



This course is designed to meet the standards established by the Board of Dental Examiners for the operation of dental radiographic equipment in California in a one semester format. Includes both didactic and clinical application, utilizing both DXTTR mannikin and 3 patients. This course includes study of radiation, legislation, effects and protection, exposing techniques for the adult, pedodontic, mixed dentition, and edentulous patients. This course utilizes and details the various types of dental films, identification and correction of faulty films, developing and processing procedures, record maintenance, and the mounting and evaluation of films. This course emphasizes the student's individual development. A California State Dental X-ray License will be issued by the Dental Assisting Department thru COMDA to students who successfully complete this course with a 75% or higher. The purchase of a Dental Radiology Student Supply Kit is required. A materials fee of \$\_\_\_\_\_ is payable upon registration. (This course is offered in both Fall and Spring.) Corequisites: Concurrent enrollment in or successful completion of DENT 731 or DENT 732 or currently employed clinically in a dental office.

**6. Student Learning Outcomes** (Identify 1-6 expected learner outcomes using active verbs.)

Upon successful completion of the course, the student will be able to:

1. Demonstrate an understanding of the various uses of dental radiographs.
2. Describe the biological effects of radiation exposure on the human body.
3. Explain the basic principle of the paralleling technique.
4. Expose a 20 film Full Mouth X-ray Survey (FMX) on a live patient within 45 minutes with fewer than 5 retakes.
5. Properly mount a 20 film Full Mouth X-ray Survey (FMX) into a mount in 3 minutes or less with no errors.
6. Identify all operator errors of each of the 20 films in a Full Mouth X-ray Survey (FMX) and describe the corrective measure for each error identified.

**7. Course Objectives** (Identify specific teaching objectives detailing course content and activities. *For some courses, the course objectives will be the same as the student learning outcomes. If this is the case, please simply indicate this in this section).*

Same as SLO's

**8. Course Content** (Brief but complete topical outline of the course that includes major subject areas [1-2 pages]. Should reflect all course objectives listed above. In addition, you may attach a sample course syllabus with a timeline.)

- I. History of Dental Radiography
- II. Infection Control
  - a. strategies of effective infection control
- III. Intraoral Radiographic Techniques
  - a. types of surveys: Bitewings vs. Full mouth x-rays (FMX)
  - b. Parallel Techniques
- IV. X-ray Properties and the Generation of X-rays

- a. properties of x-rays
  - b. components of Dental x-ray tube
  - c. production of x-rays
- V. Radiation Protection and Biology
- a. molecular changes and cellular effects
  - b. short and long term effects of radiation
  - c. units of radiation measurement
  - d. radiation protection for the patient and operator
  - e. ALARA, MPD, Film badges, and Docimeters
- VI. X-ray Film Holders
- a. snap-a-ray
  - b. styrofoam bite blocks
  - c. bitewing tabs
  - d. XCP-Ring
- VII. Mounting Techniques
- a. normal anatomy and film mounting
    - 1. teeth and adjacent structures
    - 2. mounting procedures
    - 3. tips on mounting dental radiographs
- VIII. Film Placement
- a. verticle angulation
  - b. horizontal angulation
  - c. imaginary lines of the face and cone placement
- IX. Film Processing and Quality Assurance
- a. film composition
  - b. latent image formation
  - c. concepts of film processing
  - d. chemical composition of solutions
  - e. care of solutions
  - f. darkroom vs. automatic processing
  - g. diagnosing processing errors
  - h. duplicatiing films
- X. Extraoral Radiography
- a. lateral oblique jaw projections
  - b. cephalometric projections
  - c. temporomandibular joint (TMJ) views
  - d. maxillary sinuses
- XI. Accessory Radiographic Techniques and Patient Management
- a. bisecting the angle technique
  - b. occlusal radiographs on adult and pedo patients
  - c. patient management
  - d. patient with disabilities
  - e. anatomic conditions
  - f. radiographic technique as it applies to: edentulous, pedo, and supplemental
- XII. Principles of Paralleling Technique
- XIII. Operator Errors

- a. overlapping
- b. cone cuts
- c. elongation
- d. foreshortening
- e. double exposure
- f. unexposed film
- g. film placement

IXV. Bisecting the Angle Technique

XV. Landmarks of the Face

XVI. Radiographic Presentation of Lesions

- a. radiographic changes resulting from infection, periodontal disease, and/or dental caries
- b. radiographic features of dental anomalies
- c. radiographic features of common oral lesions

XVII. Image Characteristics

XVIII. Digital Imaging

- a. CCD's and digital imaging

9. **Representative Instructional Methods** (Describe instructor-initiated teaching strategies that will assist students in meeting course objectives. Include examples of out-of-class assignments, required reading and writing assignments, and methods for teaching critical thinking skills.) **If hours by arrangement are required by this course, indicate the additional instructional activity which will be provided during this time.**

Instructor will utilize the following instructional methods: lectures, group discussions, worksheets, homework and reading assignments, hands on demonstrations at the x-ray unit, and slide presentations.

10. **Representative Methods of Evaluation** (Describe measurement of student progress toward course objectives. Courses with required writing component and/or problem-solving emphasis must reflect critical thinking component. If skills class, then applied skills.)

Students will be evaluated as based on completion of worksheets and homework assignments, quizzes, tests, completion of radiographic surveys on both dexter mannikins and live patients, participation in lab and lecture sessions, and final examination.

11. **Representative Text Materials** (With few exceptions, texts need to be current. Include publication dates.)

Radiographic Imaging for Dental Auxillaries, Fourth edition by Miles & VanDis  
Textbook (2009) Saunders Publishing Company

DENT 763 Radiology Syllabus. Updated Summer 2008. Renee Herold, Instructor.

Prepared by: \_\_\_\_\_  
(Signature)

Email address: kirbyc@smccd.edu

Submission Date: \_\_\_\_\_