I. Course Title and Number
   DH220 Dental Materials
   Room S – 109

II. Number of Class Periods
    2 hours per week for 15 weeks

III. Course Director
     Christine M. Lamanna, RDH, MS
     S-101 G 270-5250
     e-mail -- lamannac@ecc.edu
     website - http://facultypages.ecc.edu/lamannac

IV. Office Hours
    As posted in S101

V. Instructional Materials

   Required Text:
   Clinical Aspects of Dental Materials,
   ISBN/ISSN: 9781609139650

   Reference Texts:

   Computer Programs:
   EDPuzzle: website to compliment DH220 course content - www.edpuzzle.com

   Video Tapes:
   Dental Materials – Part I: ZOP & Periodontal Dressing.
VI. **Catalog Description:**
DH220 N (2,0) 2 Credits (R)

The theory and description of the materials used in general dental practice and relevant dental specialties will be presented. Lectures will include general composition, physical and chemical properties and behavior of dental materials in the oral environment. The theoretical ideal dental restorative material will be described and existing materials will be compared to it. Sealant materials used in preventive dentistry will be discussed. Minimum passing grade is "C-". Withdrawal from or failure of a required course prevents further progress in the curriculum. General education courses may be taken prior to starting dental hygiene courses but may not be taken later than the semester in which they are required. Prerequisite: All required first year courses in the dental hygiene curriculum and DH175 must be passed. Co-requisite: All required fall semester, second year courses in the dental hygiene curriculum.
VII. **Course Competencies**

First set of numbers identifies Dental Hygiene Program Competencies (p. 3). Second set of bolded underlined numbers identifies applicable ECC Learning Outcomes (**LO**).

At the completion of the course the student should be able to:

1. Discuss the basic science, physical and mechanical characteristics, handling, and clinical performance of the materials used in the general practice of dentistry.  
   \(8.2 \ 4\)

2. Apply knowledge of the basic science and behavior of existing materials in comparison to the new materials and techniques that are continuously evolving.  
   \(8.2 \ 4\)

3. Appraise safety issues of dental materials and plan safe work practices.  
   \(1.1, 1.2, 5.1, 8.2, 8.3 \ 6\)

4. Describe indications and applications of various dental materials in a clinical and laboratory setting.  
   \(2.1, 2.4, 2.5, 3.1, 3.2, 8.2 \ 2\)

5. Recognize and document patient records according to the dental materials and restoratives placed within the oral cavity.  
   \(2.3 \ 6\)

6. Evaluate the selection, manipulation and performance of dental materials and restoratives for proper treatment while rendering quality dental hygiene services.  
   \(3.1, 5.2, 5.4, 6.1, 8.2, 8.3 \ 2\)

7. Differentiate between dental specialties and corresponding dental materials, armamentarium, and procedural applications.  
   \(2.4, 2.5, 2.6\)

8. Discover the differences in race and culture while valuing the importance of educating patients in regards to preventive/restorative materials, treatment options and the proper maintenance of restorations and oral prostheses.  
   \(1.1, 1.2, 3.2, 4.1, 4.2, 8.3 \ 2\)

VIII. **Program Competencies**

After each applicable competency, the number of each applicable course competency is placed in parentheses.

1. **Professional Integrity.** The dental hygiene graduate must be competent in applying the American Dental Hygienists’ Association Code of Ethics and practicing with personal and professional integrity in accordance with the state dental practice act.

Specifically, the dental hygiene graduate must:

1.1 Uphold ethical and legal behaviors with **all** patients, colleagues and other professionals.  
1.2 Exhibit cultural awareness and sensitivity to patient’s goals, values, beliefs, and preferences in healthcare choices while promoting optimal oral care and general health during patient treatment.  
   \(3, 8\)
2. **Assessment.** The dental hygiene graduate must apply medicolegal principles to the systematic collection, analysis and accurate recording of general, personal and oral health status of patients.

Specifically, the dental hygiene graduate must:

2.1 Recognize medical conditions that necessitate special considerations prior to or during treatment. (4)
2.3 Perform an extraoral and intraoral examination of hard and soft tissues, distinguish normal from abnormal findings, and accurately record the findings. (5)
2.4 Identify the need for radiographs, obtain radiographs of diagnostic quality, and interpret findings. (4,7)
2.5 Evaluate the health history, personal and cultural behaviors, and oral tissues to identify risk factors that require intervention to prevent disease. (4,7)
2.6 Determine the need for referral to the appropriate health professional. (7)

3. **Planning.** The dental hygiene graduate must be able to establish a planned sequence of care based on the dental hygiene diagnosis by identifying oral conditions, potential problems, etiologic and risk factors, and available treatment modalities.

