutting requires different treatments to mount lenses in their frames
2. Specific lens treatments, like AR coatings, polarizations, and colored tints alter how light is transmitted through lenses and affect the patient's vision in different ways
3. Lens tinting requires knowledge of the type of material the lens is made up of and the characteristics of these lenses as it relates to the ability to take up tints

Knowledge	Skills
Scholars will know… - The difference between rimless and semi-rimless eyeglass production and repair - Techniques and reasons for lens polishing using the hand polisher and edger settings - UV coating, Anti-Reflective coating, tinting definitions, anti-scratch coatings, and when these are useful to patients - The similarities and differences between pattern and patternless edgers, how to use both, and how to make a template for pattern edgers - How to set-up a tinting station and how to tint a lens using both the dip method and the gradient tinter - How to utilize a desktop fabricator to manufacture a frame from a CAD file - Different lens aberrations and proper methods for limiting unwanted characteristics - How to perform basic maintenance on many different ophthalmic tools and machines	Scholars will be skilled at… - Distinguish between various lens tints and describe their various uses and/or benefits - Manufacture different specialty frames and describe the benefits and negative aspects of the frames to patients - edge polishing lenses - edging, cutting, and mounting semi-rimless lenses and frames - drilling and mounting rimless lenses - repairing broken string semi-rimless frames - tinting lenses to specific light and UV transmittance measurements - determining lens treatments that will benefit a patient based on their needs and history - Translating A, B, and DBL measurements to numerical equivalents for use in a desktop fabricator - Applying formulas that relate to the function and fabrication of eyeglasses - Documenting and placing orders for lens materials with all necessary laboratory information - Delivering completed eyewear to the patient, making all necessary adjustments beyond basic bench alignment, including direction on care of the eyewear, what they correct, and when to wear them

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Performance Task focused on Transfer:

Goal Utilize manufacturing skills to fabricate semi-rimless eyeglasses and tint the lenses

Role – Fabricating Optician

Audience – Patient in need of tinted semi-rimless eyeglasses

Situation – A patient has a prescription for tinted semi-rimless eyeglasses and the Vision Care scholar is the fabricating optician

Product - Scholars will utilize advanced manufacturing skills to produce a pair of semi-rimless sunglasses for a patient with a doctor-specified light and UV transmittance that will be judged by an industry expert from Rochester Optical utilizing industry standards

UNIT 2 UNDERSTANDINGS:
1. There are differences between the facial structures of adults and children and there are different needs concerning their frame and lens choices
2. Issues will arise while prescreening a patient for a doctor and different patients have different needs
3. Pupillary distances are only one of several measurements that are needed in different situations with patients
4. Conducting an adequate assessment of the patient includes any relevant medical, family and social history
5. Patients body language could indicate a lack of understanding, fear, or discomfort in the medical setting and tools used

Knowledge	Skills
Scholars will know… • The difference in abbe values of crown glass, CR-39, poly, and hi-index lenses and what it means • How to adjust frames to ensure they sit straight on a patient's face • How to calculate prescription changes caused by frame/face fitting issues • The differing benefits of bifocals and progressives as patient lifestyle and age are taken into account • What pantoscopic tilt and vertex distance and why they are important to know • What a visual acuity and how to set up a VA for a patient	Scholars will be skilled at… • Utilize leadership to think purposefully and advocate for self and others to help prepare students to become role models. • Conduct Visual Acuity on patients to check for both reading and distance vision • Evaluate and determine types of lenses to use for a variety of patients • Determine the patient's vertex distance and pantoscopic tilt and calculate the changes in prescription these cause to the patient-prescribed visual correction • Measuring vertex distance • Calculating pantoscopic tilt • Manipulating finished eyeglasses to best patient fit • Determining lens materials from physical attributes • Conducting near and far visual acuity checks and recording the correct data • Explaining VA results to patients • Analyzing patient history and helping to pick appropriate lenses

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Performance Task focused on Transfer:

Goal –Bench align a frame and utilize skills to identify solutions to patient issues with eyeglass lenses or fit

Role – Dispensing optician working with a patient

Audience – Patient with eyeglass fitting issues

Situation - Scholars will complete prescription analysis scenarios where they will role play with peers who have specific needs or issues with current eyewear and suggestions for current and future pairs are necessary. Scholars will be presented with old and/or new patient prescriptions, old and/or glasses information, patient information, and patient concerns. Scholars will read over the scenario and provide recommendations for each patient in detail. Scholars will be presented with specific fitting and adjusting scenarios where they will work with a partner who plays the role of a patient with specific frame-fitting issues.

