Western Technical College

31508310 Dental Radiography - Advanced

Course Outcome Summary

Course Information

Description
Builds on principles and skills developed in Dental Radiography. Dental Assisting students expose full mouth series, extra oral and specialized radiographs on adult and child patients. Emphasis is placed on protection against x-ray hazards. Students will also process, mount, and evaluate radiographs for diagnostic value. In addition, they will use radiographs to explain dental health and treatment plans to patients.

Career Cluster
Health Science

Instructional Level
Technical Diploma Courses

Total Credits
1.00

Total Hours
36.00

Types of Instruction

Instruction Type
Lab

Credits/Hours
1 CR / 36 HR

Course History

Target Population
Individuals who are preparing for careers as dental assistants.

Pre/Corequisites
Prerequisite
10508103 Dental Radiography

Textbooks
No textbook required.

Core Abilities

1. Apply mathematical concepts.
   Status Active
2. Demonstrate ability to think critically.
3. Demonstrate ability to value self and work ethically with others in a diverse population.

4. Make decisions that incorporate the importance of sustainability.

5. Transfer social and natural science theories into practical applications.

6. Use effective communication skills.

7. Use technology effectively.

Program Outcomes

1. Manage infection and hazard control

2. Produce diagnostic intraoral and extraoral radiographs on a variety of patients

3. Demonstrate professional behaviors, ethics and appearance

External Standards

Title: Dental Assisting Standards - ADA

Version/Date: 2008

Association Status: Active

Sponsoring Organization: American Dental Association

Origin URL: www.ada.org/sections/educationAndCareers/pdfs/da.pdf

Target Standards

2-4 The curriculum must be structured on the basis of, a minimum of, one academic year of full-time study or its equivalent at the postsecondary level.

2-5 The curriculum must be designed to reflect the interrelationship of its general education, biomedical sciences, dental sciences, clinical sciences and clinical practice. This content must be integrated and of sufficient depth, scope, sequence of instruction, quality and emphasis to ensure achievement of the curriculum's defined competencies.

2-6 Written documentation of each course in the curriculum must be provided and include the course description, course outline including topics to be presented, specific instructional objectives, learning experiences including time allocated for each experience and evaluation procedures.

2-7 Graduates must be competent in the knowledge and skill required to systematically collect diagnostic data, including: Medical and dental histories, Vital signs, Extra/intra oral examinations, Dental charting, Radiographs, Preliminary impressions/study casts/occlusal registrations.

2-8.a Manage infection and hazard control protocol consistent with published professional guidelines.
2-8.j Maintain accurate patient treatment records.

2-11 The curriculum must include content in five areas: general education, biomedical sciences, dental sciences, clinical sciences and clinical practice.

2-14 The biomedical science aspect of the curriculum must include content at the in-depth level in bloodborne pathogens and hazard communications standards and content must be integrated throughout the didactic, preclinical, laboratory and clinical components of the curriculum.

2-16.c The dental science aspect of the curriculum must include content at the in-depth level in dental radiology.

2-17 Each student must be able to demonstrate knowledge of radiation safety measures to produce diagnostic radiographic surveys on manikins prior to exposing radiographs on patients.

2-18 Students must demonstrate minimum competency in taking diagnostically acceptable radiographs on patients in the program facility prior to taking radiographs during extramural clinical assignments.

2-19 Faculty instruction and evaluation must be provided throughout the students' radiographic technique experience.

2-20 Through scheduled instructional sessions, students must have the opportunity to develop competence in exposing and processing radiographs on a variety of patients.

2-21.f The clinical science aspect of the curriculum must include content at the in-depth level to include oral health education.

2-28 Students must maintain a record of their activities in each assignment.

2-32 The program must employ objective student evaluation methods that measure all defined laboratory, preclinical and clinical course objectives. Examples of evidence to demonstrate compliance may include: a. Students and faculty assess progress in relation to the stated course objectives. b. The required competencies are based on generally accepted standards. c. Specific criteria for measuring levels of competence are developed for each component of a given procedure. d. Students' performance is measured against accepted program standards. e. Standards of performance are adjusted upward as students progress through the curriculum.

