

**Course discipline/number/title: DA 1275: Dental Radiology****A. CATALOG DESCRIPTION**

1. **Credits:** 3
2. **Hours/Week:** 2 lecture, 2 lab
3. **Prerequisites (Course discipline/number:** DA 1225
4. **Other requirements:** None
5. **MnTC Goals (if any):** NA

**B. COURSE DESCRIPTION:** This course includes the history of radiology, theoretical concepts of the characteristics of radiation, the effects of radiation exposure, roentgenographic anatomy and pathology, radiographic exposure techniques, film processing and mounting, film evaluation, radiation biology and protection, and intra and extra-oral radiographic procedures.**C. DATE LAST REVISED (Month, year):** September, 2021**D. OUTLINE OF MAJOR CONTENT AREAS:**

1. History of Radiology
2. Operator/Patient Protection Methods
3. Infection Control
4. Paralleling/Localization Technique
5. Characteristics of Radiation, the X-Ray Machine, Imaging, and X-Ray Production
6. Film Evaluation: Mounting, Exposure, and Processing Errors
7. Anatomy
8. Film Composition, Processing, and Quality Assurance
9. Patient Management
10. Radiation Biology and Protection
11. Accessory Imaging Techniques
12. Extraoral and Advanced Imaging Techniques
13. Radiographic Interpretation and Pathology
14. Digital Imaging
15. Implant Radiology

**E. LEARNING OUTCOMES (GENERAL):** The student will be able to:

1. Retrace the history of dental radiography.
2. Define radiographic terms and usage.
3. Describe intraoral image types.
4. Identify structures recorded on each intraoral image.
5. Describe the characteristics of radiation.
6. Operate the x-ray machine safely.
7. Describe the function of the individual parts of the x-ray machine.
8. Describe x-ray production and factors which affect the x-ray beam and the image it produces.
9. Discuss how the radiographic image is recorded on the x-ray film and sensor.
10. Differentiate among factors which can influence the quality of radiographic image.
11. Describe the paralleling technique terminology and application.
12. Describe the intra-oral bisecting technique.
13. Describe the principles of radiation biology.
14. Practice methods (ALARA) to minimize occupational/patient exposure to radiation.
15. Describe the elements of selection criteria for dental x-ray exposures.
16. Describe film composition, film storage, film processing chemicals and their action.
17. Describe the necessary components of an adequate darkroom and maintenance of processors.
18. Demonstrate proper techniques for processing radiographs.
19. Demonstrate proper mounting of dental radiographs and labeling.
20. Describe dental radiograph duplication.
21. Describe methods utilized in quality assurance.
22. Evaluate radiographs for errors in exposure technique and processing.

- E. LEARNING OUTCOMES (GENERAL):** The student will be able to:
23. Describe patient and anatomy management techniques.
  24. Describe localization techniques.
  25. Describe extraoral exposure techniques.
  26. Describe the concepts utilized in computed tomography.
  27. Describe principles involved in cone beam imaging.
  28. Identify normal anatomical landmarks and pathology on dental images.
  29. Apply principles of infection control in dental radiology.
  30. Describe principles of digital radiology and technique.
  31. Describe implant radiology techniques.
  32. Complete radiographic documentation.
  33. Perform intraoral exposure techniques.
- F. LEARNING OUTCOMES (MNTC):** NA
- G. METHODS FOR EVALUATION OF STUDENT LEARNING:** Methods may include but are not limited to:
1. Weekly written and oral quizzes
  2. Workbook assignments
  3. Midterm Examination
  4. Comprehensive Final Examination
  5. Dental radiography lab and clinic skill evaluations.
- H. RCTC CORE OUTCOME(S).** This course contributes to meeting the following RCTC Core Outcome(s).  
**Critical Thinking.** Students will think systematically and explore information thoroughly before accepting or formulating a position or conclusion.
- I. SPECIAL INFORMATION (if any):**
1. RCTC Approved uniform attire, safety glasses, and nametag.
  2. Current Certification in American Red Cross or American Heart Association BLS (Basic Life Support) for the Healthcare Provider (CPR/AED)
  3. Approved state background study
  4. Approved health assessment
  5. Hepatitis B Vaccine
  6. Compliance with Dental Infection Control Protocols and Hazard Management Protocols.