

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: DMDS 200 Department: Diagnostic Med. Sonography

Course Title: Physics & Instrumentation 2 Semester: Spring Year: 1997

Objectives/Competencies

Course Objective	Competencies
1. Advanced Signal Processing	<ol style="list-style-type: none">1. Define and explain preprocessing methods.2. Define and explain postprocessing methods.
2. Complex Instrumentation	<ol style="list-style-type: none">1. Define and explain static devices.2. Define and explain real-time devices.3. Define and explain duplex devices.4. Define and explain M-mode services.
3. Recording Devices	<ol style="list-style-type: none">1. Define and explain advantages/disadvantages of multiformat cameras.2. Define and explain advantages/disadvantages of laser cameras.3. Define and explain advantages/disadvantages of grayscale cameras.4. Define and explain advantages/disadvantages of transparency films.5. Define and explain advantages/disadvantages of video devices.

Course Objective	Competencies
<p>4. Biologic Effects</p>	<p>6. Define and explain advantages/disadvantages of digital network systems.</p> <ol style="list-style-type: none"> 1. Define biologic effects. 2. Explain concern about and reactions to bioeffects 3. List and explain mechanisms of biologic effects. 4. Explain intensity and difficulty in measurement. 5. List and explain effects vs. Mechanisms. 6. Outline research to date and explain difficulties. 7. Present a strategy for preventing bioeffects. 8. Design and use a measuring/mapping system.
<p>5. Basic Hemodynamics</p>	<ol style="list-style-type: none"> 1. Define and explain velocity profile. 2. Define and explain Bernoulli's principle. 3. Define and explain arterial hemodynamics. 4. Define and explain venous hemodynamics. 5. Devise and use method to measure velocity.
<p>6. Basic Doppler Principles</p>	<ol style="list-style-type: none"> 1. Define Doppler effect. 2. Explain application of Doppler shift. 3. List and explain Doppler units. 4. List and explain Doppler displays. 5. Perform basic Doppler exams.

Course Objective	Competencies
7. Quality Control	<ol style="list-style-type: none">1. Define quality control/assurance.2. List the factors that effect quality.3. List and explain quality control devices.4. List and explain types of artifacts and control5. Develop and administer quality control strategy.