

**DENTAL RADIOLOGY LABORATORY
LAB MANUAL**
(DHYG 1304.5A1, DHY 1304.5B1, DHYG 1304.5C1,
DHYG 1304.5D1, DHYG 1304.5E1)



CREDIT

3 Semester Credit Hours (2 hours lecture weekly, 3 hours lab weekly)

MODE OF INSTRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

Prerequisite: DHYG 1301

Co-Requisite: DHYG 1304.1A1, DHYG 1227, DHYG 1431

COURSE DESCRIPTION

Fundamentals of oral radiography, including techniques, interpretation, quality assurance, and ethics.

LABORATORY OBJECTIVES

Upon completion of this course, the student will be able to

1. Completed four satisfactory full mouth survey on a DXTTR manikin with an adult dentition, using a combination of paralleling and/or bisecting angle techniques, with unlimited retakes on practice manikin and with no more than 6 retakes on competency.
2. Completed two satisfactory full mouth surveys on adult patients using the paralleling and/or bisecting technique, with no more than 6 retakes.
3. Completed one satisfactory full mouth survey on a child DXTTR manikin using the paralleling and/or bisecting angle technique, with no more than 3 retakes.
4. Completed two satisfactory horizontal bitewing surveys, 1 DXTTR manikin and 1 adult patient, using the paralleling or bisecting angle technique with no more than 2 retakes.
5. Completed one satisfactory adult vertical bitewing surveys on a DXTTR manikin using the paralleling or bisecting angle technique, with no more than 2 retakes.
6. Completed two satisfactory adult horizontal bitewing surveys on a DXTTR manikin using the NOMAD and bisecting angle technique, with no more than 2 retakes.
7. Completed two occlusal surveys, one topographical and one cross-sectional, on a DXTTR manikin with an adult dentition.
8. Completed four satisfactory panoramic surveys, 2 DXTTR manikin and 2 adult patients with 1 retake.
9. Successfully completed all skill evaluations and competency evaluations.
10. Completed self-evaluation critiques on each survey.

END-OF-COURSE OUTCOMES:

Explain the principles of radiation as it relates to physics, biology, hygiene, and safety; produce and interpret diagnostically acceptable radiographs utilizing various radiographic techniques; apply the principles of quality assurance and ethics in dental radiography; and describe the fundamentals of oral radiographic techniques and interpretation.

INSTRUCTOR CONTACT INFORMATION

Instructor:	Dr. Kristina Marie Mendoza
Email:	kmmendoza@lit.edu
Office Phone:	409-247-5070
Office Location:	MPC 208
Office Hours:	Monday, Wednesday: 11:40am – 12:30pm Tuesday and Thursday: 9:20am – 12:20pm (By appointment)

LABORATORY INSTRUCTORS

Mrs. Lacey Blalock, RDH
Mrs. Courtney Campbell, RDH
Mrs. Rebecca Ebarb, RDH
Mrs. Cynthia Thompson, RDH

REQUIRED TEXTBOOK

Johnson, Orlen N., Thompson, Evelyn M. (2018). Essentials of Dental Radiography for Dental Assistants and Hygienists. (10th Edition). New York, New York: Pearson. ISBN-10: 013446074X | ISBN-13: 9780134460741

REFERENCE MATERIALS

Eastman Kodak Company. (1988). *'Guidelines for Prescribing Dental Radiographs'*. Rochester, New York: Eastman Kodak Company.
Mallya, S., Lam, E. (2019) White and Pharoah's Oral Radiology. (8th Edition). St. Louis, Missouri: Elsevier
Miles, D. A., Van Dis, M. L., Williamson, G. F., & Jensen, C. W. (2008). *Radiographic Imaging for the Dental Team* (4th ed.). Saunders
Whaites, E., Drage, N. (2020), *Essentials of Dental Radiography and Radiology*. (6th Edition). Elsevier Limited.

RECOMMENDED TEXTBOOK

Haring, J.I. and L.J. Lind. (1993). Radiographic Interpretation for the Dental Hygienist. Philadelphia: W.B. Saunders.

REQUIRED MATERIALS

Rinn XCP kit, lab coat, head cap, clinic shoes, examination gloves, nitrile gloves, face mask, face shield, laptop/iPad/Tablet/MacBook

COURSE CALENDAR (Please check individual lab schedule for exact dates)

DATE	TOPIC/ACTIVITY	READING ASSIGNMENT	SUPPLIES
Week 1 Lab starts at 12:30pm (Everybody attends)	Course Introduction Course Requirements Discussion of Assigned Reading Assignment How to assemble RINN kit (image receptor holder) Identifying the Parts of the Phosphor Plate (PSP) and Sensor Labeling of Equipment Tour of the Radiology Area	General Anatomy Maxillary Landmarks Mandibular Landmarks Book Chapter Chapter 21: Recognizing Normal Radiographic Anatomy – Intraoral Radiograph Watch: How to assemble the RINN Kit	Textbook Paper/pen Laptop/iPad/Tablet RINN kit equipment Permanent Marker
Week 2 Lab starts at 12:30pm (Everybody attends)	Review and Discussion of Assigned Reading Assignment Critiquing Radiographs Mounting Radiographs	Restoration slides Periodontal Conditions and Bone Changes Carious Lesions Pediatric Radiographs Book Chapters: Chapter 20: Image Orientation and Introduction and Interpretation Chapter 23: Radiographic Appearance of Dental Materials Chapter 24: The Use of Radiographs in the Detection of Dental Caries Chapter 25: The Use of Radiographs in the Evaluation of Periodontal Diseases	Textbook Paper/pen Laptop/iPad/Tablet
Week 3	Review and Discussion of Reading Assignment Critiquing Radiographs (continued) Mounting Radiographs (continued) EagleSoft Software Equipment Parts and Operation of the Dental X-ray Equipment Exposing Horizontal and Vertical Bitewing (BWV) on	Acceptable and Faulty Radiographs Watch: How to take Bitewing Dental X-rays Maxillary Anterior Periapical Radiograph Mandibular Anterior Periapical Radiograph Maxillary Posterior Periapical Radiograph	Textbook Paper/pen Lab Coat and clinic shoes Gloves/Glasses/Mask RINN kit equipment

	Manikin using Phosphor Plate (PSP) and Sensor Exposing Periapicals (PA) using phosphor plates (PSP) and sensor	Mandibular Posterior Periapical Radiograph Unusual and Atypical Conditions Book Chapter: Chapter 26: Describing Radiographic Anomalies and Lesions, and Opportunistic Screening	
Week 4	Mounting Competency Safety in Lab – Pre-op and Post-op of Rooms Continue Critiquing Radiographs Continue Exposing PA using phosphor plates (PSP) and sensor Introduction to Panoramic Radiography	Chapter 9: Infection Control Watch: Pre-Op and Post-Op Videos	Textbook Paper/pen Lab Coat and clinic shoes Gloves/Glasses/Mask Competency Sheet RINN kit equipment
Week 5	Pre-op and Post-op the Radiology room Introduce Bisecting Angle Technique on Manikin Introduction to NOMAD Exposing BWX using plates and NOMAD Continue Exposing PA using phosphor plates (PSP) and sensor Continue Panoramic Radiography	Chapter 9: Infection Control Watch: Pre-Op and Post-Op Videos NOMAD Instructional Videos	Textbook Paper/pen Lab Coat and clinic shoes Gloves/Glasses/Mask RINN kit equipment
Week 6	Continue Exposing PA and BWX using phosphor plates (PSP) and sensor Continue Panoramic Radiography Continue Exposing BWX using plates/sensor and NOMAD		Textbook Paper/pen Lab Coat and clinic shoes Gloves/Glasses/Mask RINN kit equipment Snap-a-ray holder
Week 7	Expose FMX on Manikin for Competency using Phosphor Plate (PSP) Expose Panoramic Radiography on Manikin Skill Evaluation Expose BWX using NOMAD on Manikin Skill Evaluation		Lab Coat and Clinic shoes Gloves/Glasses/Mask RINN kit equipment Grade Sheets

