ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Health Professions (HP)

COURSE: DLA 2208 Expanded Function II-Restorative

Effective Date: Spring 2025

Submitted Date: Oct-24

Credit Hours: 2 **IAI Number (if applicable):**

Prerequisite(s): None

Enrollment by assessment or other measure? ☐Yes ☒No

If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): See Pathways I & II below

PATHWAY I
1. Successful completion of DLA 2205 Expanded Functions I and DLA 1208 Coronal Scaling
2. Current CPR from a DANB-accepted provider

OR

PATHWAY II
1. High school graduation or equivalent, AND
2. Minimum of 4,000 hours of approved work experience, AND
3. Holds a Certificate in Coronal Polishing through a CODA accredited educational institution such as a dental school, dental assisting, or dental assisting program, or by a statewide dental or dental hygienist associations approved by the Illinois State Dental Society, AND
4. Current CPR from a DANB-accepted provider

Consent of Instructor: ☐Yes ☒No

Delivery Method:	☒**Lecture**	**1 Contact Hours** (1 contact = 1 credit hour)
	☐**Seminar**	**0 Contact Hours** (1 contact = 1 credit hour)
	☒**Lab**	**3 Contact Hours** (2-3 contact = 1 credit hour)
	☐**Clinical**	**0 Contact Hours** (3 contact = 1 credit hour)
	☐**Practicum**	**0 Contact Hours** (2-4 contact = 1 credit hour)
	☐**Internship**	**0 Contact Hours** (5-10 contact = 1 credit hour)

Offered: ☐**Fall** ☒**Spring** ☐**Summer**

CATALOG DESCRIPTION:
This condensed course provides participants with online, didactic, lab, and clinical patient experiences to increase proficiency or introduce various aspects of restorative dentistry including placement of direct restorative materials. The purpose of this course is to improve existing restorative clinical skills or introduce participants to the basic techniques of restorative dentistry to become SAFE BEGINNERS in the practice of restorative dentistry. Content is based on participants' prior knowledge and clinical competency on the dental assisting process of care, dental anatomy, dental materials, head and neck anatomy, and local anesthetic. The course provides a review of dental materials, including placing a rubber dam, placement of cavity liners, mercury assisting, and amalgam, composite, and dentin bonding agent properties. The main focus of the course is placement techniques and assessment for functional composite and amalgam restorations, to prepare students with the skill needed for entry level as an expanded functions clinician. Upon successful completion, participants will be competent in placement of direct restorative materials, and assessing the quality of the restorations, take material or digital final impressions, and perform pulp vitality testing. All training is approved by the Illinois State Dental Society and dentists experienced in restorative dentistry and teaching. Upon successful completion of this course, participants will meet the criteria for Illinois State Restorative Expanded Functions certification. Success in this course requires knowledge in basic computer skills, head and neck anatomy, pharmacology, dental anatomy, dental materials, and dental assisting skills.

ACCREDITATION STATEMENTS AND COURSE NOTES:
None

COURSE TOPICS AND CONTENT REQUIREMENTS:

I. Dental Nomenclature.
    a. Universal/National Systems for numbering
    b. Palmer system for numbering
    c. Federation Dentaire Internationale systems for numbering
    d. Tooth Surfaces
        i. Abbreviations
    e. Arches, quadrants, sextants
    f. Anatomical contour of teeth
        i. Grooves
        ii. Cusp tip
        iii. Ridges
        iv. Marginal ridges
        v. Fossae
        vi. Fissure

vii. Walls of cavity preparations
    1. Pulpal wall (floor)
    2. Axial wall
    3. Cavosurface margin

II. Caries classification
    a. G.V. Black
    b. Class I-VI

III. Oral anatomy
    a. Contact areas
    b. Embrasures
    c. Anatomical structures
        viii. Buccal groove
        ix. Central groove
        x. Cingulum
        xi. Cusp
        xii. Developmental grooves
        xiii. Fissures
        xiv. Fossa
        xv. Furcation
        xvi. Lobes
        xvii. Mamelons
        xviii. Marginal grooves
        xix. Marginal ridges
        xx. Oblique ridge
        xxi. Pits
        xxii. Ridge
        xxiii. Supplemental groove
        xxiv. Transverse ridge
        xxv. Triangular ridge
        xxvi. Trifurcated

