I. CATALOG INFORMATION

A. Discipline: RADIOLOGIC TECHNOLOGY (RADT)

B. Subject Code and Number: RADT M11

C. Course Title: Radiographic Lab I

D. Credit Course units:

Units: 1

Lecture Hours per week: 0

Lab Hours per week : 3

Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 0 - 0

Laboratory/Activity Hours:

Laboratory/Activity Hours 52.5 - 52.5

Total Combined Hours in a 17.5 week term: 52.5 - 52.5

F. Non-Credit Course hours per week

G. May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

H. Is the course co-designated (same as) another course: No [X] Yes [ ]
If YES, designate course Subject Code & Number:

I. Course Description:

Provides an opportunity for practical applications of theory focuses on routine and trauma radiographic anatomy through simulated clinical experiences in a radiography skills lab. Offers hands-on positioning with a mock patient as well as the creation of actual radiographs of an x-ray phantom using conventional and digital equipment.

J. Entrance Skills

*Prerequisite: No [ ] Yes [X] Course(s)
RADT M10A and RADT M10AL and RADT M10B

*Corequisite: No [ ] Yes [X] Course(s)
RADT M01A and RADT M01AL and RADT M01B and RADT M01BL

Limitation on Enrollment: No [X] Yes [ ]

Recommended Preparation: No [X] Yes [ ] Course(s)

Other: No [X] Yes [ ]

K. Other Catalog Information:

II. COURSE OBJECTIVES

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

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	perform simulated lab procedures utilizing a fellow student as the mock patient using non-energized x-ray equipment.	Mid-Term and Final evaluation exam
2	simulate positioning for exams of the upper and lower extremities, vertebral column and bony thorax.	Mid-Term and Final evaluation exam
3	align the mock patient, central ray and image receptor system properly.	Mid-Term and Final evaluation exam
4	show the proper way to apply gonadal shielding to the mock patient whenever possible.	Mid-Term and Final evaluation exam
5	perform all the assigned skills lab procedures utilizing a radiographic phantom and the energized x-ray tube.	Mid-Term and Final evaluation exam
6	align the phantom, central ray, and image receptor properly.	Mid-Term and Final evaluation exam
7	select correct technique on the energized console, make the exposure on the phantom and process the image.	Mid-Term and Final evaluation exam
8	perform a minimum of one (1) dark room rotation during the lab period.	Mid-Term and Final evaluation exam
9	demonstrate radiation protection methods according to the California Radiation Health Code (Title 17).	Mid-Term and Final evaluation exam
10	evaluate and critique the procedure, performance, and the radiographs exposed with the assistance of faculty.	Mid-Term and Final evaluation exam

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
Lab (must total 100%)		
28.00%	Upper Extremety	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
28.00%	Lower Extremety	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
21.00%	Bony Thorax	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
7.00%	Pelvis/Hip	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
16.00%	Vertebral Column	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	write correctly filled-out x-ray requisitions for each exam covered in in this course.
2	write techniques required for each radiographic exam in their positioning pocket book.
3	complete written assignments in the workbook.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	conduct field observations during RADT M01AL clinical rotations.
2	review covered radiographic procedures before each lab.
3	complete assigned readings from text to prepare for the specific exams.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	appraise patient condition and revise exam as necessary when dealing with a trauma patient.
2	evaluate understanding of a pediatric patient in order to complete the required images.
3	developed a step-by-step procedure for each radiographic exam.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

☐ Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

[X] Lecture/Discussion

[X] Laboratory/Activity

[X] Other (Specify) Simulations with patients and phantoms.

[X] Optional Field Trips

[ ] Required Field Trips

VI. METHODS OF EVALUATION

Methods of evaluation may include, but are not limited to:

[ ] Essay Exam	[X] Classroom Discussion	[X] Skill Demonstration
[X] Problem Solving Exam	[X] Reports/Papers/ Journals	[X] Participation
[ ] Objective Exams	[ ] Projects	[X] Other (specify)

Mid-term and Final lab evaluation exam.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Bontrager, Kenneth, and John Lampignano. Textbook of Radiographic Positioning and Related Anatomy. 8th ed. Elsevier, 2014.

Bontrager, Kenneth, and John Lampignano. Workbook for Textbook of Radiographic Positioning and Related Anatomy. 8th ed. Mosby, 2013.

Frank, Eugene D., Bruce W. Long, and Barbara J. Smith. Mosby's Radiography Online: Anatomy and Positioning for Merrill's Atlas of Radiographic Positioning and Procedures. 12th ed. Mosby, 2011.

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*
Cabrillo College	RT 51L	Positioning I	1
Foothill College	RT 53AL	Applied Radiographic Technology Lab I	1

X. MINIMUM QUALIFICATIONS

Courses in Disciplines in which Masters Degrees are not expected:
Bachelor's degree with 2 years experience, or associate degree with 6 year experience plus license in the discipline.