Week 8	Expose Radiographs on Manikin using Sensor Skill Evaluation Paperwork for patients Sterilization of instruments		Lab Coat and clinic shoes Gloves/Glasses/Mask RINN kit equipment Grade Sheets
Week 9	Group 1 - BWX & PAN Patient Group 2 – FMX Patient Practice receptor placement on Manikin Practice Panoramic radiography placement on Manikin		Lab Coat Gloves/Glasses/Mask Clinic shoes Sterilized RINN kit equipment Sterilized Snap-a-ray holder
Week 10	Group 1 - FMX Patient Group 2 – BWX & PAN Patient Practice receptor placement on Manikin Practice Panoramic radiography placement on Manikin		Lab Coat Gloves/Glasses/Mask Clinic shoes Sterilized RINN kit equipment Sterilized Snap-a-ray holder
Week 11	Group 1 - PAN Patient for <u>Competency</u> Group 2 – FMX Patient for <u>Competency</u> Practice receptor placement on Manikin Practice Panoramic radiography placement on Manikin		Lab Coat and Clinic shoes Gloves/Glasses/Mask Sterilized RINN kit equipment Sterilized Snap-a-ray holder Grade Sheets
Week 12	Group 1 - FMX Patient for <u>Competency</u> Group 2 – PAN Patient for <u>Competency</u> Practice receptor placement on Manikin Practice Panoramic radiography placement on Manikin		Lab Coat and Clinic shoes Gloves/Glasses/Mask Sterilized RINN kit equipment Sterilized Snap-a-ray holder Grade Sheets
Week 13	Expose FMX on Child Manikin Expose Occlusal Radiographs on Manikin *Time available if needed for additional patients		Lab Coat and Clinic shoes Gloves/Glasses/Mask RINN kit equipment Snap-a-ray holder

***RINN Kit Equipment and Snap-a-ray will be provided by the LIT Dental Hygiene Clinic.**

ATTENDANCE POLICY

Absenteeism

In order to ensure the students in the dental hygiene program achieve the necessary didactic and clinical competencies outlined in the curriculum, it is necessary that the student complete all assigned lecture classes, clinical and laboratory hours. It is the responsibility of the student to attend class, clinic or lab. The instructor expects each student to be present at each session. It is expected that students will appear to take their exams at the regularly scheduled examination time. Make-up examinations will be given **only** if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the instructor.

If students are unable to attend lecture class, clinic or lab, it is **mandatory that you contact the appropriate instructor prior to the scheduled class, clinic or lab time**. The student is responsible for all material missed at the time of absence. Extenuating circumstances will be taken into account to determine if the absence is excused. Extenuating circumstances might include but are not limited to funeral of immediate family member, maternity, hospitalization, etc. If the student has surgery, a debilitating injury, or an extended illness, a doctor's release will be required before returning to clinic.

a. Fall/Spring Semesters:

Dental hygiene students will be allowed **two excused absences** in any lecture, clinic or lab. Absences must be accompanied by a written excuse on the next class day. In the event that a student misses class, clinic or lab beyond the allowed absences, the following policy will be enforced:

2 absences = notification in Starfish

Beginning with the third absence, **2 points** will be deducted from the final course grade for each absence thereafter.

Two (2) points will be deducted from the final course grade for each unexcused absence.

Tardiness

Tardiness is disruptive to the instructor and the students in the classroom. A student is considered tardy if not present at the start of class, clinic or lab. It is expected that students will arrive on time for class, clinic or lab, and remain until dismissed by the instructor. If tardiness becomes an issue, the following policy will be enforced:

Tardy 1 time = notification in Starfish

Tardy 2 times = is considered an unexcused absence. (See the definition of an unexcused absence)

If a student is more than 15 minutes late to any class period, it will be considered an unexcused absence.

Students should plan on attending classes, labs and clinic sessions as assigned throughout the semester. Family outings, vacations and personal business should be scheduled when school is not in session and will not be considered excuses for missing assignments, examinations, classes, labs or clinic time.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the [Academic Calendar](#). If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE REQUIREMENTS

See page 19.

COURSE EVALUATION

Laboratory component of Dental Radiology has no separate course grade. All laboratory requirements must be completed to pass Dental Radiology (DHYG 1304).

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution’s Academic Dishonesty Policy available in the Student Catalog & Handbook at <http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty>.

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles’ Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses.

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

Examination and Quiz Policy

Examinations will be based on objectives, lecture notes, handouts, assigned readings, audiovisual material and class discussions. Major examinations will consist of multiple choice, true/false, matching, short answer, and case study questions. No questions will be allowed during exams.

Students are expected to complete examinations as scheduled. Make-up examinations will be given ONLY if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the Instructor. All make-up examinations must be taken within two (2) weeks from the scheduled exam date. All examinations will be kept on file by the Instructor. Students may have access to the examination by appointment during the Instructor's office hours. Exams may be reviewed up to two (2) weeks following the exam date. **You may not copy, reproduce, distribute or publish any exam questions.** This action may result

to dismissal from the program. A grade of "0" will be recorded for all assignments due on the day of absences unless prior arrangements have been made with the Instructor.

Respondus Lockdown Browser and Respondus Monitor will be used for quizzes and examinations taken off campus therefore, a webcam is required to take the test. The student is required to show the testing environment at the beginning of the exam to assure the instructor that it is clear of any study materials. Failure to do so will result in a 10-point exam grade deduction.

If you need online assistance while taking the test, please call Online Support Desk at 409-951-5701 or send an email to lit-bbsupport@lit.edu.

Respondus Lockdown Browser will be used for examinations administered on campus. The student is required to bring their own portable electronic device for any scheduled on-campus exams. Approved devices include a personal laptop, tablet, or iPad.

It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: cell phone, smart watch/watch phone, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices. It may also include the following: plagiarism, falsification and fabrication, abuse of academic materials, complicity in academic dishonesty, and personal misrepresentation.

Use of such devices during an examination will be considered academic dishonesty. The examination will be considered over, and the student will receive a zero for the exam. Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

Remediation

Remediation is required when a student does not meet course requirements or performance expectations. Remediation is designed to identify deficiencies, provide targeted instruction, and support the student in achieving the expected level of performance. Remediation may include mandatory tutoring with a clinical instructor, individualized concept review, skill reinforcement, additional assignments, or other corrective learning activities as determined by faculty. All remediation must be documented using the program's approved remediation forms for clinical and didactic coursework.

Laboratory Remediation

Remediation is **required** when a student demonstrates unacceptable performance in clinical/lab skills, procedures, or patient care.

Requirements

- Remediation **must be initiated on the same day** the deficiency is identified.
- Remediation will be completed under the direct supervision of a clinical instructor.
- Only the identified deficient skill(s) will be addressed.
- The student must be **re-evaluated immediately following remediation**.

Outcome

- The student must demonstrate improvement during re-evaluation.
- If performance remains unacceptable, **additional remediation or clinical consequences may be assigned at faculty discretion**.

Documentation

All laboratory remediation will be recorded on the Laboratory Remediation Agreement form, including:

- Specific deficiency
- Remediation provided
- Re-evaluation outcome
- Student and faculty acknowledgment

The Laboratory Remediation Agreement can be found in this laboratory manual.

See the Student Handbook for additional information regarding remediation policies.

Electronic Devices

Portable electronic devices, may only be used in class or lab for accessing approved course content (e-book, slides, publisher content, Blackboard, etc.) Texting or web browsing will not be allowed during class, lab, or clinic.

Late coursework

Assignments, Quizzes, Critique Sheets and Tests must be completed by the due date. Late submissions or completion will not be accepted and will result in a zero for that assignment/quiz/test.

