El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Medical Imaging Technology-Radiography**
COURSE RUBRIC AND NUMBER	**RADR 2333**
COURSE TITLE	**Advanced Medical Imaging**
COURSE CREDIT HOURS	**3 (Credits) 2 (Lec) : 4 (Lab)**

I. Catalog Description

An exploration of specialized imaging modalities. Includes concepts and theories of equipment operations and their integration for medical diagnosis. A grade of "C" or better is required in this course to take the next course. **(2:4). Lab fee.**

II. Course Objectives

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

A. Describe the construction and purpose of the x-ray tube housing.
B. Identify the principal parts of the x-ray tube and their purposes.
C. Describe the operation of the principal parts of the x-ray tube.
D. Discuss anode designs and construction.
E. Explain the line-focus principle.
F. Differentiate between fluoroscopic and radiographic imaging.
G. Recognize the unique features of an image-intensified fluoroscopic unit and explain how the image is created and viewed.
H. Explain the purpose of automatic brightness control (ABC).
I. Explain the operation of an image intensifier in magnification mode and its effect on image quality and patient exposure.
J. Describe the fluoroscopic viewing and recording systems and the advantages and disadvantages of each.
K. Describe the design of computed radiography detectors.
L. Describe the design of direct radiography detectors.
M. Explain the process of image acquisition using computed radiography detectors.
N. Explain the process of image acquisition using the three general types of direct radiography detectors.
O. Explain the process of image extraction and processing for computed radiography and direct radiography systems.
P. Explain the principles of mobile radiography.
Q. Describe the basics of mobile x-ray machines.
R. Cite advantages and disadvantages of both types of mobile units.
S. Recognize anatomy of the heart and vascular system on diagrams and images.
T. Explain the blood-circulation systems.
U. Describe the basic structure and function of the lymphatic system.
V. Delineate indications and contraindications for various angiographic procedures.
W. Describe the fundamental operation of CT.
X. List the basic components of a CT scanner.
Y. Cite diagnostic applications of CT.

Z. Describe the fundamental principles of MRI.
AA. List the basics of MRI equipment.
BB. Cite diagnostic applications of MRI.
CC. Define terms related to MRI.
DD. Recognize and identify breast anatomy on diagrams and radiographs.
EE. Explain and demonstrate the proper CR and IR relations for all essential mammographic projections.
FF. Describe the fundamental principles of bone densitometry.
GG. Define osteoporosis.
HH. Define terms related to bone densitometry.
II. Describe the fundamental principles of DMS.
JJ. Explain the physical principles of DMS.
KK. Cite diagnostic and cardiac applications of DMS.
LL. Describe the fundamental principles of radiation oncology.
MM. Explain the theory of radiation oncology.
NN. Cite clinical applications of radiation oncology.
OO. Describe the fundamental principles of NM and PET.
PP. Explain NM instrumentation.
QQ. Detail radiation safety in NM.
RR. Cite imaging methods and clinical applications of NM and PET.

III. THECB Learning Outcomes (WECM)

Upon completing this course, the student will be able to:

1. Describe the various specialized imaging modalities.
2. Differentiate between images produced by different modalities and identify the anatomy demonstrated.

IV. Evaluation

A. Methods

1. Written assignments and quizzes
2. Unit examinations
3. Comprehensive final examination

B. Grading Scale

93	-	100	=	A
85	-	92	=	B
75	-	84	=	C
65	-	74	=	D
64 & below			=	F

A total final course grade of below C (i.e., less than 70%) is not acceptable for completion of this course.

C. Final Grade Determination

The final grade determination for this course is calculated as follows:

Written assignments & quizzes	20% toward final grade
Unit examinations	30% toward final grade
Presentation	20% toward final grade
Comprehensive final examination	30% toward final grade
TOTAL	100%

V. Disability Statement (Americans with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.