UNIT 3 UNDERSTANDINGS:

1. Contact lenses correct vision through a fit specific to the patient's eye
2. Slit lamps allow for an examination of patients' corneas to check for CL fit
3. Contact lens placement on the cornea necessitates ocular measurements to properly fit the patient
4. Proper care and hygiene are required for patient safety

Knowledge	Skills
Scholars will know… ● The differences between hard and soft contact lenses and who each is recommended for ● Different ocular disorders that are caused by contact lenses include allergic responses, corneal scratches, blood vessel growth on the cornea, and corneal infections ● Patient hygiene plays an important role in ocular health ● The names and parts of the human ocular system and how they work together for vision ● How CLs should fit a patient's cornea ● Terms that describe CLs include hard, soft, toric, gas permeable, topography, and keratoconus	Scholars will be skilled at… ● Utilize leadership to think purposefully and advocate for self and others to help prepare students to become role models. ● Explain contact lenses and how different types fit the eye to correct vision ● Make a 3D model of the ocular structure that demonstrates the parts of the human eye and how they work together ● Describe the dangers of not cleaning or caring for contact lenses ● Inserting CLs into their eye ● Explaining how CLs work and change vision ● Using a slit lamp to examine the cornea of a patient

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Goal Use knowledge of Contact lenses to develop PSA to help scholars understand the necessity of caring for Contact Lenses

Role – Educating optician providing Contact lenses to a patient

Audience – Eagle Eye scholars who wear, or might wear in the future, contact lenses

Situation – Too many people do not realize that patient hygiene and proper care of contact lenses is important for continued ocular health

Product - Scholars will create a PSA for presentation on East Eagle Eye that describes how and why to care for CLs, naming and describing an ocular disorder that comes from not caring for contact lenses, poor hygiene, poor fit of CLs on the cornea, or something else that deals with Contact lenses and appeals to them.

UNIT 4 UNDERSTANDINGS:
1. There are multiple pathways to becoming a licensed optician in NY state
2. Running an optical clinic requires multiple pieces of information, including the number of people who are present, who can use the autorefractor and pupilometer, and how many patients are in the clinic
3. Running an optical business requires knowing about machine costs, salaries and licenses of employees, business location, and products, among other important information
4. Patient purchase decisions are impacted by the varying insurance reimbursements

Knowledge	Skills
Scholars will know… • The difference between apprenticeship and college programs for licensure • Differences in on-site vs off-site manufacturing • Different optical insurance plans have different benefits and determine some pros and cons of different types of plans • The tools that optical businesses require and the basic costs to purchase them • The costs that are required to run a business include personnel costs, machine and consumables, and other costs • The difference between license vs unlicensed states • How to schedule patients for a clinic, when taking into account the time each patient needs for each machine and the doctor, and what the school schedule looks like	Scholars will be skilled at… • Utilize leadership to think purposefully and advocate for self and others to help prepare students to become role models. • Run a Vision Care clinic at East, developing the schedules for patients and workers • Develop a potential optical store that they would staff and run • Making a schedule for patients for a doctor's visit • Scheduling workers for some time based on the needs of the clinic • Assessing the set-up of the classroom and determining patient flow through the clinic • Using leadership skills to help student-opticians during a Vision Care clinic care for patients and stay directed

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Performance Task focused on Transfer:
Goal Scholars will set-up, schedule, staff, and run a vision care clinic at East that will be attended by scholars from East and from other RCSD schools

Role – Managing Optician ensuring that a clinical event runs smoothly

Audience – Patients from East and other RCSD schools who attend the clinic

Situation – Patients are coming to East High School to participate in a Vision Care Event where there will be eye doctors to provide refractions for patients and Vision Care scholars will prescreen patients, take necessary measurements, and assist them in frame selection