Course Competencies

1. **Expose full mouth radiographs on patients to include permanent, primary/mixed and edentulous dentitions**

   *Domain*  Psychomotor  *Level*  Adaptation  Status  *Active*

   Linked Core Abilities
   - Apply mathematical concepts.
   - Demonstrate ability to think critically.
   - Demonstrate ability to value self and work ethically with others in a diverse population.
   - Make decisions that incorporate the importance of sustainability.
   - Transfer social and natural science theories into practical applications.
   - Use effective communication skills.
   - Use technology effectively.

   Linked Program Outcomes
   - Manage infection and hazard control
   - Produce diagnostic intraoral and extraoral radiographs on a variety of patients
   - Demonstrate professional behaviors, ethics and appearance

   Assessment Strategies
   1. on patients in a clinical or laboratory setting
   1.2. using both paralleling and bisecting angle techniques
   1.3. given the required forms
1.4. under the supervision and observation of instructional staff

Criteria

Your performance will be successful when:

1.1. you check the prescription before exposure
1.2. you select the correct armamentarium
1.3. you manage patients effectively
1.4. you position yourself and your patient correctly
1.5. you perform all critical steps in the correct order
1.6. you record exposure accurately
1.7. you employ safety precautions
1.8. you follow infection control protocol
1.9. you wear personal protective equipment
1.10. radiographs are of diagnostic quality
1.11. radiographs are stored so that they are preserved and can be easily retrieved (according to clinic/office protocol)
1.12. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives

1.a. Review basic principles of paralleling and bisecting angle techniques
1.b. Review film holding devices for paralleling and bisecting angle techniques
1.c. Discuss placement of film for paralleling and bisecting angle techniques
1.d. Discuss placement of film holders for paralleling and bisecting angle techniques
1.e. Describe placement of PID and angulation of PID for paralleling and bisecting angle techniques
1.f. Describe the advantages and disadvantages of the digital technique of film holding
1.g. Demonstrate correct and incorrect horizontal and vertical angulation

2. Process radiographs of diagnostic quality

Domain  Psychomotor  Level  Adaptation  Status  Active

Linked Core Abilities

Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Make decisions that incorporate the importance of sustainability.
Transfer social and natural science theories into practical applications.
Use effective communication skills.
Use technology effectively.

Linked Program Outcomes

Manage infection and hazard control
Produce diagnostic intraoral and extraoral radiographs on a variety of patients
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies

2.1. in a laboratory/clinical setting using automatic and/or manual processing equipment
2.2. by submitting processed and mounted radiographs for evaluation
2.3. by explaining a treatment plan or diagnosis to a patient or role play patient

Criteria

Your performance will be successful when:

2.1. you check that equipment is prepared and ready for use.
2.2. radiograph meets standards of diagnostic quality
2.3. processing errors are recorded and corrections are listed
2.4. radiograph is mounted correctly
2.5. radiograph is stored so that it is preserved and can be easily retrieved (according to clinic/office protocols)
2.6. you follow infection control protocol
2.7. you use radiograph to explain diagnosis and treatment plans developed by a dentist or hygienist
2.8. your explanation is accurate
2.9. you use terminology and language that the patient understands, accurately defining technical terms as necessary
2.10. you check for patient understanding
2.11. you respond truthfully and accurately to patient questions
2.12. radiographs are stored so that they are preserved and can be easily retrieved (according to clinic/office protocol)
2.13. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
2.a. Review the composition of the processing solutions
2.b. Review the components of the processing units
2.c. Review the procedural step for automatic and manual processing
2.d. Demonstrate the process of film duplication used in dentistry
2.e. Review the requirements for a darkroom
2.f. Review film processing problems
2.g. Review importance of using anatomy/landmarks in film mounting
2.h. Correctly mount films

3. **Produce extra-oral radiographs**

**Domain**  Psychomotor  **Level**  Practice  **Status**  Active

**Linked Core Abilities**
- Apply mathematical concepts.
- Demonstrate ability to think critically.
- Demonstrate ability to value self and work ethically with others in a diverse population.
- Make decisions that incorporate the importance of sustainability.
- Transfer social and natural science theories into practical applications.
- Use effective communication skills.
- Use technology effectively.

