Dakota County Technical College

DENT 1250: Radiology

A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course requires instructor approval if not taken in the semester sequence. This course assists the student with an understanding of how radiation is produced, principles of protection for the patient and the operator, and techniques for processing radiographs as well as identifying processing errors. This course covers the techniques used in exposing intraoral radiographs as well as technical errors and corrections. Students will learn to mount and evaluate films for their diagnostic value. The student will be exposed to the extraoral accessory films utilized in the dental office and the procedural techniques for exposing them. Prerequisites: Admission to Dental Assisting Program or instructor permission

B. COURSE EFFECTIVE DATES: 02/26/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Discuss the legal aspects of digital images
2. Discuss types of digital systems
3. Discuss the advantages and disadvantages of digital radiology
4. Understand the principles of digital imaging and how they can be used in the dental office
5. Be able to make images using digital radiography
6. Define terms used in Radiology
7. Identify the types of films used in a full mouth survey
8. Identify the various sizes of dental radiographic films
9. Identify and locate anatomical landmarks of the mandibular/maxillary arch
10. Compare the required structures present on individual periapical projections
11. Compare the required structures present on bite wing radiographs
12. Determine the head position for bite-wing x-rays
13. Determine the head position for the mandibular periapical x-rays
14. Determine the head position for the maxillary periapicals x-rays
15. Define the radiolucent areas on an x-ray film
16. Define the radiopaque areas on an x-ray film
17. Compare the characteristics of radiolucet with those of radiopaque
18. Identify anatomic landmarks of the dentition that apply to the exposure and mounting of x-rays
19. Demonstrate mounting radiographic surveys
20. Describe the parallel technique
21. Demonstrate incorrect horizontal and vertical angle, state error, and identify correction
22. Expose intraoral radiographs on skulls/dexter
23. Calculate correct exposure time
24. Calculate correct MA and KVP setting
25. Explain the differences between density and contrast
26. Describe the criteria for evaluation of diagnostic radiographs
27. Demonstrate the placement and exposure of film in the application of the paralleling and bisecting techniques
28. Determine the causes of technical errors when exposing radiographs
29. Describe the necessary steps for correcting a technical error on an extraoral dental film
30. Label a diagram of an x-ray unit
31. Describe components of the x-ray tube
32. Compare tube head components to their function
33. Specify the quality and quantity of x-ray production
34. Describe the appearance of technical errors on radiographs
35. Describe image production
36. Compare types of radiation
37. Distinguish between genetic and somatic cell response
38. Distinguish whole body and specific area radiation dosage
39. Identify ways to reduce patient exposure to x-radiation
40. Select from a list the consequences of over exposure to x-radiation
41. Indicate ways to reduce patient exposure to x-radiation
42. Compare components found in x-ray film
43. List the steps in manual processing
44. Demonstrate the use of an automatic processor

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45. Compare chemical components
46. Demonstrate processing exposed dental x-ray film using the automatic day light processor
47. Identify the processing error responsible for inaccurately developed films
48. Describe the bisecting technique
49. Diagram how vertical angulation is determined in the bisecting angle technique
50. Compare the bisecting angle and the parallel techniques
51. Differentiate the paralleling and bisecting technique utilized when exposing intraoral radiographs
52. Identify the steps for evaluating the diagnostic quality of a radiographic survey
53. Identify the technical error responsible for inaccurately exposed films
54. Determine patient comfort when positioning for radiographs
55. Expose intraoral radiographs on patients
56. Demonstrate patient safety precautions when exposing radiographs
57. Demonstrate operator safety precautions when exposing radiographs
58. Demonstrate their ability to prepare the operatory using the aseptic technique
59. Identify the types of films used in the pedodontic full mouth survey
60. Describe the modifications necessary for producing radiographs of mixed dentition
61. Identify the types of films used in the edentulous full mouth survey
62. Describe the modifications necessary for producing radiographs edentulous dentition
63. Identify the placement and exposure of film in the application of occlusal radiographs
64. Describe the modifications necessary for producing occlusal radiographs
65. List the uses of extraoral radiographic surveys
66. Describe the application of panoramic radiographs
67. Describe the limitations of panoramic radiographs in the detection of caries
68. Describe the application of cephalometric radiographs
69. Identify the major cephalomeric landmarks of the skull
70. Describe the quality assurance plans for radiology
71. Demonstrate the use of the Crabtree test
72. Discuss the role of the radiation safety officer
73. Display professional behavior

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted