

## OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

<b>Course Code and Number:</b> DENT 135		<b>Number of Credits:</b> 2.5															
<b>Course Full Title:</b> Dental Radiography <b>Course Short Title:</b> Dental Radiography																	
<b>Faculty:</b> Faculty of Health Sciences		<b>Department:</b> Health Studies															
<b>Calendar Description:</b> The basics of radiation biology, concepts of x-ray physics, principles of x-ray radiography, safety precautions, quality assurance, and the operation of the dental x-ray unit are examined. Direct and indirect imaging systems, the application of intra and extra-oral technologies, along with various techniques are introduced. Students will learn how to produce images using direct and indirect imaging systems at a manikin level that includes the proper storage and transfer of images.																	
<b>Prerequisites (or NONE):</b>		DENT 130, DENT 131, DENT 132, DENT 134, DENT 136, DENT 137, and DENT 150.															
<b>Corequisites (if applicable, or NONE):</b>																	
<b>Pre/corequisites (if applicable, or NONE):</b>																	
<b>Antirequisite Courses</b> <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Dual-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>		<b>Special Topics</b> <i>(Double-click on boxes to select.)</i> This course is offered with different topics: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <i>(If yes, topic will be recorded when offered.)</i>															
		<b>Independent Study</b> If offered as an Independent Study course, this course may be repeated for further credit: <i>(If yes, topic will be recorded.)</i> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit															
<b>Typical Structure of Instructional Hours</b> <table border="1"> <tr> <td>Lecture/seminar hours</td> <td>42</td> </tr> <tr> <td>Tutorials/workshops</td> <td></td> </tr> <tr> <td>Supervised laboratory hours</td> <td></td> </tr> <tr> <td>Experiential (field experience, practicum, internship, etc.)</td> <td></td> </tr> <tr> <td>Supervised online activities</td> <td></td> </tr> <tr> <td>Other contact hours:</td> <td></td> </tr> <tr> <td><b>Total hours</b></td> <td><b>42</b></td> </tr> </table>		Lecture/seminar hours	42	Tutorials/workshops		Supervised laboratory hours		Experiential (field experience, practicum, internship, etc.)		Supervised online activities		Other contact hours:		<b>Total hours</b>	<b>42</b>	<b>Transfer Credit</b> Transfer credit already exists: <i>(See <a href="http://bctransferguide.ca">bctransferguide.ca</a>.)</i> <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Submit outline for (re)articulation: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <i>(If yes, fill in transfer credit form.)</i>	
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		<b>Grading System</b> <input checked="" type="checkbox"/> Letter Grades <input type="checkbox"/> Credit/No Credit															
Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		<b>Maximum enrolment (for information only):</b> 24 <b>Expected Frequency of Course Offerings:</b> Winter Only <i>(Every semester, Fall only, annually, etc.)</i>															
<b>Director:</b> Cindy Schultz		<b>Date approved:</b> February 2021															
<b>Faculty Council approval</b>		<b>Date approved:</b> March 1, 2021															
<b>Dean:</b> Alastair Hodges		<b>Date approved:</b> March 1, 2021															
<b>Campus-Wide Consultation (CWC)</b>		<b>Date of posting:</b> April 9, 2021															
<b>Undergraduate Education Committee (UEC) approval</b>		<b>Date of meeting:</b> April 23, 2021															

**Learning Outcomes**

Upon successful completion of this course, students will be able to:

- Explain the history and current application of radiation in dentistry.
- Explain the biological effects of radiation exposure.
- Describe components of the x-ray machine and their functions.
- Describe composition and components of various types of receptors.
- Demonstrate principles of radiation safety and protection.
- Demonstrate proper infection control, care, handling of films and digital equipment.
- Apply principles of extraoral and intra-oral radiographic techniques.
- Produce diagnostic radiographic images using direct and indirect imaging systems.
- Identify common anatomical landmarks and dental anomalies of radiographic images.
- Critique radiographic images for technical quality, accuracy and diagnostic acceptability.
- Identify dental radiography exposure, technique errors and corrective measures.
- Mount, label and properly store/save radiographic images.

**Prior Learning Assessment and Recognition (PLAR)**

☐ Yes ☒ No, PLAR cannot be awarded because course completion is specific to UFV CDA program graduation requirements.

**Typical Instructional Methods**

Lecture, group work, case studies, online videos, demonstrations, clinical application and hybrid course delivery.

**NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.**

**Typical Text(s) and Resource Materials** *(If more space is required, download Supplemental Texts and Resource Materials form.)*

Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1. Iannucci and Howerto	Dental Radiography Principles and Techniques	<input checked="" type="checkbox"/>	Elsevier, Saunders	2017
2. Iannucci and Howerto	Dental Radiography Principles and Techniques Workbook	<input checked="" type="checkbox"/>	Elsevier, Saunders	2017
3. Bird, D.L. and Robinson, D.S.	Modern Dental Assisting	<input checked="" type="checkbox"/>	Elsevier, Saunders	2021

**Required Additional Supplies and Materials**

Clinic scrubs, lab coat, duty shoes, name tag and protective eyewear, and face shields.

**Typical Evaluation Methods and Weighting**

Final exam:	50%	Assignments:	15%	Field experience:	%	Portfolio:	%
Midterm exam:	%	Project:	%	Practicum:	%	Other:	%
Quizzes/tests:	10%	Rad Lab work Application Assignments:	25%	Shop work:	%	Total:	100%

**Details (if necessary):** The application of course outcomes at a patient level are implemented and assessed in the DENT 154 and DENT 162 program clinical courses.

**Typical Course Content and Topics****Radiation Physics**

- Atomic structure
- Ionizing radiation
- X-ray production
- Properties of x-rays

**Characteristics of Radiographic Images**

- KvP and mA ranges
- X-ray beam quantity and amperage
- Image density and contrast
- Image definition and detail
- Principles of shadow casting
- Geometric unsharpness

**Radiation Biology**

- Radiation injury
- Radiation exposure risks
- Risk/benefit of dental radiographs

**Dental Radiographer Basics**

- Purpose of radiographs
- Patient management
- Legal considerations
- Quality assurance
- Infection Control

**Radiation Protection**

- Patient protection
- Operator protection
- Radiation monitoring
- Radiation exposure guidelines

**Equipment and Supplies**

- X-ray machine components and function
- Intra-oral and extra-oral machines
- Dental x-ray film holders and devices
- Types of film
- Composition and components of intra-oral film
- Radiographic film/image storage
- Radiographic equipment, processing and maintenance

**Intra Oral Radiographic Techniques**

- Bitewing technique
- Paralleling technique
- Bisecting technique
- Occlusal techniques and localized techniques
- Exposure and technique errors
- Normal anatomy and mounting
- Diagnostic criteria for intraoral images
- Guidelines for radiographic image prescriptions

**Extra Oral Radiography Techniques**

- Panoramic radiography
- Cephalometric radiography
- Digital radiography and 3D imaging
- CBCT digital images