*** Faculty has the authority to modify the above policies if unusual circumstances mandate a change. Please refer to the Student Handbook for a complete listing of program policies.**

RADIOGRAPHIC LABORATORY INSTRUCTIONS

1. All laboratory requirements must be completed by the end of the semester during assigned laboratory schedule.
2. Students must attend scheduled laboratory sessions. Excessive tardiness or absenteeism will put the student's grade in jeopardy due to insufficient time to complete the course requirements.
3. No student will leave their assigned laboratory session early. All radiography rooms and sterilization area must be left clean before students may leave.
4. It is the students' responsibility to report damaged or broken equipment to the laboratory instructor. Please use equipment with care.
5. During the beginning of each laboratory session, the assignments will be demonstrated or reviewed. It is imperative that students come to lab prepared with appropriate equipment and have read the assigned material. It is essential to be prepared in order to be successful throughout the laboratory sessions.
6. Any problems in laboratory should be directed to the instructor.
7. The student is to supply their patients. It is advisable to locate patients early.
8. Students are also expected to monitor their progress towards the completion of all requirements. In an effort to aid students in this task, the records of individual student will be available for observation.
9. Completed critique sheets must be submitted within one week for grading in Trajecsys to receive credit for that patient.

RADIATION USE POLICY

1. Criteria for Exposure

- a. All patients must meet the criteria established in the "Guidelines for Prescribing Dental Radiographs" by the U.S. Dept. of Health and Human Services by the ADA, Council of Dental Practice, and Council on Scientific Affairs which is posted in the Radiology laboratory area, the chart is found in the class textbook on pages 60-61, or as prescribed by the patients referring dentist. The reason for radiographs must be documented on the patient's progress notes in their permanent file.
- b. If prior radiographs are available, they shall be evaluated before new radiographs are made. Only those additional views needed for complete diagnoses and treatment planning shall be exposed.

- c. The need for radiographs shall be determined by using high-yield criteria as the basis of professional judgment as established through history and clinical examination. Radiographs ordered merely on the basis of routine use or for screening purposes shall not be permitted. A criterion for exposure is based according to the “Guidelines for Prescribing Dental Radiographs” referred to above (Section I.A).
- d. Radiographs shall be made only when the patient is capable of cooperating and when an instructor is present in the radiology laboratory area.
- e. No radiographs will be taken on pregnant patients.
- f. No radiographs will be taken outside of the assigned radiology laboratory session.
- g. Technical proficiency in radiographic technique shall be achieved on Dental X-ray Teaching and Training Replicas (DXTTR) before students are allowed to expose patients.
- h. Radiographs of patients shall not be made for the purpose of training or demonstration. However, patients needing radiographs for diagnostic purposes may participate in educational activities.
- i. Only **one dental hygiene student or dental hygiene faculty** may be used as a patient for radiographs as long as that student qualifies under the high-yield criteria set by the “Guidelines for Prescribing Radiographs”. No dental hygiene student, dental hygiene faculty may be used for a skill evaluation competency requirement.
- j. Faculty shall provide direct supervision and assistance to students during instructional radiographic experiences, but **not** during competency radiographic experiences.

2. Exposure Procedures

- a. The x-ray machines in clinic have preset mA. The kVp should be set at 70 when using phosphor plates and sensors. The timer can be adjusted by carefully selecting the region to be exposed and considering the size of the patient prior to exposure.
- b. Rectangular collimation is to be used on all patients unless the radiographer is using the bisecting angle technique. In these instances, the rectangular collimator may be removed during exposure. Circular collimation shall be limited to a beam diameter of 2.75 inches.

- c. Lead/lead equivalent aprons with thyroid collars shall be used for all intraoral radiographic procedures. The lead apron without a thyroid collar is for panoramic procedures only and is located in the panoramic room.
- d. No operator shall hold a patient or image receptor device during exposure. If assistance is required for children or disabled patients; an adult member of the patient's family or other non-radiation worker may assist. This individual shall wear a lead/lead equivalent apron and shall remain out of the path of the primary beam.
- e. During each exposure, the operator shall close the door and stand behind an adequate protective barrier which permits observation of and communication with the patient.
- f. All radiographs shall be taken in the school radiology lab with school issued phosphor plates/sensor by the student receiving credit or with the aid of an instructor. Any deviation from this policy will necessitate having the radiographs made unsatisfactory and the matter will be referred to the program director.
- g. The radiographic patient shall be asked to wait until all radiographs are processed, mounted, and evaluated by an instructor.

3. Infection Control Procedures

- a. Since the patient's medical history cannot be relied on to reveal indications of infectious disease, all patients must be treated as potentially infectious.
- b. The students must follow the LIT Dental Hygiene Clinic Safety Protocol to ensure safety of the fellow students, patients, faculty and staff.
- c. Gloves shall be worn during image receptor and tube placement to minimize risks of disease transmission to the operator and other patients. Eyeglasses/face shield, face masks and scrub cap should be worn as well.
- d. Operators shall wash hands prior to gloving and after removing gloves.
- e. The appropriate number and type of image receptors will be dispensed by the supervising faculty member upon submission of a signed Medical/Dental history form, Statement of Release form, HIPAA form, Patient Appointment Practice Form, Informed Consent form, copy of patient identification (driver license, school I.D., military I.D., passport).
- f. Supplies and image receptors shall be kept on a barrier protected work surface.

- g. Charts and forms shall be kept away from the work area.
- h. Reusable image receptor holding devices shall be steam autoclaved after each patient and the single-use image receptor holding devices shall be disposed after each patient.
- i. The x-ray machine control panel, exposure button, tube head, door handles, work surface, chair head rest, keyboard and mouse shall all be barrier-protected. These items may need to be disinfected if the barriers were compromised during patient treatment.
- j. A patient napkin shall be placed over the lead/lead equivalent apron. The lead/lead equivalent apron shall be wiped down with disinfectant after use.
- k. Image receptors should be disinfected after exposure, prior to processing. It is recommended to wipe each image receptor with a dry paper towel after each exposure and prior to disinfecting.

4. Records

- a. A patient folder must be created for every patient seen in Dental Radiology lab prior to exposure. It must contain all necessary patient information. Eaglesoft chart must also be created for every patient seen in Dental Radiology lab.
- b. Documentation of all radiation exposures for each patient will be maintained in the patient's record. The record must include the number and type of radiographs, the reason for the radiographs, the date of exposure, the name of the operator, and the signature of the supervising faculty member.
- c. All digital images shall be mounted correctly in Eaglesoft. If retakes are necessary, they shall be placed in a "new exam" folder and must be labelled as "retakes".
- d. A formal interpretation and critique of the radiographs is required for each survey taken.

5. Grading Criteria

a. Survey Critique and Submission Guidelines

- i. For Dental Radiology Lab, all surveys will be reviewed for technique errors. After completing the survey, the student must perform a self-evaluation using a paper critique sheet to determine whether each image is acceptable, improvable, or requires a retake.

- ii. If an image is identified as improvable or requiring a retake, the student must document the reason and explain how the technique error will be corrected.
- iii. The instructor will verify the self-evaluation, and the student will be notified if retakes are required.
- iv. All retakes must be completed on the same day as the original survey. Any required retakes that are not completed will result in the survey being marked as incomplete and will not count toward clinical requirements.
- v. All surveys must be formally critiqued using the designated form available in **Trajecs**. Please select the correct form. Technique errors, restorations, bone loss, calculus, suspicious areas, missing teeth and those areas requiring referral should be documented on the radiographic critique sheets.
- vi. Completed Surveys must be turned in **within 1 week after the initial surveys have been taken** or they may not be graded (i.e., Survey taken on Tuesday morning = due by the following Monday morning).
- vii. After completing the critique in Trajecs, email **dhcritique@lit.edu** with the following:
 - **Subject line:** Your lab instructor's name
 - **Example:** Dr. Mendoza
 - **Email body:** Type of survey, patient ID number, and patient code
 - **Example:** "FMX using sensor completed on patient #09999, patient code 1A"
- viii. Technique and evaluation will be graded, and a minimum score of **75%** is required to pass.

b. Full Mouth Survey – Grading Criteria

- i. Full Mouth Surveys will be evaluated according to the standards outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.
 - **Retakes: 4.166 points** will be deducted for each required retake or circled retake.
 - **Improvable:** For each area marked as improvable, **1.39 points** will be deducted.
 - **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

c. BWX Survey – Grading Criteria

- i. Bitewing surveys will be evaluated according to the standards outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.
 - **Retakes: 12.50 points** will be deducted for each required retake or circled retake.
 - **Improvable:** For each area marked as improvable, **4.17 points** will be deducted.
 - **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

d. Panoramic Survey – Grading Criteria

i. Panoramic Surveys will be evaluated according to the standards outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.