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STANDARDS

NYS CDOS - HEALTH SERVICE
CDOS.3b.1B- Apply natural sciences to health services
1C. Apply mathematics to health care:
  1. Measurement
  2. Ratio and proportions

1F- Apply foundation skills:
  1. Problem Solving
  2. Critical Thinking
  3. Research

CDOS 3b 2A. Health Care Systems: understand the current healthcare system and its impact on health
2B. Understand service delivery settings (e.g., hospital, clinic, laboratory, office, home).
2D. Identify career choices in health care

CDOS.3b.8A- Understand the scope of health care occupations

CDOS 3b 4A Identify and understand legal issues related to health careers:
4B. Identify and understand ethical issues related to health careers:

CDOS 3b 6A Understand medical terminology and abbreviations.
6B. Develop and practice elements of professional communication:
6C. Understand medical documentation:
6E. Develop job-seeking skills:

CDOS 3b 7A. Interpersonal Dynamics: Develop team-building skills and behaviors within the health care setting(s).
7B. Understand functions and roles within a health care team(s).
7C. Develop positive communication skills:
7F. Understand professionalism in the healthcare system:

NATIONAL CONSORTIUM FOR HEALTH SCIENCE EDUCATION

1.3 Medical Mathematics

1.3.1 Demonstrate competency using basic math skills and mathematical conversions as they relate to healthcare.

2.1 Concepts of Effective

2.1.1 Model verbal and nonverbal therapeutic communication.

2.1.2 Identify common barriers to communication.

2.1.4 Interpret elements of the communication process using the sender-message-receiver feedback model.

2.1.5 Modify communication to meet the needs of the patient/client and to be appropriate to the situation.

2.3 Written Communication Skills

2.3.1 Use proper elements of written and electronic communication

2.3.2 Prepare examples of technical and informative writing.

3.1 Healthcare Delivery Systems

3.1.1 Differentiate healthcare delivery systems and healthcare-related agencies.

3.1.2 Examine the healthcare consumer's rights and responsibilities within the healthcare system.

4.1 Personal Traits of the Health Professional

4.1.1 Identify personal traits and attitudes desirable in a career-ready member of a health team

5.2 Legal Practices

5.2.1 Apply standards for the safety, privacy, and confidentiality of health information. • HIPAA • Privileged communication

6.2 Cultural, Social, and Ethnic Diversity

6.2.2 Demonstrate respectful and empathetic treatment of all patients/clients/families.

7.1 Infection Control

7.1.2 Differentiate methods of controlling the spread and growth of pathogens.

      b. Standard precautions

7.2 Personal Safety

7.2.1 Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.

7.2.3 Demonstrate and apply the use of Personal Protective Equipment (PPE)

8.1 Healthcare Teams

8.1.1 Evaluate roles and responsibilities of healthcare team members.

8.1.2 Identify characteristics of effective teams.

8.2 Team Member Participation

8.2.1 Recognize methods for building positive team relationships.

8.2.2 Analyze the attributes and attitudes of an effective leader.

8.2.3 Apply effective techniques for managing team conflict.

2.4 Evaluate why teamwork is an important part of healthcare and how it improves patient care

9.2 Healthcare Across the Lifespan

9.2.1 Discuss physical, mental, social, and behavioral development and its impact on healthcare.

9.2.2 Identify socioeconomic determinants of health and wellness.

10.1 Technical Skills- Vision Care*

10.1.1 Demonstrate procedures for measuring and recording eyesight in both normal and abnormal ranges - including but not limited to
- Pupillary distance
- Nearsightedness (myopia), a condition that makes far away things look blurry.
- Farsightedness (hyperopia), a condition that makes close-up things look blurry.
- Astigmatism, which causes generally blurry vision and makes it hard to see at night.
- Presbyopia (only in middle-aged adults and older), this condition makes it hard to see things up close.
- Glaucoma

10.1.2 Obtain training on
- Lensometer
- Blocker
- Edger

11.1 Key principles, components, and practices of health information systems (HIS)
11.1.3 Create electronic documentation that reflects timeliness, completeness, and accuracy.
11.1.4 Examine information systems policies, procedures, and regulations as required by national, state, and local entities