**Linked Program Outcomes**
- Manage infection and hazard control
- Produce diagnostic intraoral and extraoral radiographs on a variety of patients
- Demonstrate professional behaviors, ethics and appearance

**Assessment Strategies**
3.1. under the supervision and observation of instructional staff
3.2. on patients in a clinical or laboratory setting

**Criteria**

*Your performance will be successful when:*
3.1. you check the prescription before exposure
3.2. you manage patients effectively
3.3. you record exposure accurately
3.4. you select the correct armamentarium
3.5. you position yourself and your patient correctly
3.6. you perform all critical steps in the correct order
3.7. you employ safety precautions
3.8. you follow infection control protocol
3.9. you wear personal protective equipment
3.10. extraoral radiographs are of diagnostic quality
3.11. radiographs are stored so that they are preserved and can be easily retrieved (according to clinic/office protocol)
3.12. patient's records show accurate, up-to-date documentation of treatment and services

**Learning Objectives**
3.a. Describe equipment used for the panelipse
3.b. Describe the purpose and use of extraoral radiographs
3.c. State the correct beam alignment
3.d. State the correct placement of the film

4. **Produce radiographs using specialized films and techniques**

**Domain**  Psychomotor  **Level**  Practice  **Status**  Active
Linked Core Abilities
Apply mathematical concepts.
Demonstrate ability to think critically.
Demonstrate ability to value self and work ethically with others in a diverse population.
Make decisions that incorporate the importance of sustainability.
Transfer social and natural science theories into practical applications.
Use effective communication skills.
Use technology effectively.

Linked Program Outcomes
Manage infection and hazard control
Produce diagnostic intraoral and extraoral radiographs on a variety of patients
Demonstrate professional behaviors, ethics and appearance

Assessment Strategies
4.1. by exposing specialized radiographs on patients or manikins in a laboratory/clinic setting
4.2. given the required forms
4.3. under the supervision and observation of instructional staff
4.4. by submitting processed radiographs

Criteria
Your performance will be successful when:
4.1. you expose bitewing and occlusal radiographs on permanent, primary, and mixed dentitions
4.2. you expose periapicals for endodontic treatment (optional)
4.3. you expose radiographs using localization techniques
4.4. you check the prescription before exposure
4.5. you record exposure accurately
4.6. you select the correct armamentarium
4.7. you perform all critical steps in the correct order
4.8. you position yourself and your patient correctly
4.9. you employ safety precautions
4.10. you follow infection control protocol
4.11. you wear personal protective equipment
4.12. radiographs are of diagnostic quality
4.13. radiographs are stored so that they are preserved and can be easily retrieved (according to clinic/office protocol)
4.14. patient's records show accurate, up-to-date documentation of treatment and services

Learning Objectives
4.a. List uses of occlusal radiograph
4.b. Describe vertical angulation for maxillary and mandibular cross sectional film
4.c. Discuss vertical angulation for maxillary and mandibular topographical film
4.d. State purpose of localization technique
4.e. Describe the buccal rule
4.f. Describe the right angle technique
4.g. Expose films according to chosen localization and uses

Course Learning Plans and Performance Assessment Tasks

<table>
<thead>
<tr>
<th>Type</th>
<th>Title</th>
<th>Source</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>LP</td>
<td>Expose Full Mouth Radiographs</td>
<td>Course</td>
<td>Active</td>
</tr>
<tr>
<td>LP</td>
<td>Process Radiographs</td>
<td>Course</td>
<td>Active</td>
</tr>
<tr>
<td>LP</td>
<td>Extraoral Radiographs</td>
<td>Course</td>
<td>Active</td>
</tr>
<tr>
<td>LP</td>
<td>Specialized Film and Techniques</td>
<td>Course</td>
<td>Active</td>
</tr>
</tbody>
</table>