- **Retakes: 30 points** will be deducted for each required retake or circled retake.
- **Improvable:** For each area marked as improvable, **15 points** will be deducted.
- **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

***Note: You have 2 attempts to pass this survey.

e. Pedodontic FMX Survey- Grading Criteria

i. Pedodontic FMX will be evaluated according to the standard outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.

- **Retakes: 8.334 points** will be deducted for each required retake or circled retake.
- **Improvable:** For each area marked as improvable, **2.778 points** will be deducted.
- **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

f. Pedodontic BWX Survey - Grading Criteria

i. Pedodontic FMX will be evaluated according to the standard outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.

- **Retakes: 25 points** will be deducted for each required retake or circled retake.
- **Improvable:** For each area marked as improvable, **8.334 points** will be deducted.
- **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

g. Occlusal Survey - Grading Criteria

i. Occlusal survey will be evaluated according to the standard outlined in **DHYG 1304**. Each survey begins with a perfect score of **100 points**.

- **Retakes: 25 points** will be deducted for each required retake or circled retake.
- **Improvable:** For each area marked as improvable, **8.334 points** will be deducted.

- **Insufficient Findings/Incomplete Evaluations:** May be classified as either improvable or retake, depending on the nature of the deficiency.

h. The following information is used to determine whether the survey is SATISFACTORY or UNSATISFACTORY.

SURVEY TYPE	SATISFACTORY CRITERIA
Full Mouth Surveys (adult)	Maximum of 6 retakes (or 18 improvable, or a combination thereof)
Full Mouth Surveys (pedo)	Maximum of 3 retakes (or 9 improvable, or a combination thereof)
Bitewing Surveys (adult)	Maximum of 3 retakes (or 6 improvable, or a combination thereof)
Bitewing Surveys (pedo)	Maximum of 1 retake (or 3 improvable, or a combination thereof)
Panoramic Survey	Maximum of 1 retake
Occlusal Survey	Maximum of 1 retake (or 3 improvable, or a combination thereof)

NOTE: One retake is equivalent to three improvable errors. Satisfactory criteria may be met using any combination of retakes and improvable errors, as long as the total does not exceed the allowable limit.

i. Evaluation.

- i. Each **survey will be evaluated by the instructor** using criteria "Periapical Radiographic Evaluation Criteria" and "Bitewing Radiographic Evaluation Criteria". **The final grade will be given by Dr. Mendoza upon the submission of the critique sheet in Trajecsyst. Only satisfactory surveys will be counted toward the requirements.**

j. Incomplete entry of patient information in Eaglesoft will result in an automatic unsatisfactory ('U') grade.

6. Retake Policy

This ensures that radiographs taken within the dental hygiene program meet diagnostic standards while minimizing patient exposure to ionizing radiation. This policy establishes the standards students must use when evaluating radiographs and outlines the conditions under which retakes may be performed.

- i. Retakes may only be performed when necessary to obtain diagnostically acceptable radiographs based on the established evaluation criteria.
- ii. Students must self-evaluate each radiograph using the program's approved evaluation criteria. These criteria are provided to students in

the radiology manual and reinforced during instruction and clinical practice.

- iii. A faculty member must review and approve the need for any retake before the student exposes additional radiographs.
- iv. Retakes are limited by survey type (bitewing or periapical) according to the grading criteria.
- v. Mounting errors that interfere with diagnosis or violate policy result in an automatic failure of the radiographic survey.
- vi. All exposures and retakes must comply with ALARA principles (As Low As Reasonably Achievable) to minimize radiation exposure.

7. Patient Requirements.

- a. **All students are expected to supply their own patients.** It is wise to begin locating and scheduling radiographic patients immediately. Patients are required to provide an ID card upon check-in. It can be a driver's license, military ID, passport, passport card or any government-issued ID. If the patient is a minor, a **parent or legal guardian** must fill out and sign the paperwork and **must be present** to sign the informed consent form.
- b. **There will be no fee for any type of survey this semester.**

8. Laboratory Requirements.

Skill Evaluation/Competencies	Pass	Fail
Mounting a Radiographic Survey Skill Evaluation	Pass (in 2 attempts)	Fail
Exposing a Full-Mouth Radiographic Survey on Adult Patient Competency Exam	Pass (in 2 attempts)	Fail
Exposing a Panoramic Radiographic Survey on Adult Patient Competency Exam	Pass (in 2 attempts)	Fail
Exposing a Full-Mouth Radiographic Survey on DXTTR Using Phosphor Plates Skill Evaluation	Pass (in 2 attempts)	Fail
Exposing a Panoramic Radiographic on DXTTR Skill Evaluation	Pass (in 2 attempts)	Fail
Exposing Radiographs on DXTTR using Digital Sensor Skill Evaluation	Pass (in 2 attempts)	Fail
Exposing Bitewing Radiographs on DXTTR using NOMAD Skill Evaluation	Pass (in 2 attempts)	Fail
Radiographic Evaluation Exam – Minimum Score of 75%	Pass (in 2 attempts)	Fail
Radiographic Requirements: All radiographic surveys must meet SATISFACTORY CRITERIA to count toward course completion		
Requirement	Pass	Fail
4 Acceptable Horizontal Bitewing Surveys (3 DXTTR manikin, 1 adult)	Pass	Fail
1 Acceptable Vertical Bitewing Surveys (1 DXTTR manikin)	Pass	Fail
4 Acceptable Full-Mouth Survey (DXTTR manikin)	Pass	Fail
1 Acceptable Child Full-Mouth Survey (DXTTR manikin)	Pass	Fail
2 Acceptable Panoramic Survey (DXTTR manikin)	Pass	Fail
2 Acceptable Occlusal Surveys (DXTTR manikin)	Pass	Fail
2 Acceptable Adult Full-Mouth Surveys	Pass	Fail
2 Acceptable Adult Panoramic Survey	Pass	Fail

Note: All competencies, skill evaluations, and radiographic requirements must be successfully completed to receive a passing grade in the course.

***** Competencies cannot be completed on another dental hygiene student or dental hygiene faculty*****

Infection Control Protocol for the Radiographic Procedure

Three Categories

- Prior to
- During
- After the exposure examination

Protocol Prior to the Radiographic Procedure

- Clean, disinfect, and/or cover with a protective barrier all treatment area surfaces likely to come in contact with potential contaminants.
- Digital Image Receptors
 - PSP plates and direct imaging digital sensors cannot withstand sterilization procedures.
 - PSP plates must be sealed in plastic barrier envelopes.
 - Digital Sensors must be placed in plastic sheath barriers.
- Prepare image receptor holders. Make sure they are sterilized prior to use.
- Log in to Eaglesoft and enter patient information.

Protocol During to the Radiographic Procedure

- Patient Preparation
 - Prepare the treatment area and ready the supplies prior to seating the patient.
 - Provide the patient with an optional antimicrobial mouth rinse.
 - Have the patient remove any items that may interfere with the procedure.
 - Drape the patient with a lead/lead equivalent apron and thyroid collar.
 - Patient napkin over lead apron provides disposable paper product for containment of potential infective microorganisms.
- During exposures
 - Take care to touch only covered surfaces.
 - Touch as few surfaces as possible.
 - Plastic barrier overgloves provide another option if treatment must be interrupted.
- Image receptor management
 - **Phosphor Storage Plates (PSP)**
 - Complete all required exposures, placing contaminated PSP plates only on a designated barrier-protected surface between exposures.
 - After the final exposure, wipe each contaminated barrier-covered PSP plate with a paper towel to remove excess saliva.
 - Using clean gloves, disinfect the barrier-covered PSP plate with an approved disinfectant wipe and place it in a designated containment cup.
 - Protect PSP plates from light exposure at all times by storing them in a light-tight transfer box or beneath the counter until processing.

