JCC OFFICIAL COURSE OUTLINE

Course number, title and credits; total time allocation

Course Number **DMS206** Credits **4** Title **Sonographic Instrumentation**

Lecture/Discussion **45** hrs/semester Lab **15** hrs/semester Clinical _____ hrs/semester

Catalog description and Pre- and Co-requisites (Same as taxonomy and catalog)

Students explore the mechanics of A-mode, B-mode, M-mode, Doppler, and real time equipment. Accessory equipment such as cameras, transducers, phased, annular and linear arrays, and all types of hard copy documentation instruments are investigated. Multiple methods of preventative maintenance and quality control are presented. Laboratory reinforces learning activitiesPre-requisites Required: MTH 131, DMS 104 .

Knowledge, skills and abilities Students Acquire from this Course (Educational Objectives)

1.Students who successfully complete the Sonographic Instrumentation course will demonstrate competencies in all aspects of ultrasound instrumentation.
2. Students who successfully complete the Sonographic Instrumentation course will demonstrate competencies in all aspects of applied ultrasound physics.
3.Students who successfully complete the Sonographic Instrumentation course will demonstrate competencies in all modes of ultrasound such as: M-mode, C-mode, B-mode and Doppler.
4. Students who successfully complete the Sonographic Instrumentation course will demonstrate competencies in understanding all aspects of ultrasound induced bioeffects.
5. Students who successfully complete the Sonographic Instrumentation course demonstrate competencies in understanding all aspects of signal production and processing.

Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus)

1. ADO 7
2. OCC 1
3. ADO 2

Units/topics of Instruction

1. Elementary Principles
2. Propagation of Ultrasound through Tissue
3. Ultrasound Transducers
4. Pulse Echo Instruments
5. Principles of Pulse Echo Imaging
6. Images, Storage, and Display
7. Doppler
8. Image Features and Artifacts
9. Quality Assurance of Ultrasound Instruments
10. Bioeffects and Safety
11. Physiology & Fluid Dynamics
12. Venous Hemodynamics
13. Vascular Physical Principles

Instructional Use of Computer or Other Technology

Computers tecnology is used for multimedia presentations, delivery of online content and managing student interaction.

Instructional Materials and Costs to Students

Computer, projection equipment, educator software and ultrasound machine.

Skills and abilities students should bring to the course

Able to read	☐ a limited amount of material	Able to compute	☐ basic, pre-algebraic problems
	☒ an average amount of material		☒ simple algebraic problems
	☐ an above average amount of material		☐ higher order mathematical problems
	☐ relatively easy material		☒ short compositions

Able to read	☐ moderately difficult material ☒ technical or sophisticated material	Able to write	☐ medium length compositions ☐ lengthy compositions
Able to use technology	☒ keyboard skills/familiar with computer ☒ computer application ☒ web navigation	Other necessary abilities	☐ ☐ ☐

The course is usually scheduled

Day: ☒ Fall ☒ Winter ☐ Spring

Evening: ☐ Fall ☐ Winter ☐ Spring

Prepared by S. Geiersbach **Date** 9/19/12

Approved by Dept. **Date** 10/4/12

Approved by Dean **Date**

Approved by Curriculum Committee **Date**

(last names, please)