Specifically, the dental hygiene graduate must:

3.1 Analyze and interpret the assessment data to formulate a dental hygiene diagnosis. (4, 6)
3.2 Determine priorities and establish oral health goals with the patient/family and/or guardian as an active participant. (4, 8)

4. **Self-Care Instruction.** The dental hygiene graduate must be able to provide planned educational services using appropriate interpersonal communication skills and educational strategies to achieve oral health goals.

Specifically, the dental hygiene graduate must:

4.1 Identify the health needs of individuals and assist them in the development of individualized self-care regimens. (8)
4.2 Encourage patients to assume responsibility for their health and promote adherence to self-care regimens. (8)

5. **Implementation.** The dental hygiene graduate must be able to provide treatment that includes preventive and therapeutic procedures to promote and maintain oral health.

Specifically, the dental hygiene graduate must:

5.1 Adhere to state and local policies and procedures for maintaining safety in the dental environment. (3)
5.2 Provide an environment conducive to health by applying basic and advanced principles of dental hygiene instrumentation without causing trauma to hard or soft tissue. (6)
5.4 Select and administer the appropriate preventive and/or antimicrobial (chemotherapeutic) agent and provide pre- and post-treatment instructions. (6)
6. Evaluation. The dental hygiene graduate must be able to evaluate the effectiveness of planned clinical and educational services and modify as necessary.

Specifically, the dental hygiene graduate must:

6.1 Evaluate the clinical outcomes of dental hygiene treatment interventions using indices, instruments, examination techniques, and determine the appropriate recare schedule. (6)

8. Information Management and Critical Thinking. The dental hygiene graduate must be able to acquire and synthesize information in a critical, scientific, and effective manner.

Specifically, the dental hygiene graduate must:

8.2 Be informed of current issues that impact the profession and clinical practice. (1, 2, 3, 4, 6)
8.3 Evaluate comprehensive patient care and management by use of reflection and critical thinking skills. (3, 6, 8)

IX. ECC Learning Outcomes (LO) – College Catalog 2013

After each applicable ECC Learning Outcome (LO), the number of each applicable course competency is placed in parentheses.

2. Critical Analysis & Reasoning (6, 8)
4. Scientific Reasoning (1, 2, 4)
6. Technological Competence (3, 5)

X. Evaluation:

<table>
<thead>
<tr>
<th>Course Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>5%</td>
</tr>
<tr>
<td>Exams</td>
<td>70%</td>
</tr>
<tr>
<td>Case Studies</td>
<td>25%</td>
</tr>
</tbody>
</table>

Exam format: Combination of matching, true and false, multiple choice, short answer/essay.

Examination policy: Once a classroom examination has begun, the student is not permitted to leave the exam. The exam will be turned in when the student leaves the classroom. The exam grade will reflect the answers the student completed prior to leaving the room. The student cannot retrieve the exam once it is handed in to complete missed portions of the exam.

Case study format: Objective and written assignment, dental charting.

Students must attain at least a "C-" average (80%) in order to pass the course.

FINAL GRADING SCALE

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.82 - 4.00</td>
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<tr>
<td>A-</td>
<td>3.74 - 3.81</td>
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<tr>
<td>B+</td>
<td>3.66 - 3.73</td>
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<tr>
<td>B</td>
<td>3.54 - 3.65</td>
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<tr>
<td>B-</td>
<td>3.46 - 3.53</td>
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<tr>
<td>C+</td>
<td>3.38 - 3.45</td>
</tr>
<tr>
<td>C</td>
<td>3.28 - 3.37</td>
</tr>
<tr>
<td>C-</td>
<td>3.20 - 3.27</td>
</tr>
<tr>
<td>F</td>
<td>Anything below 3.20</td>
</tr>
</tbody>
</table>
XI. Remediation Policy  Remediation efforts are not a guarantee of course success.

Remediation efforts will consist of re-evaluation of each test that was not passed by a “C-“ (80%) grade level. Remediation is mandatory and will be accomplished by addressing each failed objective on a given exam. The student is responsible for contacting the course director for each remedial assignment. An example of remediation may consist of addressing missed objectives by citing the pertinent information and significant page numbers from the following resources: class notes, course required textbook, and one of the suggested reference textbooks on the syllabus. The student will present the cited information and must take a verbal or written post-test to determine competency of the subject matter. Remediation must be completed by a designated date as determined by the course director. The original examination grade will remain in place. Failure to remediate may result in course dismissal with the issuance of an “F” grade.

XII. Attendance Policy

Class attendance is mandatory. Missed/late attendance is unacceptable and will result in a one-point deduction from the final grade average for each occurrence. If a student is absent for an exam, except for a medical excuse with physician verification, religious observance or bereavement, the grading of the make-up exam will begin at 90% and must be taken within 3 days of the original exam date. If the student fails to notify the course director within the 3-day period to make arrangements for testing, the student will receive an "F" for the given exam. Extenuating circumstances regarding make-up exams and class attendance will be at the discretion of the course director.