IV. Components of the Periodontium
    d. Hard and soft dental tissues
    e. Cementum
    f. Alveolar bone
    g. Periodontal ligament
        i. Periodontal fiber groups
            1. Periodontal fiber groups
            2. Gingival fiber groups
    h. Gingiva
        i. Aleveolar mucosa
        ii. Mucoginigival junction

iii. Attached gingiva
iv. Gingival groove
v. Interdental gingiva
vi. Gingival sulcus
vii. Epithelial attachment
viii. Marginal gingiva

V. Basic occlusion
   a. Characteristics of normal occlusion
      i. Centric occlusion
      ii. Maximum contact
      iii. Overlap
      iv. Buccal grooves
      v. Cusp positions
   b. Malocclusion
      i. Malposition's of individual teeth
      ii. Etiology of malocclusion
      iii. Angle's Classifications of Malocclusion

VI. Instrumentation
   a. Identify noncutting instruments
      i. Condensers
      ii. Carvers
      iii. Burnisher
      iv. Plastic instrument
      v. Cement spatula
   b. Design of cutting and noncutting instruments
      i. Numeric Formulas
      ii. Black's Three-number formula
      iii. Black's Four-number formula
   c. Instrument Selection
      i. Condensing
      ii. Carving
      iii. Burnishing
      iv. Placing
      v. Mixing
   d. Instrument Grasps
      i. Pen grasp
      ii. Palm-thumb grasp
   e. Instrument Motions
      i. Chopping
      ii. Pulling
      iii. Pushing

iv. Rotating
v. Scraping
vi. Thrusting

VII. Properties and preparation of liners and bases for pulpal protection.
   a. Placing Cements, Bases and Liners
   b. Cavity Preparation forms
      i. Outline form
      ii. Resistance form
      iii. Retention form
      iv. Convenience form
      v. Finishing or refinement
      vi. Cleansing or debridement of the cavity preparation
   c. Pulpal Involvement and treatment of Cavity Preparations
      i. Ideal level
      ii. Beyond ideal
      iii. Near exposure
      iv. Pulp exposure
      v. Direct pulp capping
      vi. Indirect pulp capping
   d. Types of Restorative Dental Materials
      i. Class I
      ii. Class II
      iii. Class III
   e. Cavity Liners/Low-strength Base
      i. Calcium hydroxide
      ii. ZOE
      iii. Glass Ionomer
   f. Cavity Varnish
   g. Cement Bases/High-strength Base
      i. Glass Ionomers
      ii. Hybrid ionomer
      iii. Reinforced ZOE
      iv. Zinc Phosphate
      v. Polycarboxylate
   h. Desensitizers
      i. Treatment or prevention of hypersensitivity
      ii. Hydroxyethyl methacrylate (HEMA) and Glutaraldehyde

VIII. Application of Rubber dam clamp placement and removal
   a. Advantages and disadvantages
   b. Contraindications to Dental Dam Isolation
   c. Materials and Equipment

d. Preparation before Dental Dam Placement
e. Placement and Removal Procedures for the Dental Dam
f. Alternatives of the Dental Dam

IX. Matrix and wedge techniques
a. Matrices
b. Wedges
c. Tofflemire Matrix
d. Matrix bands
e. AutoMatrix
f. Plastic Strip Matrix
g. Sectional Matrix

X. Dental Materials
a. Composite Resin Cement
b. Amalgam
c. Provisional restorations
d. Etchant
e. Compomers
f. Bonding agents/Adhesives
i. Enamel bonding
ii. Dentin bonding
g. Acidity, adhesion, biting forces, corrosion, dimensional change, elasticity, flow, galvanism, hardness, microleakage, retention, bonding, solubility, thermal properties, viscosity, wettability.

