

RADT M15: VENIPUNCTURE/ECG FOR RADT

Originator
abarcenas

College

Moorpark College

Discipline (CB01A)

RADT - Radiologic Technology

Course Number (CB01B)

M15

Course Title (CB02)

Venipuncture/ECG for RADT

Banner/Short Title

Venipuncture/ECG for RADT

Credit Type

Credit

Start Term

Spring 2021

Catalog Course Description

Provides the basic techniques of venipuncture in an upper extremity for the administration of radiographic contrast materials. Describes complications associated with contrast administration and appropriate actions to resolve these complications. Introduces the basic concepts of the electro-cardiogram (ECG).

Additional Catalog Notes

This course is also available to Certified Radiologic Technologist. Upon completion of in class portion of the course, students will need to perform an additional ten (10) venipunctures at a clinical site under the direct supervision of a physician to satisfy the state of California's training requirements for Certified Radiologic Technologists to start an IV for contrast injection.

Taxonomy of Programs (TOP) Code (CB03)

1225.00 - *Radiologic Technology

Course Credit Status (CB04)

D (Credit - Degree Applicable)

Course Transfer Status (CB05) (select one only)

B (Transferable to CSU only)

Course Basic Skills Status (CB08)

N - The Course is Not a Basic Skills Course

SAM Priority Code (CB09)

C - Clearly Occupational

Course Cooperative Work Experience Education Status (CB10)

N - Is Not Part of a Cooperative Work Experience Education Program

Course Classification Status (CB11)

Y - Credit Course

Educational Assistance Class Instruction (Approved Special Class) (CB13)

N - The Course is Not an Approved Special Class

Course Prior to Transfer Level (CB21)

Y - Not Applicable

Course Noncredit Category (CB22)

Y - Credit Course

Funding Agency Category (CB23)

Y - Not Applicable (Funding Not Used)

Course Program Status (CB24)

1 - Program Applicable

General Education Status (CB25)

Y - Not Applicable

Support Course Status (CB26)

N - Course is not a support course

Field trips

Will not be required

Grading method

Letter Graded

Does this course require an instructional materials fee?

No

Repeatable for Credit

No

Is this course part of a family?

No

Units and Hours

Carnegie Unit Override

No

In-Class

Lecture

Minimum Contact/In-Class Lecture Hours

4

Maximum Contact/In-Class Lecture Hours

4

Activity

Laboratory

Minimum Contact/In-Class Laboratory Hours

14.25

Maximum Contact/In-Class Laboratory Hours

14.25

Total in-Class

Total in-Class

Total Minimum Contact/In-Class Hours

18.25

Total Maximum Contact/In-Class Hours

18.25

Outside-of-Class**Internship/Cooperative Work Experience**

Paid

Unpaid

Total Outside-of-Class**Total Outside-of-Class****Minimum Outside-of-Class Hours**

8

Maximum Outside-of-Class Hours

8

Total Student Learning**Total Student Learning****Total Minimum Student Learning Hours**

26.25

Total Maximum Student Learning Hours

26.25

Minimum Units (CB07)

.5

Maximum Units (CB06)

.5

Prerequisites

RADT M01A, RADT M11, RADT M01B, RADT M01BL and RADT M01AL

Corequisites

RADT M02A, RADT M02AL, RADT M12, RADT M02B, RADT M02BL

Limitations on Enrollment

Criminal background clearance

Drug and alcohol clearance

No acrylic or long nails in clinical settings

Current negative TB test or chest x-ray

Others (specify)

Physical examination demonstrating general good health

No visible tattoos or visible body piercings except single studs in earlobes

Other Limitations on Enrollment

Admission to the Moorpark College Radiography Program, including:

Proof of Health Insurance

Proof of Professional Liability Insurance

Los Angeles City Hospital Fire and Life Safety Card

CPR BLS Provider card from American Heart Association only.

Entrance Skills**Entrance Skills**

RADT M01A, RADT M11, RADT M01B, RADT M01BL and RADT M01AL

Prerequisite Course Objectives

RADT M01A-compare and contrast special considerations for trauma, pediatric and geriatric patients with the normal adult.

RADT M01A-describe and explain each examination assigned utilizing the prescribed position of part, direction of the central ray, anatomical structures and pathology demonstrated.

RADT M01A-discuss the importance of documenting and reporting patient history and symptoms, and incident reporting.

RADT M01A-name the basic body positions used when positioning patients for radiographic examinations.

RADT M01A-list and describe the terms employed in radiographic positioning using lines, planes, bony landmarks and localization points.

RADT M01A-recall the methods of basic radiation protection for both patient and personnel, especially time, distance and shielding.

RADT M01A-discuss the importance of documenting and reporting patient history and symptoms, and reporting of incidents.

RADT M01A-list the projections, both routine and special, for each anatomical area.

RADT M01A-identify on radiographs and drawings the anatomy and positions for each anatomical area.

RADT M01A-describe and explain each examination assigned utilizing the prescribed position of part, direction of the central ray, anatomical structures, and pathology demonstrated.

RADT M01A-critique each image for diagnostic quality including part position, anatomy visualized, contrast, density, markers, and film size.

RADT M01A-compare and contrast special considerations for trauma in pediatric and geriatric patients with the normal adult.

RADT M01A-discuss the establishment of rapport with the patient considering cultural awareness, clinical situations, communications barriers, and radiation safety concerns.

RADT M01AL-execute medical imaging procedures under the appropriate level of supervision.

RADT M01AL-assess the patient and record clinical history.

RADT M01AL-select technical factors to produce quality diagnostic images with the lowest radiation exposure possible.

RADT M01AL-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.

RADT M01AL-maintain patient confidentiality standards and meet HIPAA (Health Insurance Portability and Accountability Act of 1996) requirements.

RADT M01AL-provide patient-centered, clinically effective care for all patients regardless of age, gender, disability, special needs, ethnicity or culture.

RADT M01AL-adapt procedures to meet age-specific, disease-specific and cultural needs of patients.

RADT M01AL-critique images for appropriate anatomy, image quality, and patient identification with the clinical instructor.

RADT M01AL-demonstrate clerical duties needed to process the exam.

RADT M01AL-demonstrate competency in principles of radiation protection standards in accordance with California Radiation Health Code (Title 17).

RADT M01AL-produce a minimum of four radiographic exam competencies.

RADT M01B-identify the different types of x-ray equipment including diagnostic and fluoroscopic.

RADT M01B-define the function of each of the tube parts and their influence on radiographic technique.

RADT M01B-describe the production of Bremss (Bremsstrahlung) and characteristic radiation.

RADT M01B-discuss various photon interactions with matter by describing the interaction, relation to atomic number, photon energy and part density, and their applications in diagnostic radiology.

RADT M01B-discuss the clinical significance of the photoelectric and modified scattering interactions in diagnostic imaging.

RADT M01B-list the various component parts of the x-ray recording system for digital departments.

RADT M01B-discuss the fundamentals of digital radiography, distinguishing between cassette-based systems and cassette-less systems.

RADT M01B-discuss digital image formation.

RADT M01B-discuss grids and their use in a digital department.

RADT M01B-describe the various types of image receptor holders and their use.

RADT M01B-discuss practical considerations in setting standards for acceptable image quality.

RADT M01BL-perform basic quality control tests

RADT M01BL-differentiate between technical factor problems, procedural problems, and equipment malfunctions.

RADT M01BL-evaluate image quality on a radiographic image.

RADT M01BL-perform experiments which prove the different factors that affect image quality.

RADT M01BL-analyze the relationships of factors controlling image quality.

RADT M01BL-evaluate the results of basic quality control (QC) tests.

RADT M11-perform simulated lab procedures utilizing a fellow student as the mock patient using non-energized x-ray equipment.

RADT M11-simulate positioning for exams of the upper and lower extremities, vertebral column, and bony thorax.

RADT M11-align the mock patient, central ray and image receptor system properly.

RADT M11-show the proper way to apply gonadal shielding to the mock patient whenever possible.

RADT M11-perform all the assigned skills lab procedures utilizing a radiographic phantom and the energized x-ray tube.

RADT M11-align the phantom, central ray, and image receptor properly.

RADT M11-select correct technique on the energized console, make the exposure on the phantom, and process the image.

RADT M11-demonstrate radiation protection methods according to the California Radiation Health Code (Title 17).

RADT M11-evaluate and critique the procedure, performance, and the radiographs exposed with the assistance of faculty.

Requisite Justification

Requisite Type

Corequisite

Requisite

RADT M02A

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Corequisite

Requisite

RADT M02AL

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Corequisite

Requisite

RADT M12

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Corequisite

Requisite

RADT M02B

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Corequisite

Requisite

RADT M02BL

Requisite Description

Course not in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Enrollment Limitation

Requisite

Admission to the Program
 Proof of Health Insurance
 Proof of Professional Liability Insurance
 Los Angeles City Hospital Fire and Life Safety Card
 CPR BLS Provider card from American Heart Association only.
 No visible tattoos or visible body piercings except single studs in earlobes.
 Physical examination demonstrating general good health.
 Current negative TB test or chest x-ray
 No acrylic or long nails in clinical settings
 Proof of freedom from and immunity to communicable diseases
 Drug and alcohol clearance
 Criminal background clearance.

Requisite Description

Credit program requisite (credit only)

Level of Scrutiny/Justification

Required by statute or regulation

Requisite Type

Prerequisite

Requisite

RADT M01A, RADT M11, RADT M01B, RADT M01BL and RADT M01AL

Requisite Description

Course in a sequence

Level of Scrutiny/Justification

Required by statute or regulation

Student Learning Outcomes (CSLOs)

Upon satisfactory completion of the course, students will be able to:

- | | |
|---|---|
| 1 | establish a venous line for the administration of contrast agents. |
| 2 | identify and describe complications associated with contrast administration and the appropriate actions to resolve these complications. |

Course Objectives

Upon satisfactory completion of the course, students will be able to:

- | | |
|----|---|
| 1 | explain the current legal status and professional liability issues of the radiographer's role in contrast and/or drug administration. |
| 2 | describe pharmacokinetic and pharmacodynamic principles of drugs. |
| 3 | define the categories of contrast agents and give specific examples for each category. |
| 4 | explain the pharmacology of contrast agents. |
| 5 | describe methods and techniques for administering various types of contrast agents. |
| 6 | identify and describe complications associated with contrast administration and appropriate actions to resolve these complications. |
| 7 | identify the contents of the crash cart, including oxygen administration, and composition and purpose of the antianaphylaxis tray. |
| 8 | differentiate dose calculations for adult and pediatric patients. |
| 9 | prepare for injection of contrast agents/intravenous medications using aseptic technique. |
| 10 | demonstrate appropriate venipuncture technique. |
| 11 | identify the normal anatomy and electrical conduction of the heart. |

- | | |
|----|--|
| 12 | discuss the components of the electrocardiogram (ECG) complexes. |
| 13 | compare normal sinus rhythm, artifacts and dysrhythmias. |

Course Content

Lecture/Course Content

- 25% Contrast agents
- 15% Hazards and complications of venipuncture
- 15% Anatomy and physiology of venipuncture site
- 20% Venipuncture instruments
- 25% Monitoring of electrocardiogram

Laboratory or Activity Content

- 30% Venipuncture instruments
- 25% Monitoring of electrocardiogram
- 45% Administration of contrast material (venipuncture demonstration and practice)

Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Skills demonstrations

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

- Classroom Discussion
- Laboratory activities
- Objective exams
- Problem-solving exams
- Participation
- Skills demonstrations
- Simulations

Instructional Methodology

Specify the methods of instruction that may be employed in this course

- Distance Education
- Demonstrations
- Instructor-guided use of technology
- Laboratory activities

Describe specific examples of the methods the instructor will use:

PowerPoint presentation and skills demonstration on venipuncture technique.

Representative Course Assignments

Writing Assignments

- Written answers to case study scenarios about venipuncture and administration of contrast medium.
- Written short answers to questions on exams.
- Written dose calculations for contrast media injections.

Critical Thinking Assignments

- Summarize the radiographer's role during contrast administration, including legal considerations.
- Respond to a scenario involving intervening in a venipuncture or contrast administration complication.

Reading Assignments

- Read the American Society of Radiologic Technology (ASRT) scope of practice regarding venipuncture and ECG in preparation for class lecture on the topic.

Read and review the California Department of Health-Radiologic Health Branch Title 17 regulations in preparation for discussing legal considerations of venipuncture and ECG monitoring.

Skills Demonstrations

Establish a venous line for the administration of contrast agents.
Practice aseptic technique while establishing intravenous (IV) access.

Outside Assignments

Representative Outside Assignments

Ten successful venipuncture lines established under a physicians' supervision.
Job shadowing.

Articulation

Equivalent Courses at other CCCs

College	Course ID	Course Title	Units
Foothill College	RT 72	Venipuncture	2
Santa Barbara City College	RT 121	Venipuncture in Radiography	0.6
El Camino College	R TECH 93	Venipuncture and Pharmacology for the Radiologic Technologist	1

District General Education

A. Natural Sciences

B. Social and Behavioral Sciences

C. Humanities

D. Language and Rationality

E. Health and Physical Education/Kinesiology

F. Ethnic Studies/Gender Studies

Course is CSU transferable

Yes

CSU Baccalaureate List effective term:

F2005

CSU GE-Breadth**Area A: English Language Communication and Critical Thinking****Area B: Scientific Inquiry and Quantitative Reasoning****Area C: Arts and Humanities****Area D: Social Sciences****Area E: Lifelong Learning and Self-Development****Area F: Ethnic Studies****CSU Graduation Requirement in U.S. History, Constitution and American Ideals:****IGETC****Area 1: English Communication****Area 2A: Mathematical Concepts & Quantitative Reasoning****Area 3: Arts and Humanities****Area 4: Social and Behavioral Sciences****Area 5: Physical and Biological Sciences****Area 6: Languages Other than English (LOTE)****Textbooks and Lab Manuals****Resource Type**

Textbook

DescriptionDutton, Andrea, and TerriAnn Ryan. *Torres' Patient Care in Imaging Technology*. 9th ed., Wolters Kluwer, 2019.**Resource Type**

Textbook

Classic Textbook

Yes

DescriptionJensen, Steven, and Michael Peppers. *Pharmacology and Drug Administration for Imaging Technologists*. 2nd ed., Mosby, 2005.**Library Resources****Assignments requiring library resources**

Radiographic and medical journal reading assignments using library's print and online resources.

Sufficient Library Resources exist

Yes

Example of Assignments Requiring Library Resources

Research, using the Library's specialized online databases in the area of medicine, adverse effects of radiographic contrast media.

Distance Education Addendum

Definitions

Distance Education Modalities

Hybrid (51%–99% online)

Hybrid (1%–50% online)

Faculty Certifications

Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.

Yes

Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities. Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.

Yes

Regular Effective/Substantive Contact

Hybrid (1%–50% online) Modality:

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	<p>The online instructor will provide lesson plans that require activities such as reading course material from a mandatory textbook. Additionally, the instructor may engage students using the following communication activities available in the online classroom: contact students via e-mail within the course shell, by campus e-mail, and/or MyVCCCD.</p> <p>Learning objectives; students may complete homework through the workbook system provided by a publishing company and use a "discussion" tool to post questions and interact with the instructor and classmates.</p> <p>Students may test their knowledge with interactive online quizzes provided by the publishing company.</p> <p>Students may engage in internet searches and library online database resources on topics corresponding to course content</p> <p>Students may submit questions to the instructor by email or ask in person in a virtual classroom; the instructor may create student groups or group activities using the online course.</p> <p>Quizzes may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor and/or students as determined per assignment. This can be an interactive process in that students can receive feedback and then be able to improve their submittal if necessary.</p>
E-mail	Contact students via e-mail within the course shell, by campus e-mail, and/or MyVCCCD.
Other DE (e.g., recorded lectures)	The online instructor will provide lesson plans that require activities such as reading course material from a mandatory textbook and participating in discussion forums or chat room topics. The "Announcement" tool will be used to remind students of important assignments and due dates. To provide students with an online schedule of class events the "calendar" tool will be used to schedule virtual classroom sessions in the online course shell.

Synchronous Dialog (e.g., online chat)

Meet with students for study sessions and online office hours using an online communication tool. Additionally, the instructor may engage students using the following communication activities available in the online classroom.

Students may view publisher based PowerPoint slides and/or text-based lessons corresponding to course content and learning objectives. Students may complete homework through the online course, and/or using the workbook provided by the publishing company; students may test their knowledge with interactive online quizzes provided by the publishing company. Students may engage in internet searches and library online database resources on topics corresponding to course content and learning objectives.

Quizzes/tests may be issued (using a course-specific timeline) in which students will be tested on their knowledge of the material. Assignments may include exercises through which students explore course concepts using a textbook and/or additional research. Students can submit their assignments online and get feedback from the instructor. Students may submit questions to the instructor by email or ask in person. The instructor may create student groups or group activities using the online course.

Video Conferencing

It will include lectures and study sessions.

The instructor may involve students in active learning with the following activities:

Students may view instructor shared power points slides, video lessons and/or text-based lessons corresponding to course content and learning objectives. Students may complete homework through the online course. Students may use the workbook provided by the publishing company. Students may engage in internet searches and library online database resources on topics corresponding to course content. Students may test their knowledge with interactive online quizzes provided by the publishing company. Students may submit questions to the instructor via email or ask in person in a virtual classroom; the instructor may create student groups or group activities using the online course.

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E-mail	<p>Contact students via e-mail within the course shell, by campus e-mail, and/or MyVCCCD.</p>
Other DE (e.g., recorded lectures)	<p>The online instructor will provide lesson plans that require activities such as reading course material from a mandatory textbook and participating in discussion forums or chat room topics. The "Announcement" tool will be used to remind students of important assignments and due dates. To provide students with an online schedule of class events the "calendar" tool will be used to schedule virtual classroom sessions in the online course shell.</p>
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Examinations**Hybrid (1%–50% online) Modality**

Online
On campus

Hybrid (51%–99% online) Modality

Online
On campus

Primary Minimum Qualification

RADIOLOGIC TECHNOLOGY

Review and Approval Dates**Department Chair**

MM/DD/YYYY

Dean

MM/DD/YYYY

Technical Review

MM/DD/YYYY

Curriculum Committee

MM/DD/YYYY

DTRW-I

MM/DD/YYYY

Curriculum Committee

MM/DD/YYYY

Board

MM/DD/YYYY

CCCCO

MM/DD/YYYY

Control Number

CCC000620294

DOE/accreditation approval date
MM/DD/YYYY