- To transfer the plate, hold the disinfected, barrier-covered PSP plate directly over the transfer box. Carefully tear open the barrier by grasping the corners on either side of the notched edge and allow the plate to drop into the box.
- Do not touch the PSP plate with gloved hands during the transfer process.
- **Digital Sensors**
 - After each exposure, immediately wipe the sensor barrier with a dry paper towel or gauze to remove excess saliva.
 - Ensure the plastic barrier is completely dry before repositioning the sensor in the patient's mouth for the next exposure.
- Maintain aseptic technique throughout the procedure.
- Never place contaminated PSP plates or sensors on unprotected surfaces.
- Avoid direct contact with the PSP plate after barrier removal to prevent contamination and image artifacts.
- Image receptor holder management
 - Transfer devices from a barrier-protected surface to oral cavity then back to the same covered surface.
 - Do not place contaminated instruments on an uncovered surface.

Protocol After to the Radiographic Procedure

- Do not immediately remove the lead/lead equivalent apron and thyroid collar while still wearing treatment gloves.
- Perform hand hygiene, then remove the apron and collar with clean, dry hands.
- Clean and prepare reusable image receptor holders for sterilization.
- If using digital receptor, carefully remove the barrier sheath/barrier envelopes to avoid tearing the plastic and contaminating the digital receptor.
- Thoroughly wipe the sensor with an approved disinfectant wipe and place it back in the sensor dock.
- Confirm that all phosphor storage plates (PSPs) are present before returning them to the PSP storage box.
- Log out of Eaglesoft.

Directions to the LIT Dental Hygiene Clinic

From Highway 69 South:

1. Lamar University/Martin Luther King Parkway Exit.
2. Turn left or right (depending on direction) on MLK Parkway.
3. Exit off MLK at the Lamar University/E. Lavaca Street Exit.
4. Continue through first stop sign.
5. At second stop sign, turn left onto E. Lavaca
6. Continue on E. Lavaca until next 4-way stop.
7. Turn left onto University Dr.
8. Turn left into first driveway-LIT MultiPurpose Center
9. **Park in the DENTAL HYGIENE PATIENT PARKING only.**
10. Enter the building at the far-left double glass doors marked 'Clinic'.
11. Request a parking permit to place in your car.

From MLK Parkway:

1. Travel south on MLK Parkway.
2. Take the Lamar University, Virginia St. Exit.
3. Turn right at 4-way stop.
4. Continue to next 4-way stop sign.
5. Turn left onto University Dr.
6. Turn left into first driveway-LIT MultiPurpose Center
7. **Park in the DENTAL HYGIENE PATIENT PARKING only.**
8. Enter the building at the far-left double glass doors marked 'Clinic'.
9. Request a parking permit to place in your car.

MOUNTING DENTAL RADIOGRAPHS

Objectives:

Upon completion of this session, the student will be able to:

1. Identify, by name, the regions of the 20-image survey.
2. Differentiate between maxillary and mandibular images.
3. Name the teeth in each region of the survey.
4. Be able to distinguish between lingual and labial mounting.
5. Mount the images successfully into the mount in the correct orientation.

Reading Assignment:

Textbook, Chapter 20 (Image Orientation and Introduction to Interpretation)

Practice Exercises:

Student will be given multiple full mouth surveys to mount.

Student will practice placement of radiographic images in a mount.

Student will be evaluated by the instructor using - **MOUNTING A**

RADIOGRAPHIC SURVEY SKILL EVALUATION

LIT Dental Hygiene Program MOUNTING A RADIOGRAPHIC SURVEY Skill Evaluation				
Dental Radiology Lab				
LIT Competency Statement	HP 6: Evaluate and utilize methods to ensure the health and safety of the patient and the dental hygienist in the delivery of dental hygiene.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name		Skill Evaluation	☐ SATISFACTORY	
Attempt #:			☐ UNSATISFACTORY	
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (gloves, glasses, mask)	No	N/A	
2	Apply basic and advanced principles of dental hygiene instrumentation	No	N/A	
3	Maintain clinic and laboratory records	Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care	Yes		
PREPARATION				
5	Logs in to Eaglesoft	No		
6	Enters/Checks Information in Eaglesoft	Yes		
MOUNTING				
7	Mounts each maxillary radiograph in the correct space on the mount (from the facial view).	Yes		
8	Mount each mandibular radiograph in the correct space in the mount (from the facial view).	Yes		
9	Mount each bitewing radiograph in the correct space in the mount (from the facial view).	Yes		
10	Saves the mounted images.	Yes		
Comments:				

EXPOSING A FULL-MOUTH SURVEY ON A MANIKIN USING PHOSPHOR PLATES SKILL EVALUATION

Objectives:

Upon completion of this session, the student will be able to:

1. Position the manikin correctly for maxillary, mandibular, and bitewing exposures.
2. Appropriately assemble the image receptor holders and insert the image receptor correctly into the biteblocks or holders.
3. Align the PID correctly and correctly adjust the collimator.
4. Select the correct exposure values for the manikin.
5. Expose all regions in sequence, correctly, maintaining optimal radiation hygiene.
6. Demonstrate correct processing of phosphor plates.
7. Demonstrate correct mounting of the full mouth survey.
8. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.

Reading Correlation:

Textbook, Chapters 9 (Infection Control), 12 (Introduction to Radiographic Examination), 13 (The Periapical Examination- Paralleling Technique), 14 (The Periapical Examination- Bisecting Technique), 15 (The Bitewing Examination)

Practice Exercises:

Student will expose, process, and mount a full mouth radiographic survey using different image receptors.

Student will retake no more than six radiographs for a satisfactory survey.

Student will be evaluated by an instructor using – **Exposing a Full-Mouth Survey on a Manikin Using Phosphor Plate Skill Evaluation**

LIT Dental Hygiene Program				
EXPOSING A FULL MOUTH SURVEY ON A MANIKIN USING PHOSPHOR PLATES				
Skill Evaluation				
Dental Radiology Lab				
LIT Competency Statement	HP 6: Evaluate and utilize methods to ensure the health and safety of the patient and the dental hygienist in the delivery of dental hygiene.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name	DXTTR Manikin	Skill Evaluation	☐ SATISFACTORY ☐ UNSATISFACTORY	
Image Receptor Used: Phosphor Plate				
Attempt #:				
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)	No		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)	Yes		
3	Maintain clinic and laboratory records	Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care	Yes		
PREPARATION OF SELF AND WORKSPACE				
5	Preparation of work area. Follows appropriate regimen to dust, clean sink, and surface disinfect equipment and checks readiness of radiographic unit.	No		
6	Applies and secures proper barriers.	Yes		
7	Prepares self. The proper attire including lab coat, glasses/face shield, gloves, mask, scrub cap should be worn. Wash hands and apply gloves.	Yes		
8	Properly assembles radiographic image receptor holders.	Yes		
9	Properly inserts image receptors into holders.	Yes		
10	Logs in to Eaglesoft and correctly selects the appropriate mount.	Yes		
PROCEDURE				
11	Adjusts appropriate exposure time for each image prior to exposure.	Yes		
12	Cone positioning results in no more than six undiagnostic radiographs.	Yes		
13	Image receptor positioning results in no more than six undiagnostic radiographs.	Yes		

14	Follows a systematic sequence during radiographic procedure.	No		
15	Correctly processes, mounts, and saves images and submits critique sheets on or before the due date for grading.	Yes		
16	Returns to x-ray area to clean and disinfect.	Yes		
17	Logs out of Eaglesoft.	Yes		
Comments:				

EXPOSING A BITEWING SURVEY ON A MANIKIN USING NOMAD SKILL EVALUATION

Objectives:

Upon completion of this session, the student will be able to:

1. Position the manikin correctly for bitewing exposures.
2. Align the PID correctly and correctly adjust the collimator.
3. Select the correct exposure values for the manikin.
4. Expose all regions in sequence, correctly, maintaining optimal radiation hygiene.
5. Demonstrate correct processing of phosphor plates, if plates are used.
6. Demonstrate correct mounting of the full mouth survey.
7. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.
8. Demonstrate correct use of the NOMAD.

Reading Correlation:

Textbook, Chapters 9 (Infection Control), 15 (The Bitewing Examination)

Practice Exercises:

Student will expose, process, and mount a bitewing radiographic survey using different image receptor and the NOMAD.

