A. COURSE INFORMATION
Course Title: Specialty Imaging and Therapeutic Modalities
Course Code: RAD 275
Section: 001
Credits: 1.0 (1 hour per week for 15 weeks = 15 lecture hours)

Pre-requisites: RAD 276- Radiation Health and Protection
              RAD 281- Radiography II
              RAD 283- Intermediate Radiography Clinical

Co-requisites: RAD 280- Image Production and Evaluation
               RAD 285- Radiography III
               RAD 286- Radiography Clinical III
               RAD 183- Radiographic Pathology

Instructor: Professor ELIZABETH M. ROMANO, MS. Ed., R.T.(R)(M)
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This course offers students an exploration of advanced imaging techniques and related imaging sub specialties. This course also offers legal and ethical issues as they pertain to radiography.

Prerequisite- RAD 184, 285, and 286
Co-requisites- RAD 288, 289

C. COURSE TEXTBOOKS
Author: Bontrager, Anthony (2002)
Title: Radiographic Positions and Related Anatomy
Edition: 9th, Mosby Publishers

Instructor Power points and handouts

D. STUDENT LEARNING OBJECTIVES
Upon completion of this course, the student radiographer will be able to:

(1) Identify and describe the components of the diagnostic unit, image Intensifier, tomography, DEXA, PACS, digital, radiation therapy CT and MRI units.
Describe the physical set up and basic equipment for nuclear medicine Units.

Identify various contrast agents used and identify potential contraindications for CT and MR procedures.

Explain the procedures, materials and images made angiography, in myelography, arthrography, lymphangiography procedures.

Explain and differentiate: scanogram, bone survey and bone age study.

Explain the anatomy, positions, and indications for mammography, CT and MR.

Correlate basic pathologies to the specialty imaging study needed.

Explain basic patient care practices used during special procedures.

Explain the basic principles of death and dying as described by Dr. Elizabeth Kubler Ross.

Determine how various lesions spread from one area of the body to other areas.

Apply medical terminology to the procedures performed and conditions identified.

E. STUDENT LEARNING OUTCOMES AND ASSESSMENT

1) Identify and explain the basic components of the imaging equipment that is used to create specialty images, such as the circuit, its x-ray tube, image intensifier, mobile, automatic exposure control, treatment and tomographic units.

2) Explain and demonstrate various ways in which health care providers care for and patient, minimizes patient dose, while properly using all diagnostic imaging equipment.

3) Apply reasoning and critical thinking processes when managing patients using various diagnostic and specialty imaging modalities.
4) Use critical thinking and reasoning when applying basic physical principles to the operation of the imaging equipment and when performing basic mathematical computations.

F. COURSE CONTENT and SUBJECT MATTER
The content for RAD 275 Special Procedures and Imaging Modalities I includes the following content, but is not limited to:

1. Course Introduction
2. Principles of computed tomography (CT)
3. Mammography
4. Magnetic Resonance Imaging (MRI)
5. Sonography/Ultrasound
6. Angiography/ Cardiac intervention
7. Nuclear medicine
8. Pet Scanning
9. PACS
10. DEXA, Limb length measurement, Bone age
11. Hysterosalpinogram
12. Forensics in Radiology
13. Legal and Ethical issues in Medical Imaging
14. Emerging modalities
15. Review of all modalities

G. TEACHING METHODOLOGIES AND LEARNING STRATEGIES
(1) structured lecture presentations
(2) instructor guided class discussions
(3) handouts/ power point presentations
(4) learning modules
(5) anatomic illustrations

H. GRADING POLICY, COURSE REQUIREMENTS AND ASSIGNED GRADES
15% Assignments & Participation
85% Weekly Quizzes

Policy Statement
1. Students are expected to attend each lecture section.
2. Reading assignments are published on this document and should be done prior to the related lecture.
3. The instructor will not accept any late assignments.
4. Participation and assignments, together account for 15% of the final course grade.
5. Students benefit from the assignments for it provides a mechanism to apply concepts introduced, explained, and reinforced in class.
A final grade will be assigned based on the final average from the components indicated above.

Only one make up quiz will be given when a student is late or absent. Any quiz beyond the one allotted will be given a zero grade.

Grades are assigned as follows based on the policy that is published in the Radiography Student Handbook:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
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<tbody>
<tr>
<td>A</td>
<td>92% to 100%</td>
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<tr>
<td>B+</td>
<td>89% to 91.9%</td>
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<tr>
<td>B</td>
<td>83% to 88.9%</td>
</tr>
<tr>
<td>C+</td>
<td>80% to 82.9%</td>
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<tr>
<td>C</td>
<td>77% to 79.9%</td>
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<td>D</td>
<td>76.9 to 70%</td>
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<td>F</td>
<td>69.9% and lower</td>
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<td>INC</td>
<td>Incomplete</td>
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LESSONS, READINGS and ASSIGNMENTS

**Week 1:** Introduction to the course
- Explanation of syllabus
- Course requirements and instructor expectation

**Week 2:** CAT Scanning
- Advantages and disadvantages of the modality, generations
- Spiral and helical, the system scanning unit, console, monitor, couch, beam restriction, windowing, slices, agents and uses

**Week 3 & 4:** Mammography
- Anatomy
- Cancer and other conditions and pathology
- Equipment, and projections/positions

**Week 5:** Principles of Magnetic Resonance Imaging
- Uses for the modality
- Its application and useful diagnostic information
basic physics involved - procession and resonance
cautions and safety practices basic patient preparation

Week 6: Ultrasound
uses for the modality and its application and diagnostic
information
basic equipment and physics involved common procedures,
safety etc

Week 7: Angiography
basic anatomy of the heart
basic vasculature, pathology and conditions
basic equipment used for angiography - contrast agent
administration, side effects, indications, contraindications
basic radiation safety and patient care
Seldinger Technique finishing the study and care of the
patient

Week 8: Angiography and Cardiac Intervention
A. basic anatomy of the heart
B. basic vasculature, pathology and conditions
C. basic equipment used for angiography
D. contrast agent administration, side effects, indications,
contraindications

Week 9: Nuclear Medicine

Week 10: PACS

Week 11: DEXA and Bone age

Week 12: Hysterosalpinogram

Week 13: Forensics

Week 14: Legal and ethical issues in Medical Imaging

Week 15: Radiation Therapy (date depends on availability of the
instructor).
I acknowledge receipt of the syllabus for RAD 275

I agree to abide by the course policies for successful completion of the course.

Name:________________________________
    Print clearly

Name:________________________________
    Signature

Date:__________________________________

Note: Course policies, schedule, and subject material are subject to change.

The course Instructor will notify students of any changes electronically.