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

[ ]

☐ Pass/No Pass only (no letter grade possible); or
☒ Letter grade (P/NP possible at student option)

2. Degree status:
   Either ☒ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?
   Yes: ☐ No: ☒ If YES, what section(s)?

   ☐ A1 - Natural Sciences - Biological Science
   ☐ A2 - Natural Sciences - Physical Science
   ☐ B1 - Social and Behavioral Sciences - American History/Institutions
   ☐ B2 - Social and Behavioral Sciences - Other Social Behavioral Science
   ☐ C1 - Humanities - Fine or Performing Arts
   ☐ C2 - Humanities - Other Humanities
   ☐ D1 - Language and Rationality - English Composition
   ☐ D2 - Language and Rationality - Communication and Analytical Thinking
   ☐ E1 - Health/Physical Education
   ☐ E2 - PE or Dance
   ☐ F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes: ☒ No: ☐

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☐ No: ☒ If YES, which area(s)?

   A1 ☐ A2 ☐ A3 ☐ B1 ☐ B2 ☐ B3 ☐ B4 ☐

   C1 ☐ C2 ☐ D1 ☐ D2 ☐ D3 ☐ D4 ☐ D5 ☐

   D6 ☐ D7 ☐ D8 ☐ D9 ☐ D10 ☐ E ☐

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes: ☐ No: ☒

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes: ☐ No: ☒

   IGETC Area 1: English Communication

   ☐ English Composition
   ☐ Critical Thinking-English Composition
   ☐

- [ ] Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- [ ] Mathematical Concepts

IGETC Area 3: Arts and Humanities

- [ ] Arts
- [ ] Humanities

IGETC Area 4: Social and Behavioral Sciences

- [ ] Anthropology and Archaeology
- [ ] Economics
- [ ] Ethnic Studies
- [ ] Gender Studies
- [ ] Geography
- [ ] History
- [ ] Interdisciplinary, Social & Behavioral Sciences
- [ ] Political Science, Government & Legal Institutions
- [ ] Psychology
- [ ] Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- [ ] Physical Science Lab or Physical Science Lab only (none-sequence)
- [ ] Physical Science Lecture only (non-sequence)
- [ ] Biological Science
- [ ] Physical Science Courses
- [ ] Physical Science Lab or Biological Science Lab Only (non-sequence)
- [ ] Biological Science Courses
- [ ] Biological Science Lab course
- [ ] First Science course in a Special sequence
- [ ] Second Science course in a Special Sequence
- [ ] Laboratory Activity
- [ ] Physical Sciences

IGETC Area 6: Language other than English

- [ ] Languages other than English (UC Requirement Only)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- [ ] U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
Reading assignments in radiographic and medical journals in the Library's print and online resources.

B. Are the currently held library resources sufficient to support the course assignment?

YES: [X] NO: [ ]

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

Requisite Justification for RADT M10A

[X] A. Sequential course within a discipline.

1. describe the prime factors of mA, kVp, seconds, and distance that must be considered in radiographic technique.

2. identify the different image receptors used for radiographic imaging.

3. identify key components of an automatic film processor and analyze the steps of the processing cycle by providing the specific action and duration of time for each step.

4. evaluate and critique radiographic images.

5. describe the ALARA (As Low As Reasonably Achievable) concept.

6. describe standard positioning terms and procedural considerations of radiographic exams.

7. discuss the philosophy and regulations of the Moorpark College Radiography program.

8. describe the practice standards for the radiographer as defined by the The American Society of Radiologic Technologists (ASRT) and the State of California.

9. recall the historic events and individuals that have contributed greatly to the field of radiology.

10. identify the advanced imaging modalities and career opportunities in the field of radiology.

11. describe the structure and function of a typical x-ray department.

12. discuss the importance of documenting and reporting patient history and symptoms.

13. identify methods of and barriers to communication and describe how each may be used or overcome effectively during patient education.

[ ] B. Standard Prerequisite or Corequisite required by universities.

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for RADT M10AL

☒ A. Sequential course within a discipline.

1. assemble the Clinical Portfolio for clinical practicum and review student handbook.

2. use film-screen cassettes and automatic film processing.

3. operate radiographic unit and accessories.

4. select the prime factors of mA (milliamps), kVp (kilovolt peak) seconds, and distance on the x-ray console.

5. employ the use of radiation shielding devices for both patient and personnel.

6. describe techniques of radiation protection using parameters of time, distance and shielding.

7. apply radiation protection methods during fluoroscopic procedures.

8. apply radiation protection methods during mobile radiographic procedures.

9. practice, through demonstration, the basic body positions used when positioning patients for radiographic examinations.

10. observe, assist and perform radiographic procedures of the chest including adult, pediatric, geriatric, and trauma.

11. observe, assist and perform radiographic procedures of the abdomen including adult, pediatric, geriatric, and trauma.

12. demonstrate the procedures for gowning and gloving for you or another to maintain a sterile field.

13. recall the procedure for emergencies and incidents at the clinical site.

