

## Administrative Master Syllabus

### Course Information

<b>Course Title</b>	Dental Radiology
<b>Course Prefix, Num. and Title</b>	DHYG 1304 Dental Radiology
<b>Division</b>	Allied Health
<b>Department</b>	Dental Hygiene
<b>Course Type</b>	WECM Course
<b>Course Catalog Description</b>	Fundamentals of oral radiography including techniques, interpretation, quality assurance and ethics.
<b>Pre-Requisites</b>	DHYG 1301,1311,1431 with a grade of C or better.
<b>Co-Requisites</b>	Enter Co-Requisites Here.

### Semester Credit Hours

<b>Total Semester Credit Hours (SCH): Lecture Hours:</b>	3:2:3
<b>Lab/Other Hours</b>	
<b>Equated Pay Hours</b>	3.5
<b>Lab/Other Hours Breakdown: Lab Hours</b>	3
<b>Lab/Other Hours Breakdown: Clinical Hours</b>	Enter Clinical Hours Here.
<b>Lab/Other Hours Breakdown: Practicum Hours</b>	Enter Practicum Hours Here.
<b>Other Hours Breakdown</b>	List Total Lab/Other Hours Here.

### Approval Signatures

Title	Signature	Date
<b>Department Head:</b>	CJDerkowski	3/1/2024
<b>Division Chair:</b>	CJDerkowski	3/1/2024
<b>VPI:</b>		

## **Additional Course Information**

**Topical Outline:** Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

### I. X-Ray Machine

- A. X-ray generation
- B. Regulating devices
  - 1. KVP control
  - 2. MA control
  - 3. Timer

### II. Filter and Diaphragm

- A. Function
- B. Composition

### III. Effects of Radiation on Body Tissue

- A. Cell destruction
- B. Sensitive tissue
- C. Effect of exposure

### IV. Protection

- A. Patient protection
- B. Operator protection

### V. Radiation Measurement

### VI. Dental Film

- A. Parts of film
- B. Film speed
- C. Emulsion contents

### VII. Processing Procedures

- A. Manual Processing
  - 1. Chemicals
  - 2. Time/temperature method of developing
- B. Automatic Processing
  - 1. Procedure
  - 2. Maintenance
- C. Asepsis in the darkroom

### VIII. Factors of Film Quality

- A. Wave length
- B. Effect of KVp and MA
- C. Inverse Square Law
- D. Manipulation of Film Quality Factors

### XI. X-ray Recognition

- A. Anatomical Landmarks
- B. Pathology vs Normal Anatomy
- C. Radiograph Interpretation

### X. Patient Management Technique

### XI. Exposure and Processing Errors

- A. Cause
- B. Prevention
- C. Recognition



XII. Intraoral Techniques

- A. Paralleling
- B. Bisection of Angle

XIII. Special Needs Patients

- A. Pedodontic Patients
- B. Edentulous Patients

XIV. Extraoral Techniques

- A. Occlusal views
- B. Extraoral views
- C. Panoramic technique

XV. Quality Control Measures

XVI. Digital Radiography

LAB OUTLINE

- I. Orientation
  - A. Equipment
    - 1. X-ray Machines
      - a. Asepsis
      - b. Maintenance
    - 2. Darkroom
      - a. Asepsis
      - b. Maintenance
    - 3. Radiation Protection
      - a. Operator
      - b. Patient
- II. Intraoral Radiographic Technique
  - A. Paralleling Technique
  - B. Criteria for Radiographic Evaluation
  - C. Interproximal Technique Demonstration
  - D. Practice Exercise – manikins
- III. Anatomical Landmarks
  - A. Slide Series
  - B. Identification of Landmarks
    - 1. Skull
    - 2. Radiographs
  - C. Recognition of Landmarks on Practice Sets
- IV. Intraoral Techniques
  - A. Maxillary Film Placement and Exposure Technique
  - B. Mandibular Film Placement and Exposure Technique
  - C. Bitewings with Tabs
  - D. Vertical Bitewings
- V. Practical Exercises
  - A. Mounting
  - B. Complete Film Series – Manikins
  - C. Landmark Identification
- VI. Panoramic Technique
  - A. Equipment
  - B. Patient Position
  - C. Asepsis

- D. Radiation Safety
- VII. Digital Radiographs
  - A. Equipment
    - 1. Computers
    - 2. Sensors
  - B. Technology

## Course Learning Outcomes:

### Learning Outcomes – Upon successful completion of this course, students will:

1. Explain the principles of radiation as it relates to physics, biology, hygiene and safety.
2. Produce and interpret diagnostically acceptable radiographs utilizing various radiographic techniques.
3. Apply the principles of quality assurance and ethics in dental hygiene radiography.
4. Describe the fundamentals of oral radiographic techniques and interpretation.
5. Demonstrate appropriate patient and operator protection procedures.

### Methods of Assessment:

1. Written Exam
2. Lab Exercises
3. Critique Competencies

## Required text(s), optional text(s) and/or materials to be supplied by the student:

Iannucci, Joen and Howerton, Laura. Dental Radiography Principles and Techniques, Elsevier.  
Rinn XCP instrument

## Suggested Course Maximum:

28

## List any specific or physical requirements beyond a typical classroom required to teach the course.

Dexter x-ray mannequin, darkroom, processing equipment, dental chair, x-ray machine, digital x-ray system \ software, digital panoramic x-ray machine.

**Course Requirements/Grading System:** Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Lab 50%	A = 93 - 100
Lab assignments	B = 84 - 92
	C = 83 - 75
Lecture 50%	D = 74 - 67
Written exams, quizzes, final	F = 66 and below

Minimum grade of 75 must be earned in lab and lecture.



**Curriculum Checklist:**

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course** – Attach the Core Curriculum Review Forms
  - Critical Thinking
  - Communication
  - Empirical & Quantitative Skills
  - Teamwork
  - Social Responsibility
  - Personal Responsibility
- WECM Course** – If needed, revise the Program SCANS Matrix and Competencies Checklist