Department policy regarding long-term absences:
After returning from a long-term illness (5 days or more) or maternity leave, a written medical clearance must be presented to your advisor stating your ability to continue patient treatment and classroom studies. Also, after an extended absence the student is required to confer with his/her course directors and advisor regarding the ability to complete course requirements. Lengthy absences may prevent the student from completing course requirements.

XIII. Cheating/Plagiarism Policy

Students are expected to uphold the Code of Conduct published in the Erie Community College Catalog and Handbook. Students will be expected to adhere to the Code of Ethics developed in Oral Health Services I and the Dental Hygiene Honor Code System. In the instance of suspected student cheating or plagiarism, the course director must inform the student of the alleged misconduct. The course director may then dismiss the student from the course, such action carrying with it the issuance of an automatic “F”. Following dismissal from the course, the student has the right to appeal such sanction through the student procedure.

XIV. Students with Disabilities

Any student who requires accommodations to complete the requirements and expectations of this course because of a disability is invited to make his or her needs known to the course director and to Heather Hewson, North Campus Counselor for Students with Disabilities, Counseling Center (S-213) at hewson@ecc.edu or 851-1495.
XV. Professional Behavior

The Dental Hygiene Department and College expects professional conduct from all students. Any breach in professional conduct as stated in the core values of the ADHA Code of Ethics will result in an “R” grade (0 points) being averaged into the final lecture grade. The following actions represent examples of unprofessional conduct and will not be tolerated:

1. Loud, indecent, immature or disrespectful conduct (verbal, electronic and/or physical) toward faculty, staff or fellow student.
2. Failure to provide and complete all assignments for Dental Materials Lecture.
4. Student refusal to participate during lecture.
5. Unprepared for Dental Materials Lecture. Failure to bring necessary course materials and advanced reading of textbook material.
6. Leaving Dental Materials Lecture without course director’s permission or dismissal.
7. Cheating of any nature in DH220.

For any of the above actions, the student must meet with the course director and their advisor to discuss the problem. This meeting must take place within three school days. If the student is involved in a second incident, they will be dismissed from Dental Materials Lecture with a grade of “F”, and removed from the Dental Hygiene program.

Due to any unforeseen circumstances, any changes that could occur will be held at the discretion of the course director.
ERIE COMMUNITY COLLEGE
DENTAL HYGIENE DEPARTMENT

TOPIC OUTLINE – DH220

I. Overview of Dental Materials
   A. Historical perspective
   B. Dental specialties
   C. Quality Assurance Programs
   D. Characteristics of the ideal Dental Material
   E. Classes of Dental Materials
   F. Physical characteristics of Dental Materials
   G. Mechanical characteristics of Dental Materials
   H. Biologic characteristics of Dental Materials

II. Dental Cements
    A. Definition and Identification of intermediary materials, temporary restorations and intermediate restoratives.
    B. Use
    C. Composition
    D. Placement and Handling
    E. Special characteristics
    F. Periodontal Dressing
       1. Use
       2. Composition
       3. Handling and Placement
    G. Contraindications for use of each material

III. Amalgam
     A. Use - advantages/disadvantages
     B. Classification
        1. Composition
        2. Types
     C. Properties and relationship to clinical performance
     D. Self-sealing mechanism
     E. Manipulation and handling techniques
     F. Amalgam polishing
     G. Dental charting (amalgam restoration)
     H. Factors pertaining to clinical success of amalgam
     I. Mercury toxicity
     J. Development of a mercury hygiene program in a dental office

IV. Composites
    A. Use - advantages/disadvantages
    B. Characteristics of composite restorative material and relationship to clinical performance.
    C. Types of composite restorative materials.
    D. Composition
    E. Handling and placement
    F. Setting reaction of composite restorative material
    G. Finishing and polishing
    H. Dental charting (composite restoration)
    I. Factors pertaining to clinical success of composite restorative material.
V. Glass Ionomer
   A. Use - advantages/disadvantages
   B. Properties of glass ionomer and relationship to clinical performance.
   C. Classification (types) of glass ionomer; compomers
   D. Composition
   E. Handling and placement
   F. Setting reaction and release of fluoride ions
   G. Finishing and polishing
   H. Dental charting (glass ionomer restoration)
   I. Factors pertaining to clinical success of glass ionomer as a restorative material.