Student will retake no more than two radiographs for a satisfactory survey.

Student will be evaluated by an instructor using – **Exposing a Bitewing Survey on a Manikin Using the NOMAD.**

LIT Dental Hygiene Program EXPOSING A BITEWING SURVEY ON A MANIKIN USING NOMAD Skill Evaluation				
Dental Radiology Lab				
LIT Competency Statement	HP 6: Evaluate and utilize methods to ensure the health and safety of the patient and the dental hygienist in the delivery of dental hygiene.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name	DXTTR Manikin	Skill Evaluation	☐ SATISFACTORY ☐ UNSATISFACTORY	
Image Receptor Used: Phosphor Plate or Sensor				
Attempt #:				
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)	No		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)	Yes		
3	Maintain clinic and laboratory records	Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care	Yes		
PREPARATION OF SELF AND WORKSPACE				
5	Preparation of work area. Follows appropriate regimen to dust, clean sink, and surface disinfect equipment and checks readiness of radiographic unit.	No		
6	Applies and secures proper barriers.	Yes		
7	Prepares self. The proper attire including lab coat, glasses/face shield, gloves, mask, scrub cap should be worn. Wash hands and apply gloves.	Yes		
8	Properly assembles radiographic image receptor holders.	Yes		
9	Properly inserts image receptors into holders.	Yes		
10	Logs in to Eaglesoft and correctly selects the appropriate mount.	Yes		
PROCEDURE				
11	Attaches the handset onto the base of the NOMAD correctly.	Yes		
12	Turns on the NOMAD, selects appropriate patient size, image receptor type and tooth type.	No		

13	Properly positions the patient and the operator before readying the NOMAD to prevent accidental exposure.	Yes		
14	Readies the device and the device displays "Ready".	No		
15	Correctly initiates x-ray exposure and the device displays "X-ray On"	Yes		
16	Ensures complete exposure and "X-ray Complete" displays on the device.	Yes		
17	Cone positioning results in no more than two undiagnostic radiographs.	Yes		
18	Image receptor positioning results in no more than two undiagnostic radiographs.	Yes		
19	Follows a systematic sequence during radiographic procedure.	No		
20	Turns the NOMAD off and disinfects it correctly	No		
21	Correctly processes, mounts, and saves images and submits critique sheets on or before the due date for grading.	Yes		
22	Returns to x-ray area to clean and disinfect.	Yes		
23	Logs out of Eaglesoft.	Yes		
Comments:				

EXPOSING RADIOGRAPHS ON A MANIKIN USING DIGITAL SENSOR SKILL EVALUATION

Objectives:

Upon completion of this session, the student will be able to:

1. Position the manikin correctly for maxillary, mandibular, and bitewing exposures.
2. Appropriately assemble the image receptor holders and insert the image receptor correctly into the biteblocks or holders.
3. Align the PID correctly and correctly adjust the collimator.
4. Select the correct exposure values for the manikin.
5. Expose all regions in sequence, correctly, maintaining optimal radiation hygiene.
6. Demonstrate correct mounting of the survey.
7. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.

Reading Correlation:

Textbook, Chapters 9 (Infection Control), 12 (Introduction to Radiographic Examination), 13 (The Periapical Examination- Paralleling Technique), 14 (The Periapical Examination- Bisecting Technique), 15 (The Bitewing Examination)

Practice Exercises:

Student will expose, process, and mount a full mouth radiographic survey using different image receptors.

Student will retake no more than six radiographs for a satisfactory survey.

Student will be evaluated by an instructor using – **Exposing Radiographs on a Manikin using Digital Sensor Skill Evaluation.**

LIT Dental Hygiene Program				
EXPOSING A FULL MOUTH SURVEY ON A MANIKIN USING DIGITAL SENSOR				
Skill Evaluation				
Dental Radiology Lab				
LIT Competency Statement	HP 6: Evaluate and utilize methods to ensure the health and safety of the patient and the dental hygienist in the delivery of dental hygiene.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name	DXTTR Manikin	Skill Evaluation	☐ SATISFACTORY ☐ UNSATISFACTORY	
Image Receptor Used: SENSOR				
Attempt #:				
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)	No		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)	Yes		
3	Maintain clinic and laboratory records	Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care	Yes		
PREPARATION OF SELF AND WORKSPACE				
5	Preparation of work area. Follows appropriate regimen to dust, clean sink, and surface disinfect equipment and checks readiness of radiographic unit.	No		
6	Applies and secures proper barriers.	Yes		
7	Prepares self. The proper attire including lab coat, glasses/face shield, gloves, mask, scrub cap should be worn. Wash hands and apply gloves.	Yes		
8	Properly assembles radiographic image receptor holders.	Yes		
9	Properly inserts image receptors into holders.	Yes		
10	Logs in to Eaglesoft and correctly selects the appropriate mount.	Yes		
PROCEDURE				
11	Adjusts appropriate exposure time for each image prior to exposure.	Yes		
12	Cone positioning results in no more than six undiagnostic radiographs.	Yes		
13	Image receptor positioning results in no more than six undiagnostic radiographs.	Yes		

14	Follows a systematic sequence during radiographic procedure.	No		
15	Correctly processes, mounts, and saves images and submits critique sheets on or before the due date for grading.	Yes		
16	Returns to x-ray area to clean and disinfect.	Yes		
17	Logs out of Eaglesoft.	Yes		
Comments:				

EXPOSING A FULL-MOUTH RADIOGRAPHIC SURVEY ON AN ADULT PATIENT COMPETENCY EXAM

Objectives:

Upon completion of this session, the student will be able to:

1. Adequately be able to review medical/dental history with a patient.
2. Help to establish a need for radiographs with the patient.
3. Demonstrate proper use of a lead/lead equivalent apron and thyroid collar.
4. Position the patient correctly for maxillary, mandibular, and bitewing exposures.
5. Appropriately assemble the image receptor holders and insert the image receptor correctly into the biteblocks or image receptor holders.
6. Align the PID correctly and correctly adjust the collimator.
7. Select the correct exposure values for the patient.
8. Expose all regions in sequence, correctly, maintaining optimal radiation hygiene.
9. Demonstrate processing correctly.
10. Demonstrate correct mounting of the full mouth survey.
11. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.

Reading Correlation:

Textbook, Chapters 9 (Infection Control), 12 (Introduction to Radiographic Examination), 13 (The Periapical Examination- Paralleling Technique), 14 (The Periapical Examination- Bisecting Technique), 15 (The Bitewing Examination)

Practice Exercises:

Student will expose, process, and mount a full mouth radiographic survey.

Student will retake no more than six radiographs for a satisfactory survey.

Student will be evaluated by an instructor using – **Exposing a Full-Mouth Radiographic Survey on an Adult Patient Competency Exam**

LIT Dental Hygiene Program EXPOSING A FULL MOUTH SURVEY ON ADULT PATIENT Competency Exam					
Dental Radiology Lab					
LIT Competency Statement	PC 9.c. Obtain, review, and update a complete medical, family, social, and dental history. PC 10. Use critical decision-making skills to reach conclusions about the patient's dental hygiene needs based on all available assessment data.				
Student Name		Date:			
Instructor		Patient ID:			
Patient Name		Competency	☐ SATISFACTORY ☐ UNSATISFACTORY		
Image Receptor Used: PHOSPHOR PLATE OR SENSOR					
Attempt #:					
More than six undiagnostic films are considered a critical error. Any critical error results in a score of 'not competent' and the student must repeat the competency.					
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.			Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)		Yes		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)		Yes		
3	Maintain clinic and laboratory records		Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care		Yes		
PREPARATION OF SELF AND WORKSPACE					
5	Prepares self. The proper attire including lab coat, glasses, gloves, and mask should be worn. Wash hands and apply gloves.		No		
6	Preparation of work area. (Assembles x-ray equipment, collects other necessary items (tissues, cotton swabs, cotton rolls, topical anesthetic, if needed), follows appropriate regimen to dust, clean sink, and surface disinfect equipment, putting barriers and furnishings and checks readiness of radiographic unit.		No		
PREPARATION OF PATIENT					
7	Prepares the patient. Remove bulky clothing, glasses and dental appliances. Remove lipstick. Stores patient belongings in a safe place.		No		

8	Obtains medical/dental history and explain procedure. Seats the patient and drapes with lead apron and thyroid collar.	Yes		
9	Obtains Informed Consent prior to exposing the patient to radiation.	Yes		
10	Inspects oral cavity and identifies the type of survey and number of exposure necessary.	No		
11	Logs in to Eaglesoft and enters correct patient information.	Yes		
PROCEDURE				
12	Cone positioning results in no more than six undiagnostic radiographs.	Yes		
13	Image receptor positioning results in no more than six undiagnostic radiographs.	Yes		
14	Adjusts exposure time and leaves room prior to exposure.	Yes		
15	Correctly processes, mounts, and saves images and submits critique sheets on or before the due date for grading.	Yes		
TERMINATING ACTIVITIES				
16	Removes lead apron and thyroid collar from patient and returns personal articles. Thanks patient and escorts to reception area.	No		
17	Returns to x-ray area to clean and disinfect.	No		
18	Logs out of Eaglesoft.	Yes		
Comments:				

EXPOSING PANORAMIC RADIOGRAPHIC SURVEY ON A MANIKIN SKILL EVALUATION

Objectives:

Upon completion of this session, the student will be able to:

1. Identify the criteria for the optimal panoramic survey.
2. Identify landmarks, restorations, and pathology on a panoramic radiograph.
3. Identify technique, processing and handling errors of a panoramic radiograph.
4. Correctly prepare panoramic machine for panoramic procedures.
6. Correctly position machine and manikin for panoramic procedure.
7. Select correct exposure values on panoramic machine.
8. Expose, process, and evaluate the quality of a panoramic radiograph.
9. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.

Reading Correlation:

Textbook, Chapter 17 (The Panoramic Examination), Chapter 22 (Recognizing Normal Radiographic Anatomy – Panoramic Radiographs)

Practice Exercises:

Student will study the panoramic survey, landmarks, restorations, and pathology seen on panoramic radiographs, and acceptable criteria for panoramic radiographs.

Student will practice panoramic procedures.

Student will be evaluated by an instructor using – **Exposing Panoramic Radiographic Survey on a Manikin Competency Exam**

LIT Dental Hygiene Program EXPOSING A PANORAMIC SURVEY ON A MANIKIN Skill Evaluation				
Dental Radiology Lab				
LIT Competency Statement	HP 6: Evaluate and utilize methods to ensure the health and safety of the patient and the dental hygienist in the delivery of dental hygiene.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name	DXTTR Manikin	Skill Evaluation	☐ SATISFACTORY ☐ UNSATISFACTORY	
Attempt #:				
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)	No		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)	Yes		
3	Maintain clinic and laboratory records	Yes		
4	Application of professional knowledge, judgment and skills by the student while providing patient care	Yes		
PREPARATION OF SELF AND WORKSPACE				
5	Inputs manikin information in EagleSoft and activates the machine and indicator light turns green. Properly prepares equipment. Includes: • Checks if machine is on Pan Standard, • Select the adult or child mode, • Select correct patient size, • Select the correct size and shape of the jaw, • Check the position of the C-arm, • Open the template supports, • Place disinfected bite block and cover with barrier.	Yes		
MANIKIN POSITIONING				
6	Position the manikin into the pan machine.	Yes		
7	Raise the pan chin rest to the height of the manikin's chin.	Yes		
8	• Position the manikin on the chin rest with its mouth close to the bite block.	Yes		

	• The Frankfort plane should be on the occlusal surface. • Adjust the level of the chin rest, if necessary. • The mid-sagittal plane should coincide with manikin's midline. • Ant-Post light should be at distal of the maxillary lateral incisor.			
9	Press the temple support button.	Yes		
EXPOSING THE RADIOGRAPHIC IMAGE				
10	Move to the exposure button. Press and hold down the exposure button for the duration of the exposure.	Yes		
11	Saves the panoramic image in Eaglesoft and exits Eaglesoft.	Yes		
12	Submits the critique sheet on or before the due date for grading.	Yes		
Comments:				

EXPOSING PANORAMIC RADIOGRAPHIC SURVEY ON AN ADULT PATIENT COMPETENCY EXAM

Objectives:

Upon completion of this session, the student will be able to:

1. Identify the criteria for the optimal panoramic survey.
2. Identify landmarks, restorations, and pathology on a panoramic radiograph.
3. Identify technique, processing and handling errors of a panoramic radiograph.
4. Correctly prepare panoramic machine for panoramic procedures.
5. Correctly prepare patient for panoramic procedure.
6. Correctly position machine and patient for panoramic procedure.
7. Select correct exposure values on panoramic machine.
8. Expose, process, and evaluate the quality of a panoramic radiograph.
9. Demonstrate proper infection control protocol before, during and after the radiographic procedure and during image receptor processing.

Reading Correlation:

Textbook, Chapter 17 (The Panoramic Examination), Chapter 22 (Recognizing Normal Radiographic Anatomy – Panoramic Radiographs)

Practice Exercises:

Student will study the panoramic survey, landmarks, restorations, and pathology seen on panoramic radiographs, and acceptable criteria for panoramic radiographs.

Student will practice panoramic procedures.

Student will be evaluated by an instructor using – **Exposing a Panoramic Radiographic Survey on an Adult Patient Competency Exam**

LIT Dental Hygiene Program EXPOSING A PANORAMIC SURVEY ON AN ADULT PATIENT Competency Exam				
Dental Radiology Lab				
LIT Competency Statement	PC 9.c Obtain, review, and update a complete medical, family, social, and dental history. PC 10 Use critical decision-making skills to reach conclusions about the patient's dental hygiene needs based on all available assessment data.			
Student Name		Date:		
Instructor		Patient ID:		
Patient Name		Skill Evaluation	☐ SATISFACTORY ☐ UNSATISFACTORY	
Attempt #:				
Any critical error results in a score of 'not competent' and the student must repeat the competency.				
The student, in accordance with the standards set forth by the ADA and the Dental Hygiene Program, has demonstrated the following criteria.		Critical Error	Yes	No
1	Utilize accepted infection control procedures (lab coat, gloves, glasses/face shield, mask, scrub cap)	No		
2	Apply basic and advanced principles of dental hygiene instrumentation (Xray Devices)	Yes		
3	Obtains complete Medical/Dental history. Maintain clinic and laboratory records	Yes		
4	Obtains Informed Consent prior to exposing the patient to radiation.	Yes		
5	Application of professional knowledge, judgment and skills by the student while providing patient care.	Yes		
PREPARATION OF SELF AND WORKSPACE				
6	Inputs patient information in EagleSoft and activates the machine and indicator light turns green.	Yes		
7	Properly prepares equipment. Includes: • Checks if machine is on Pan Standard, • Select the adult or child mode, • Select correct patient size, • Select the correct size and shape of the jaw, • Check the position of the C-arm, • Open the template supports, • Place disinfected bite block and cover with barrier.	Yes		
PATIENT PREPARATION				

8	Include the removal of interfering items (earrings, eyeglasses, dental appliances, bulky clothing, hair clips).	Yes		
9	Drapes patient with lead apron.	Yes		
PATIENT POSITIONING				
10	Position the patient into the pan machine.	Yes		
11	Raise the pan chin rest to the height of the patient's chin. • Have the patient step up to the chin rest and place chin on rest, close on bite block. • The patient should have to stretch up to reach the chin rest. • The Frankfort plane should be parallel to the floor. • Adjust the level of the chin rest, if necessary. • The mid-sagittal plane should coincide with patient's midline. • Ant-Post light should be at distal of the maxillary lateral incisor.	Yes		
12	Have the patient grasp the handles.	No		
13	Press the temple support button.	Yes		
14	Position the patient so the shoulders are level and the mid-sagittal plane is vertical.	Yes		
15	Ask the patient to close their lips around the bite block, swallow, place their tongue flat against the roof of the mouth, breath normally, and stand still.	Yes		
EXPOSING THE RADIOGRAPHIC IMAGE				
16	Move to the exposure button. Press and hold down the exposure button for the duration of the exposure.	Yes		
17	Correctly releases the patient 1) Press the Temple Support key to open the temple supports, 2) Ask the patient to step back 3) Logs out of Eaglesoft 4) Escort patient to the reception room	Yes		
18	Submits the critique sheet on or before the due date for grading.	Yes		
Comments:				

BITEWING EVALUATION CRITERIA

Objective: Expose, mount, and self-evaluate diagnostically useful bitewing radiographs.

