COURSE DESCRIPTION:
This course is designed to provide the student with the entry-level knowledge base to formulate the applicable factors that influence the production of radiographic images. An introduction to digital imaging with related accessories will be discussed. Demonstrations and student experimentation will be included in the application of the theory. This course is subject to a course fee. Refer to http://mc3.edu/adm-fin-aid/paying/tuition/course-fees for current rates.

REQUISITES:

Previous Course Requirements
- BIO 131 Human Anatomy and Physiology I with a “C” or better on the first attempt
- BIO 132 Human Anatomy and Physiology II with a “C” or better on the first attempt
- MATH 100 Intermediate Algebra or higher with a “C” or better on the first attempt

Previous or Concurrent Course Requirements
- RAD 100 Introduction to Radiography and Patient Care
- RAD 104 Clinical Education I
- RAD 111 Radiographic Procedures I

<table>
<thead>
<tr>
<th>LEARNING OUTCOMES</th>
<th>LEARNING ACTIVITIES</th>
<th>EVALUATION METHODS</th>
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<tr>
<td>Upon successful completion of this course, the student will be able to:</td>
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<tr>
<td>1. Discuss practical considerations in setting standards for acceptable image quality.</td>
<td>Discussion Student Presentation Computer Activities Technology Experimentation Lecture Written Experiences Oral Presentations Small Group Projects</td>
<td>Oral Presentation Rubric Graded Assignments Examination Quizzes</td>
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<td>2. Calculate basic mathematical formulas as they relate to calculating changes in exposure factors.</td>
<td>Computer Activities Lecture Written Experiences</td>
<td>Questions and Discussions Examination</td>
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<td>3. Analyze the relationships of factors that control and affect image quality.</td>
<td>Discussion  Case Study  Student Presentation  Computer Activities  Technology  Experimentation  Lecture  Written Experiences  Small Group Projects</td>
<td>Image Evaluation Rubrics  Examination  Technique Labs</td>
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<td>4. Select beam limiting devices, compare and summarize grid types.</td>
<td>Discussion  Demonstration/Practice  Student Presentation  Technology  Experimentation  Lecture  Written Experiences  Small Group Projects</td>
<td>Image Evaluation Rubrics  Examination  Technique Labs</td>
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<td>5. Describe mobile units in terms of purpose, components, and applications.</td>
<td>Discussion  Demonstration/Practice  Technology  Experimentation  Lecture  Written Experiences  Small Group Projects</td>
<td>Mobile Unit Assignment  Oral Questions and Discussions  Examination</td>
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<tr>
<td>6. Discuss the advantages and disadvantages of using a fixed and variable kVp and mAs exposure chart.</td>
<td>Discussion  Case Study  Computer Activities  Lecture  Written Experiences</td>
<td>Questions and Discussions  Examination  Technique Lab</td>
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<tr>
<td>7. Explain the parts of an image intensifier used in Fluoroscopy.</td>
<td>Discussion  Computer Activities  Lecture  Lab</td>
<td>Questions and Discussions  Examination  Technique Lab</td>
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<tr>
<td>8. Explain the parts of an image intensifier used in Fluoroscopy.</td>
<td>Discussion  Student Presentation  Computer Activities  Lecture  Written Experiences</td>
<td>Research Paper</td>
</tr>
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At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The
benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

**SEQUENCE OF TOPICS:**
1. Image Quality Standards
2. Calculating basic algebraic equations as they relate to image exposure qualities
3. Radiographic Brightness and Contrast
4. Radiographic Detail and Distortion
5. Technique Formulation and Exposure Calculations
6. Beam Filtration and Grids
7. Fixed and Variable kVp Systems
8. Mobile Radiography
9. Fluoroscopy Equipment

**LEARNING MATERIALS:**

**Texts:**

Other learning materials may be required and made available directly to the student and/or via the College’s Libraries and/or course management system.

**COURSE APPROVAL:**
Prepared by: Cheryl L. Weiss, M.S., R.T. and Dr. Victoria Bastecki-Perez Date: 12/2002
Revised by: Debra Poelhuis, M.S., R.T. Date: 11/2008
Board of Trustees Presentation Date: 12/2008
VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr. Date: 12/16/2008

Revised by: Debra Poelhuis, R.T., M.S. Date: 10/26/2012
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D. Date: 10/26/2012

Revised by: Cheryl L. DiLanzo, M.S., R.T. Date: 10/31/2016
VPAA/Provost or designee Compliance Verification: Victoria L. Bastecki-Perez, Ed.D. Date: 11/17/2016
This course is consistent with Montgomery County Community College’s mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.