VI. Pit and Fissure Sealant
   A. Use
   B. Properties of sealant material and relationship to clinical performance
   C. Types and composition
   D. Patient/Tooth selection criteria
   E. Handling and placement
   F. Dental Charting
   G. Factors pertaining to clinical success of pit and fissure sealant material.
   H. Current trends in sealant usage.
   I. Preventive resin restorations

VII. Gold Foil
   A. Use - advantages/disadvantages
   B. Properties of gold foil and relationship to clinical performance
   C. Types and composition
   D. Handling and placement
   E. Polishing agent for gold
   F. Dental charting
   G. Factors pertaining to clinical success of gold as a restorative material.

VIII. Abrasives and Polishing Materials
   A. Use in relation to dental materials and tooth structure
   B. Definitions
   C. Characteristics and handling factors
   D. Composition
   E. Moh's scale
   F. Prophylaxis paste, Dentifrice, Denture cleaners
      1. Use
      2. Composition

IX. Impression Material
   A. Use
   B. Characteristics of the ideal impression material
   C. Classification of impression materials
   D. Types and composition
   E. Properties of impression materials
   F. Mixing and handling techniques of elastic impression materials
   G. ADA recommendations for disinfection of dental impression.

X. Gypsum
   A. Use
      1. Plaster
      2. Stone
B. Composition and Types
   1. Plaster
   2. Stone
C. Strength and hardness and relationship of controlling factors
D. Handling and mixing
   1. Exothermic reaction
   2. Water/powder ratio
   3. Nuclei of crystallization
E. Construction of model/cast
F. Separation of model from impression
G. Disinfection of model
H. Model Trimming

XI. Cast Restorations
A. Removable
   1. Denture fabrication
      a. heat-processed denture
      b. overview of steps
   2. Partial Denture
      a. lost wax casting technique
      b. overview of steps
B. Fixed
   1. Inlays, onlays, crowns, bridges
C. Polymers for Prosthetics
   1. Composition
   2. Physical properties
   3. Care
D. Materials for inlays, onlays, crowns, bridges, RPD's, dentures
   1. Types
   2. Composition
      a. metals
      b. ceramics
         1) porcelain
         2) cast
         3) machinable
      c. composites
E. Denture liners and conditioners; immediate dentures; repairing acrylic appliances
F. Other uses of plastics in dentistry
   1. Maxillofacial materials
   2. Mouth protectors
   3. Lightening trays
   4. Orthodontic retainers
   5. Snoring prevention devices
   6. Occlusal bite splints
G. Dental charting cast restoratives

XII. Implants
A. Use
B. Comprehensive Dental Implant System
C. Dental Hygienist's Role
D. Patient selection
   1. Medical evaluation
   2. Dental evaluation
   3. Psychological evaluation
E. Treatment Plan decisions
   1. Implant types
   2. Positioning and number of implants
   3. Diagnostic Testing
      a. radiographs
      b. landmarks
F. Surgical Procedures
   1. Surgical Phase I
   2. Healing phase
   3. Surgical phase II
G. The Peri-implant Environment
H. Implant Prosthetics/Restoratives
   1. Single tooth replacement
   2. Multiple teeth
   3. Edentulous patient
I. Implant Evaluation and Success
J. Implant Failure
   1. Symptoms
   2. Treatment to intercept failure
K. Maintenance (In-office therapy)
L. Patient home care
M. Dental charting implants

XIII. Orthodontics
   A. Definition
   B. Benefits of Orthodontic Treatment
   C. Indications/contraindications of orthodontic treatment
   D. Factors affecting malocclusion
   E. Phases of orthodontic treatment
   F. Diagnostic records
   G. Types of appliances utilized in orthodontic treatment
      1. Fixed
      2. Removable
   H. Patient Home Care
   I. Dietary counseling
   J. Debonding

XIV. Endodontics
   A. Definition
   B. Indications/contraindications
   C. Diagnostic Testing
   D. Specialized Instruments
   E. Overview of Procedural Steps
   F. Dental Charting (endodontically treated tooth)
   G. Surgical Endodontics
      1. Apicoectomy
      2. Apical curettage
      3. Retrograde restoration
      4. Root amputation
      5. Hemisection

DH220topicoutline.Fa15-DH
Rev 7/8/15
EDPuzzle
Test Review

1. Go to Prof. Lamanna’s website  http://facultypages.ecc.edu/lamannac

2. Click on the  EDPuzzle link. You need the class code to access DH220
   Class code: boA61j

3. Click on the blue box - I’m a new student.

4. Type in your 1st name, a user name (1st and last name), and create a password.
   Click - sign up

5. Click on blue box in upper right corner – Join New Class.

6. Enter Class code - boA61j.  Select - Join the class.

7. There are videos for you to watch. Click blue box – Start Video

8. As you watch the video, it will stop at various intervals and ask a question. The
   questions will appear on the right side of the video. Type in your answer(s).

9. REMEMBER – this is for review of content to help you with studying prior to testing.
   It is strongly encouraged that you take the time to visit this website.

7.8.15 DH220-DH Fall 15