Criteria:

1. **Minimal or No Distortion Present (elongation/foreshortening)**
I = minimal dimensional distortion
R = excessive dimensional distortion
2. **Diagnostic interproximal spaces**
I = in excess of 1 mm of overlap on enamel
R = overlap of enamel and dentin
3. **Essential anatomy present**
R = distal contact of canine on premolar radiograph not visible
R = distal of last erupted tooth crown not visible on molar radiograph
R = crowns only partially visible
R = crestal bone level is not visible
I = minimal cone cut not affecting essential anatomy
R = excessive cone cut affecting essential anatomy
4. **Adequate density**
I = slightly light/dark radiograph not affecting diagnostic ability
R = excessively light or dark radiograph affecting diagnostic ability
5. **Adequate contrast and detail**
I = images most clear and well defined, useable diagnostically
R = images not clear and well defined
6. **Occlusal plane parallel and centered**
I = slanted less than 5 degrees and/or off center less than 5 degrees
R = slanted greater than 5 degrees
7. **Careful labeling, processing, handling, mounting**
I = errors do not interfere with the diagnosis of the radiograph
R = errors do interfere with the diagnosis of the radiograph
R = labeling error results in an automatic failure on the survey
8. **Careful interpretation and evaluating radiographs**
I = maximum of one error per radiograph
R = more than one error per radiograph

Scoring:

V = Satisfactory = all criteria met

I = improvable

R = retake = Unsatisfactory

- An "R" on any radiograph constitutes a retake with a maximum of 2 retakes per bitewing survey for credit. An additional retake may be taken to complete the survey, but the student will not receive credit.

PERIAPICAL EVALUATION CRITERIA

Objective: Expose, mount, and self-evaluate diagnostically useful periapical radiographs.

Criteria:

1. **3 mm alveolar bone observable beyond apex of each tooth.**
I = between 2 - 3 mm of bone observable
R = less than 2 mm of bone observable
2. **Suitable reproduction of tooth length.**
I = minimal elongation or foreshortening
R = excessive elongation or foreshortening
3. **Parallel bucco-lingual relationship**
I = a minimal dimensional distortion, i.e., alveolar crest, cusps, roots
R = excessive dimensional distortion
4. **Diagnostic interproximal spaces**
I = in excess of 1mm of overlap on enamel
R = overlap of overlap of enamel and dentin
5. **Essential anatomy present**
I = most of maxillary tuberosity and ascending ramus on molar radiograph
R = little or no maxillary tuberosity and ascending ramus on molar radiograph
R = required teeth and surrounding tissue are not visible
I = minimal cone cut not affecting essential anatomy
R = excessive cone cut
6. **Adequate density**
I = slightly light or slightly dark radiograph
R = excessively light or dark radiograph
7. **Adequate contrast and detail**
I = images generally clear and well defined
R = images not clear or well defined
8. **Occlusal plane parallel to lower border of film and separation adequate.**
I = less than 5 degrees difference in parallelism of images to border of radiograph
R = greater than 5 degrees difference
9. **Careful labeling, processing, handling, mounting**
I = errors do not interfere with the diagnosis of the radiograph
R = errors do interfere with the diagnosis of the radiograph
R = labeling error results in an automatic failure on the survey
10. **Careful interpretation and evaluation of radiograph**
I = maximum of one error per radiograph
R = more than one error per radiograph

Scoring: **V = Satisfactory = All Criteria Met**

I = Improvable

R = Retake = Unsatisfactory

- An "R" on any radiograph constitutes a retake. A maximum of 6 retakes per survey is allowed for credit and completion of the survey.
- An "R" which has been circled is calculated as a retake for grading purposes, however the survey does not need to be retaken. In this situation, information missing on an individual radiograph is present on other radiographs in the survey.

**Dental Hygiene Program
Dental Radiology Lab Remediation Form**

Student Name: _____

Course: _____

Instructor: _____

Date of Deficiency: _____

Clinical Deficiency Identified

(Check all that apply)

- ☐ Instrumentation (e.g., scaling, calculus removal)
- ☐ Patient assessment (e.g., periodontal charting, oral exam)
- ☐ Infection control / safety
- ☐ Radiographic procedures
- ☐ Patient management / time management
- ☐ Documentation (EagleSoft, charting, CER, Trajecsys).
- ☐ Patient Education/Nutritional Counseling
- ☐ Professional behavior
- ☐ Other: _____

Description of Deficiency

(Provide specific details of the skill or performance issue)

Remediation Plan (Same-Day Requirement)

Clinical remediation must be initiated and completed on the **same day**, when feasible, and will focus only on the deficient skill(s).

- ☐ One-on-one instructor guidance
- ☐ Demonstration and return demonstration
- ☐ Additional clinical practice
- ☐ Simulation or lab-based practice
- ☐ Other: _____

Specific Remediation Activities Completed:

Re-Evaluation

- ☐ Successful — student demonstrated acceptable performance
- ☐ Not successful — additional remediation required

Instructor Feedback:

Student Acknowledgment

I understand that:

- I did not meet the expected clinical performance standard
- Remediation is required to address the identified deficiency
- Completion of remediation does not guarantee successful course progression
- I am responsible for continued improvement and skill development

Signatures

Student Signature: _____ Date: _____

Instructor: _____ Date: _____

Program Director (if required): _____ Date: _____

Class Expectations

To create and preserve an atmosphere that optimizes teaching and learning, students are expected to adhere to the following rules in Dental Radiology Lecture and Lab.

What is Expected of You (the student)

1. **Be respectful.** Respect is the foundation of a successful learning environment. It is important that students are respectful toward the instructors and fellow classmates, and that their behaviors do not interfere or disrupt lab activities. Follow the rules of common courtesy in all your email messages, class discussions and activities, and critiques/reviews of others' work.
2. **Be on time.** Because random arrivals and exits are disrespectful and distracting. Please plan to arrive to class on time and to stay for the entire class.
3. **Be Prepared and Engaged.** Demonstrate strong preparation to meet deadlines and actively participate in the course. View your schedule daily and check your LIT email for any announcements. Read and follow all content items and assignment directions. You are expected to fully engage in this course by submitting all requirements, critiques, assignments, and quizzes on time and participating in lab activities.
4. **Be organized.** Organization not only reduces stress levels, but it also helps you save time, achieve success, and enjoy a clutter-free zone both within your physical environment and your mind.
5. **Be helpful.** As you begin school, you will meet classmates who will become lifelong friends. Make a commitment to help each other along the way.
6. **Communicate.** Early and prompt communication is essential to success in any course. Questions and problems cannot be taken care of if I am not aware of them. Please contact me with any questions you may have. If you have conflicts with the course schedule or concerns about the course content and requirements, you must contact me.
7. **Adhere to the rules, policies and procedures** set by the instructor, program, department, and institution.
8. **Turn off your cell phone** and don't text or browse during class (unless it's part of the class)!

What is Expected of Me (your instructor)

1. To be fair.
2. To start and end class on time.
3. To effectively use class time.
4. To be prepared and have current knowledge of the subject matter.
5. To reply to e-mails within 24-48 hours on weekdays and 48-72 hours on weekends.
6. To grade and return assignments within 24-72 hours to ensure that you have ample time to review my feedback to help you achieve the course objectives.
7. To be courteous, civil, fair, and respectful in my interactions with students.
8. To help you be proficient in taking dental x-rays.
9. To give adequate notification of assignments, examinations, changes in syllabus.
10. To establish an open learning environment, wherein questions, comments, and interaction are encouraged.

Good luck, Class of 2028.