Middlesex Community College
SYALLBUS

I. Course Title: CAT *202 - Image Display, Post Processing and Quality Assurance I

II. Credits: 2

III. Prerequisites: Admission to the Computed Tomography Program, ARRT Registered Radiographer

IV: Semester: Fall 2016

V: Instructor: Jason Bohn, BS, RT (R)(CT)
Office Hours: By appointment
Phone: 860-358-6293 7:00am – 3:30pm
Email: jason.bohn@midhosp.org

VI: Course Description: This course will introduce students to imaging parameters in Computed Tomography. The formation of computed tomography images is discussed as well as the essential components parts of a CT imaging system. *Prerequisites: Admission to the Computed Tomography Program, ARRT Registered Radiographer*

VII: Course Text: **CT Basics Institutional Software, www.asrt.org/CTBasics.**
Course References: **Computed Tomography,** Seeram, 2009, Elsevier.
Computed Tomography Review, DeMaio, 20011, Elsevier

VIII: Course Objectives: At the end of this course, the student will be able to:
1. Explain Radiation Physics as it applies to Computed Tomography
2. Identify between CT system Principles
3. Describe Image Processing
4. Explain Image Quality Testing

IX: Course Goals:
1. Provide students with the opportunity to explain radiation physics as it relates to CT.
2. Provide students the opportunity to identify and operate CT systems.
3. Provide students the opportunity to describe image processing.
4. Provide student the opportunity to demonstrate and explain Image quality testing.

X: General Unit Outline:
- I. Physical Principles of CT
- II. CT Systems
  - a. Instrumentation
  - b. Equipment components
  - c. Slip ring technology
- III. Data acquisition and Image Reconstruction
- IV. Basic Instrumentation
  - a. Pitch

b. Volume coverage
c. Collimation, table speed
d. Scan time
e. Reconstruction increments

V. Image post processing

VI. Image quality
a. Spatial and contrast resolution
b. Slice sensitivity
c. Accuracy and uniformity
d. Image artifact

VII. Radiation Dose
a. Radiation quantities and units
b. Radiation bio-effects
c. Factors affecting dose
d. Modulation and optimization

XI: Course Presentation: This course consists of the following components:

Assignments & Discusison	200 points	80%
Final Exam	50 points	20%
Total	250 points	100%

XII: Grade Scale:

235/250= 94 = A	207/250= 83 = B -
230/250= 92 = A -	200/250= 80 = C +
222/250= 89 = B +	192/250= 77 = C
215/250= 86 = B	190/250= 76 = F

ADDITIONAL COLLGE INFORMATION:

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For information about the college's policies and procedures regarding academic honesty, accessibility/disability services, attendance, audio-recording in the classroom, grade appeals, plagiarism, religious accommodations, weather and emergency closings, and more, please go to the following website:
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Primary Title IX Coordinator
Dr. Adrienne Maslin
Dean of Students/Title IX and Section 504/ADA Coordinator
amaslin@mxcc.edu; 860-343-5759; Founders Hall Room 123

Secondary Title IX Coordinator
Ms. Mary Lou Phillips
Director of Human Resources, Middlesex Community College
mphillips@mxcc.edu; 860-343-5751; Founders Hall Room 115

Secondary Title IX Coordinator
Ms. Queen Fordham
Coordinator of the Meriden Center Welcome Desk
qfordham@mxcc.edu; 203-608-3011

CAT*202 – CT Image Display, Post Processing and Quality Assurance I
Course Topics and Schedule

Module	Study Topic(s)	Assignment(s)	Points
1	Introduction, Fundamentals	Mod1 Assignment 1	25
2	Equipment and Instrumentation	Mod 2 Assignment 1	25
3	Data Acquisition	Mod 3 Assignment 1	25
4	Image Processing and Reconstruction	Mod 4 Assignment 15	25
5	Patient Safety	Mod 5 Assignment 1	25
6	Image Quality	Mod 6 Assignment 1	25
	Final Exam Activity	Accumulative	50
Discussion	There will be several discussion Topics throughout the course	Students are expected to contribute meaningful discussion on each topic, and with each other, not just post "I agree"	25
Total			250

SUBJECT TO CHANGE WITH NOTIFICATION