XI. Amalgam placement and carving
a. Amalgam Restorative Materials
i. Composition
ii. Types of Dental Amalgam
iii. Mercury Used in Dental Amalgam
iv. Forms of Dental Alloy
v. Amalgam Properties
vi. Amalgam Manipulation
vii. Amalgam Bonding
viii. A complete Amalgam Procedure

XII. Composite placement, packing and finishing
a. Composite Restorative Materials
i. Composition
ii. Composite properties
iii. Manipulation considerations
iv. Modifications

b. Glass Ionomer Restorations
    i. Hybrid (or resin-modified) Glass Ionomers
    ii. Compomers

XIII. Pulp Vitality Testing
a. Cold, percussion, pressure
    i. Tooth identification
b. Electronic pulp testing
    i. Vital or nonvital
    ii. Dry field
    iii. Nonmetallic proximal surface restorations
c. Manual pulp testing instruments or supplies
    i. Ice cube
    ii. Mirror handle
    iii. Bite stick/fracture finder
    iv. Aerosol refrigerant spray

XIV. Material and Digital Final Impressions
a. Accuracy
b. Materials used for final impressions.
c. Dry field
d. Taking a digital impression.
    i. Importance and usage
e. CAD/CAM techniques
    i. Different brands of CAD
    ii. Steady hand
    iii. Accurate scan
f. Identify issues
    i. Margins
    ii. Gingival extent
g. Advantages and disadvantages
    i. Time saving
    ii. Optimal restorative materials
    iii. Learning curve with scanner
    iv. Tissue retraction
    v. Isolation
    vi. Occlusal relationships

INSTRUCTIONAL METHODS:

- Didactic Instruction (16 hours required by Illinois Law)
- Distance Learning
- Pre-Recorded Demonstrations
- Clinical manikin instruction (14 hours required by Illinois Law)
- Human subject instruction
- Guest Lecturers (local dentists)
- Continuing Education Courses
- Dental Clinics

EVALUATION OF STUDENT ACHIEVEMENT:

The following grading scale will be used as a guide in determining the final grade for this course:

A= 90-100
B= 80-89
C= 70-79
D= 60-69
F= 0-59

INSTRUCTIONAL MATERIALS:

Textbooks

Dental Assisting: A Comprehensive Approach, 5th Edition, Phinney and Halstead, 2018
Dental Assisting: Theory and Practice, 4th Edition, Darby & Walsh, 2015
American Dental Association: Module: Dental Public Health 2015
Dentistry, Dental Practice, and the Community, 7th Edition, 2019
Pediatric Dentistry, 6th Edition, 2018
Summitt's Fundamentals of Operative Dentistry 4th Edition, 2013

Resources

Public Act 100-0976 Enacted August 19th, 2018
Dentalcare.com
Clinical Manikin
Various Dental Materials

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

☐1) Communication – to communicate effectively.
☒2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion.
☐3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally.
☐4) Responsibility – to recognize how personal choices affect self and society.

Course Outcomes and Competencies

1. Demonstrate a comprehensive understanding of dental nomenclature.
   - 1.1. Be able to identify teeth using the Universal/National Systems for numbering
   - 1.2. Be able to identify teeth using the Palmer system for numbering
   - 1.3. Be able to identify teeth using the Federation Dentaire Internationale systems for numbering
   - 1.4. List the five surfaces that each tooth has, and their appropriate abbreviations.
   - 1.5. Be able to divide the dentition into Arches, quadrants, sextants
   - 1.6. Be able to identify anatomical contour of teeth
2. Demonstrate a comprehensive understanding of Caries classification
   - 2.1. Be able to classify cavities using Black's Classifications I-VI
3. Demonstrate a comprehensive understanding of Oral anatomy
   - 3.1. Understand the importance of Contact areas
   - 3.2. Understand the importance of Embrasures
   - 3.3. Understand the importance of Anatomical structures of each tooth.
4. Demonstrate a comprehensive understanding of the components of the Periodontium
   - 4.1. Be able to discern Hard and soft dental tissues
   - 4.2. Be able to identify Cementum, its function, and location.
   - 4.3. Be able to identify Alveolar bone and its function.
   - 4.4. Be able to identify periodontal ligament and know its importance.
   - 4.5. Be able to identify the different types of Gingiva.
5. Demonstrate a comprehensive understanding of basic occlusion
   - 5.1. Know the characteristics of normal occlusion
   - 5.2. Know the characteristics and causes of Malocclusion
6. Demonstrate a comprehensive understanding and use of Instrumentation.
   - 6.1. Be able to identify cutting and noncutting instruments
   - 6.2. Be able to understand the design of cutting and noncutting instruments
   - 6.3. Be able to select and use the appropriate noncutting instrument in placement of a provisional restoration, amalgam or composite.
   - 6.4. Know the different grasps associated with cutting and noncutting instruments.
   - 6.5. Understand the different instrument motions used with hand instruments.
7. Demonstrate a comprehensive understanding of the properties and preparation of liners and bases for pulpal protection.
   - 7.1. Be able to place the appropriate Cements, Bases and Liners
   - 7.2. Know the different Cavity Preparation forms