14. demonstrate the appropriate method for lifting, moving, and transporting patients to and from the medical imaging department.

15. demonstrate basic clerical duties in radiology reception such as process the x-ray requisition, use telephone, intercom and paging systems, archive/retrieve images/film, and PACS (picture archiving and communication system).

☐ B. Standard Prerequisite or Corequisite required by universities.

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for RADT M10B

☒ A. Sequential course within a discipline.

1. describe Bohr's theory of atomic structure.

2. explain the processes of ionization and excitation

3. describe the electromagnetic spectrum.

4. describe wavelength and frequency and explain their relationship to velocity.

5. explain the wave-particle duality phenomena of x-rays.

6. identify the properties of x-rays.

7. describe the different types of x-ray equipment, including diagnostic and fluoroscopic.

8. define potential difference, current, and resistance.

9. compare generators in terms of radiation produced and efficiency.

10. identify the general components of the primary, secondary and filament circuits of an x-ray machine.

11. discuss permanent installation of radiographic equipment in terms of purpose, components, types, and applications.

12. describe functions of components of automatic exposure control devices (AEC).

☐ B. Standard Prerequisite or Corequisite required by universities.

☐ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

Requisite Justification for RADT M01A

☐ A. Sequential course within a discipline.

☐ B. Standard Prerequisite or Corequisite required by universities.

☒ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for RADT M01AL

☐ A. Sequential course within a discipline.

☐ B. Standard Prerequisite or Corequisite required by universities.

☒ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for RADT M01B

☐ A. Sequential course within a discipline.

☐ B. Standard Prerequisite or Corequisite required by universities.

☒ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

and

Requisite Justification for RADT M01BL

☐ A. Sequential course within a discipline.

☐ B. Standard Prerequisite or Corequisite required by universities.

☐

☒ C. Corequisite is linked to companion lecture course.

☐ D. Prerequisite or Corequisite is authorized by legal statute or regulation.
Code Section: _____

☐ E. Prerequisite or Corequisite is necessary to protect the students' health and safety.

☐ F. Computation or communication skill is needed.

☐ G. Performance courses: Audition, portfolio, tryouts, etc. needed.

XIV. WORKPLACE PREPARATION

Required for career technical courses only. A career technical course/program is one with the primary goal to prepare students for employment immediately upon course/program completion, and/or upgrading employment skills.

Detail how the course meets the Secretary of Labors Commission on the Achievement of Necessary Skills (SCANS) areas. (For a description of the competencies and skills with a listing of what students should be able to do, go to: http://www.ncrel.org/sdrs/areas/issues/methods/assment/as7scans.htm)

The course will address the SCANS competency areas:

1. Resources: the students will identify weekly learning objectives; devise a plan to allocate adequate study time to learn the weekly objectives; learn to organize the steps involved in radiography procedures; meet assignment deadlines and be prepared to participate in class discussions.

2. Interpersonal: the students will work in collaboration with other students and bring radiographs from the clinical setting and present case studies to strengthen the skills of each member of the class and help gain clinical proficiency; experience the importance of collaboration and of being a team member in the health care field.

3. Information: the students will refer to radiographic technique charts to select the correct amount of radiation for imaging the body part of interest; use computers in the skills lab, which prepares them to evaluate, organize and communicate information in the clinical facility; make use of professional health care and radiography journals to keep abreast of the state of the art in medical imaging and to stay current with continuing education requirements.

4. Systems: the students will learn to follow specific protocols for the safe use of radiation production equipment.

5. Technology: the students will differentiate between electronic and conventional imaging equipment.

The course also addresses the SCANS skills and personal qualities:

1. Basic Skills: the students will read professional journals and manuals related to

new radiographic techniques and equipment.

2. Thinking Skills: the students will describe how to alter radiographic procedures for the pediatric, geriatric, and trauma patient; describe how to prioritize radiographic procedures when there are multiple exams ordered.

3. Personal Qualities: the students will demonstrate accountability through regular attendance and punctuality in class; demonstrate reliability by completing assignments as instructed and in a timely manner; show respect for each other, others with whom they come in contact, and those in authority.

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

RADT M11: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

RADT M11: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

RADT M11: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

RADT M11: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: RADIOLOGIC TECHNOLOGY (RADT)

Discipline Code and Number: RADT M11

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Robert Darwin 01/28/2014

Faculty Peer: Guadalupe Aldana 01/28/2014

Curriculum Rep: Linda Loiselle 01/29/2014

Department Chair: Guadalupe Aldana 01/28/2014

Division Dean: Kimberly Hoffmans 01/29/2014

Approved By:

Curriculum Chair: Jerry Mansfield 03/01/2014

Executive Vice President: Lori Bennett 03/05/2014

Articulation Officer: Letrisha Mai 02/05/2014

Librarian: Mary LaBarge 02/06/2014

Implementation Term and Year: Fall 2014

Approval Dates:

Approved by Moorpark College Curriculum Committee: 03/04/2014

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): _____