I. CATALOG INFORMATION

A. Discipline: RADIOLOGIC TECHNOLOGY (RADT)

B. Subject Code and Number: RADT M04

C. Course Title: Introduction to Image - Intensified Fluoroscopy

D. Credit Course units:

Units: 1

Lecture Hours per week: 1

Lab Hours per week : 0

Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 17.5 - 17.5

Laboratory/Activity Hours:

Laboratory/Activity Hours 0 - 0

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

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:

Covers the principles of fluoroscopic imaging including equipment, image formation and recording. Emphasizes image quality, analysis and radiation protection.

J. Entrance Skills

*Prerequisite: No [ ] Yes [X] Course(s)
RADT M03 and RADT M03L and RADT M03B

*Corequisite: No [ ] Yes [X] Course(s)
RADT M04L and RADT M14

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	identify the functional components involved in the operation of both fixed and mobile fluoroscopic devices.	Quizzes and exams
2	identify the advantages and limitations of the fluoroscopic unit and various exposure settings and recording devices.	Quizzes and exams
3	identify methods and techniques in the operation of the fluoroscopic device to maximize the diagnostic value of a given exam while minimizing patient radiation exposure.	Quizzes and exams
4	describe the function of federal, state and local regulations governing radiation protection practices.	Quizzes and exams
5	explain the use of appropriate methods of reducing radiation exposure to patients and personnel.	Quizzes and exams
6	discuss stochastic and nonstochastic radiation effects.	Quizzes and exams
7	discuss patient education regarding the operation and benefits of the fluoroscopic device.	Quizzes and exams

III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
20.00%	Image intensifier system	1, 5, 7
20.00%	Recording systems	1, 2, 3, 5
20.00%	Image quality	1, 2, 3, 4, 5, 6
20.00%	Radiation protection	1, 2, 3, 4, 5, 6, 7
10.00%	Regulations and radiation protection (state and federal)	1, 2, 3, 4, 5, 6
10.00%	Fluoroscopic procedures	1, 2, 3, 5, 6, 7

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:

1	written essay questions on exams.
2	written assignments based on radiographic journal articles.
3	written answers to discussion questions in the text.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	review Title 17 for fluoroscopy content.
2	assigned readings on The American Society of Radiologic Technologists (ASRT) Self-Directed Learning Modules.

C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:	
1	analyze and critique fluoroscopic images.
2	assess and formulate adjustments to various fluoroscopic exam situations.

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
- [ ] Laboratory/Activity
- [X] Other (Specify) Instructor-led discussion/seminar.
- [ ] Optional Field Trips
- [ ] Required Field Trips

VI. METHODS OF EVALUATION

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

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

Review and critique fluorscopic images.

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Bushong, Stewart. Radiologic Science for Technologists: Physics, Biology and Protection. 10th ed. Mosby, 2013.

Carlton, Richard R., and Arlene McKenna Adler. Principles of Radiographic Imaging; An Art and a Science. 5th ed. Cengage, 2012.

State of California Syllabus for Flouroscopy

The American Society of Radiologic Technologists (ASRT) Self-Directed Learning Modules

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*
Santa Barbara City College	RT 240	Fluoroscopic Imaging and Radiation Protection	3
Cypress College	RADT 260C	Fluoroscopy Permit Course	3
Antelope Valley College	RADT 203	Fluoroscopic Imaging and Radiation Protection	3
Fresno City College	RAD 5C	Fluoroscopy	2
Los Angeles City College	RAD TEC 243	Principles and Practices in Fluoroscopy	3
Yuba College	RADT 16	Radiologic Fluoroscopy	3
Long Beach City College	DMI 61	Fluoroscopy	2

X. MINIMUM QUALIFICATIONS

Courses in Disciplines in which Masters Degrees are not expected:
Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

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
   [X] Letter grade (P/NP possible at student option)

2. Degree status:
   Either [X] 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: [X] 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:
Radiographic and medical journal reading assignments which may use 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 M03

[X] A. Sequential course within a discipline.

1. describe the components of the CT (computed tomography)imaging system.

2. list the CT computer data processing steps.

3. name the common controls found on a CT operator console and describe how and why each is used.

4. describe the principles of CT data acquisition.

5. list and describe the steps in CT image reconstruction and display.

6. explain CT image post-processing and data management.

7. discuss image quality in reference to CT acquired images.

8. discuss general radiation safety and protection practices associated with examinations in CT.

9. locate and identify anatomical structures on CT and MR (magnetic resonance) images.

10. describe the relationship of each anatomical structure to surrounding structures on CT and MR images.

11. describe the function of each anatomical structure found on CT and MR images.

☐ 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 M03L

☒ A. Sequential course within a discipline.

1. execute medical imaging procedures under the appropriate level of supervision.

2. assess the patient and record clinical history.

3. select technical factors to produce quality diagnostic images with the lowest possible radiation exposure possible.

4. integrate the use of appropriate and effective written, oral and nonverbal communication with patients, the public, and members of the health care team in the clinical setting.

5. maintain patient confidentiality standards and meet HIPAA (Hospital Insurance Portability and Accountability Act) requirements.

6. provide patient-centered, clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity or culture.

7. adapt procedures to meet age-specific, disease-specific and cultural needs of patients.

8. evaluate and critique radiographic procedures under the supervision of a licensed radiologic technologist.

9. critique images for appropriate anatomy, image quality, and patient identification with the clinical instructor.

10. demonstrate clerical duties needed to process the exam.

11. demonstrate competency in principles of radiation protection standards in accordance with California Radiation Health Code (Title 17).

12. produce a minimum of 12 radiographic competencies from the torso skeletal area, gastrointestinal system, genitourinary system, surgical procedures and computed tomography.

☐ 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 M03B

☒ A. Sequential course within a discipline.

1. define basic terms related to pathology.

2. describe the basic manifestations of pathology conditions and their relevance to radiologic procedures.

3. describe imaging procedures used in diagnosing disease.

4. describe the various systemic classifications of disease in terms of etiology, types, common sites, complications and prognosis.

5. describe the radiographic appearance of diseases.

6. identify imaging procedures and interventional techniques appropriate for diseases common to each body system.

7. identify and explain how to alter procedures and techniques to image specific pathologies.

☐ 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 M04L

☐ 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 M14

☐ 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. Such collaborative efforts reinforce skills of relating to a diverse population.

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 digital and analog 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 and 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 M04: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

RADT M04: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

RADT M04: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

RADT M04: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline: RADIOLOGIC TECHNOLOGY (RADT)

Discipline Code and Number: RADT M04

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Robert Darwin 01/28/2014

Faculty Peer: Guadalupe Aldana 01/31/2014

Curriculum Rep: Linda Loiselle 01/29/2014

Department Chair: Carol Higashida 02/03/2014

Division Dean: Kimberly Hoffmans 01/29/2014

Approved By:

Curriculum Chair: Jerry Mansfield 05/20/2014

Executive Vice President: Lori Bennett 05/20/2014

Articulation Officer: Letrisha Mai 04/29/2014

Librarian: Mary LaBarge 04/29/2014

Implementation Term and Year: Fall 2014

Approval Dates:

Approved by Moorpark College Curriculum Committee: 05/06/2014

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): _____