JEFFERSON COLLEGE
COURSE SYLLABUS

RAD180
Introduction to Quality Assurance and Advanced Imaging Modalities
3 Credit Hours

Prepared by: Janet E. Akers BS RT (R)(M)
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RAD180 Introduction to Quality Assurance and Advanced Imaging Modalities

I. CATALOGUE DESCRIPTION

A. Prerequisites: Acceptance to Radiologic Technology Program, Reading Proficiency

B. Credit hour award: 3

C. Description: This course provides the student with the principles of a Quality Management program including theory, tools, procedures and assessment of images. Quality Control measures pertaining to processors, equipment, fluoroscopy and ancillary equipment are discussed. Quality Management of digital radiographic imaging equipment is discussed. Advanced imaging modalities including computed tomography, digital radiography, ultrasound, magnetic resonance imaging, mammography, special procedures, nuclear medicine, and radiation therapy will also be discussed. (S)

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

<table>
<thead>
<tr>
<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>Compare and contrast Quality Improvement, Quality Assurance and Quality Control.</td>
<td>Class Discussion/Activity</td>
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<td>Written Assignments</td>
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<td>Written Examinations</td>
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<td>Identify Quality Control tools and testing and explain the purpose of each quality control test.</td>
<td>Class Discussion/Activity</td>
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<td>Written Examinations</td>
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<td>Written Assignments</td>
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<tr>
<td>Discuss the instrumentation and application of special imaging modalities.</td>
<td>Class Discussion/Activity</td>
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<td>Written Examinations</td>
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<td>Written Assignments</td>
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<td>Oral Communication Assignment</td>
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III. OUTLINE OF TOPICS

A. Quality Management (QM)
   1. Introduction to quality management
      i. Terminology
      ii. Identify need for QM
      iii. Difference between Quality Assurance (QA), Quality Control (QC) and QM
   2. Quality management tools and procedures

B. Quality Management
   1. Film darkrooms
2. Film processing  
3. Processor quality control  
4. Quality control of radiographic equipment  
5. Radiographic ancillary equipment  
6. Quality control of fluoroscopic equipment  

C. Digital Radiographic Imaging Systems  
1. Computerized Radiography (CR)  
2. Digital Radiography (DR)  
3. Quality Control of Digital Radiographic Imaging Systems  
4. Digital Fluoroscopy (DF)  

D. Advanced Imaging Modalities  
1. Cardiac Catheterization  
   i. Basic Principles  
   ii. Applications  
2. Computed Tomography (CT) & Tomography  
   i. Basic Principles  
   ii. Applications  
3. Bone Densitometry  
   i. Basic Principles  
   ii. Applications  
4. Nuclear Medicine  
   i. Basic Principles  
   ii. Applications  
5. Positron Emission Tomography (PET)  
   i. Basic Principles  
   ii. Applications  
6. Contrast Arthrography  
   i. Basic Principles  
   ii. Applications  
7. Magnetic Resonance Imaging (MRI)  
   i. Basic Principles  
   ii. Applications  
8. Mammography  
   i. Basic Principles  
   ii. Applications  
9. Diagnostic Ultrasound  
   i. Basic Principles  
   ii. Applications  
10. Radiation Oncology  
    i. Basic Principles  
    ii. Applications  
11. Medical Dosimetry  
    i. Basic Principles  
    ii. Applications  

IV. METHOD(S) OF INSTRUCTION
This course is taught using a variety of instructional methods, which include but are not limited to interactive lectures, computer presentations, group activities and exercises, videos, supplemental handouts and student presentations. Students are expected to be *ACTIVE* participants in the learning process. Students are expected to read the assigned readings prior to scheduled class meetings and come to class prepared to actively participate in all activities.

V. **REQUIRED TEXTBOOK(S)**


VI. **REQUIRED MATERIALS**

A. A computer with internet access and basic software to include Word and Power Point (available through Jefferson College labs)
B. Course homepage available through Blackboard
C. Binder, paper, pens, pencils with erasers, highlighters

VII. **SUPPLEMENTAL REFERENCES**

A. Class Handouts
B. Library Resources
   1. Textbooks
   2. Periodicals
   3. Films On Demand Videos
C. Internet Resources
   1. On-line references
   2. Textbook companion website

VIII. **METHOD OF EVALUATION** (basis for determining course grade)

GRADERS – Grades will be based on the percentage of total points earned out of total points possible for this semester. The assignments will vary in the number of possible points based upon amount of work involved and complexity of material. The student should be aware that proofreading and revision are extremely important when preparing homework. All writing assignments submitted for grading should be final drafts.

EXAMS All exams with scores less than 75% must be retaken until a score of 75% or above is achieved to complete course requirements. The original
score will be used to figure the semester grade. The student will be allowed to retake an exam a maximum of two times. If the student has not passed an exam within the three designated attempts, the student will present to the review board and may be dismissed from the program. The student must contact the instructor prior to any absence to make arrangements for retesting. Until course requirements are met the final grade will be an incomplete.

If an exam is not taken at the scheduled time and arrangements for a make-up exam have not been made prior to the designated exam time, the grade for that exam will be zero. No make-up exam will be considered unless the instructor is personally notified prior to the absence. If a student arranges to take the exam at other than the scheduled time, 5% will be deducted from the grade on that exam. Make-up exams are scheduled at the convenience of the instructor.

ASSIGNMENTS – In order to be prepared for each class meeting, the student should complete each homework assignment prior to the following class meeting. Assignments will consist of worksheets, textbook reading, review questions and other activities to enhance the learning experience.

Evaluation tools will include research projects, written and oral communication projects, class attendance/participation, homework assignments, and exams.

All assignments must be typewritten and are due at the beginning of class on the assigned due dates. Late assignments will not be accepted. In-class quizzes and assignments cannot be made up.

Grading Scale: (Jefferson College Radiologic Technology Program's)

A= 100-92%
B= 91.9-86%
C= 85.9-80%
D= 79.9-70%
F= 69.9 and below
I= Incomplete
W= Excused withdrawal from course

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, http://www.jeffco.edu/jeffco/index.php?option=com_weblinks&catid=26&Itemid=84
XI. ATTENDANCE STATEMENT

Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

Student’s grade will also be based on participation in class and attendance.