7.3. Know the different levels of Pulpal Involvement and treatment of Cavity Preparations
7.4. Know the different Types of Restorative Dental Materials
7.5. Identify and choose appropriate Cavity Liners/Low-strength Base, cavity varnish, base, or desensitizer.

8. Demonstrate a comprehensive knowledge and application of Rubber dam clamp placement and removal
   8.1. Know the Advantages and disadvantages of using a dental dam.
   8.2. Know the Contraindications to Dental Dam Isolation.
   8.3. Be able to identify and use the dental dam materials and equipment properly.
   8.4. Be able to prepare the patient before Dental Dam Placement
   8.5. Know the Placement and Removal Procedures for the Dental Dam
   8.6. Be able to identify alternatives of the Dental Dam
9. Demonstrate a comprehensive knowledge and application of Matrix and wedge techniques
   9.1. Understand the placement and position of Wedges
   9.2. Be able to properly prepare and place Tofflemire Matrix in the appropriate situation.
   9.3. Be able to prepare and place Matrix bands in the appropriate situation.
   9.4. Be able to prepare and place Auto Matrix in the appropriate situation.
   9.5. Be able to prepare and place a Plastic Strip Matrix in the appropriate situation.
   9.6. Be able to prepare and place a Sectional Matrix in the appropriate situation.
10. Demonstrate a comprehensive knowledge of the properties of different Dental materials
   10.1. Understand the properties of Composite Resin Cement
   10.2. Understand the properties of Amalgam
   10.3. Understand the properties of Provisional restorations
   10.4. Understand the properties of Etchant
   10.5. Understand the properties of Compomers
   10.6. Understand the properties of Bonding agents/Adhesives
   10.7. Be able to identify the terms associated with dental materials such as: Acidity, adhesion, biting forces, corrosion, dimensional change, elasticity, flow, galvanism, hardness, microleakage, retention, bonding, solubility, thermal properties, viscosity, and wettability.
11. Demonstrate a comprehensive knowledge and application of Amalgam placement and carving
   11.1. Understand and apply Amalgam Restorative Materials

11.2. Know the different types and shapes of amalgam materials
11.3. Use the proper armamentarium in placement of Amalgam
11.4. Be able to properly pack, burnish and carve amalgam.

12. Demonstrate a comprehensive knowledge and application of Composite placement, packing and finishing
    12.1. Understand and properly place Composite Restorative Materials
    12.2. Be able to choose the correct type and shade of material for placement.
    12.3. Use the proper armamentarium in the placement of Composite materials.
    12.4. Understand the correct placement, packing, finishing and polishing of Composite Materials.
    12.5. Understand and properly place Glass Ionomer Restorations.
    12.6. Be able to choose the correct type of GI to use depending on location in the mouth and longevity needed.
13. Demonstrate a basic knowledge of Pulp Vitality Testing.
    13.1. Be able to select the appropriate method for testing cold sensitivity.
    13.2. Understand the mechanism of an electric pulp tester.
    13.3. Understand the instruments and supplies used for manual vitality testing.
14. Demonstrate a basic knowledge of taking material and digital scans for Final Impressions.
    14.1. Understand the importance of creating a highly accurate impression for a high-quality restoration.
    14.2. Have a basic understanding of the materials used for final impressions.
    14.3. Understand the importance of a dry field.
    14.4. Understand the basic steps in taking a digital impression.
    14.5. Have a basic understanding of CAD/CAM techniques.
    14.6. Be able to identify issues with both material and digital scans before sending to the dental lab.
    14.7. Know the advantages and disadvantages of both material and digital impressions.