Course Outcomes Guide
Spring 2019

Course/Program Title: RAD 222 Principles of MR Imaging     Date: Spring 2019

Course/Program Team: David Goodmansen

Expected Learning Outcomes:

STUDENT LEARNING OUTCOMES:
At the completion of this course, the student will be able to:

• Describe the historical development of MRI technology and its advantages as an imaging modality today.
• Describe the basic principles of MRI.
• Define basic MRI terminology and image parameters used to produce magnetic resonance images.
• Identify common MRI parameters and the important role each plays in the production of an optimal magnetic resonance image.
• Describe MRI hardware and basic system operation.
• Identify common artifacts that can occur during MRI imaging and the compensation techniques used to manage them.
• Identify MRI contrast agents, their chemical and physiologic properties, and indications and contra-indications for their use.
• Describe the patient experience for a typical MRI exam, including patient preparation and post-exam instructions.
• Describe the “flow” of information from initial image acquisition to postprocessing, image interpretation and image storage.
• State the magnet safety and shielding guidelines required for patients and operators.

Assessment: (How do or will students demonstrate achievement of each outcome? Chapter quizzes, exams, comprehensive final exam.)

Validation: (What methods have you used or will you use to validate your assessment?)
• Students will successfully complete the course with 75% or higher.

Results: (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)
• 100% (8/8 students) successfully completed the course with 75% or higher

<table>
<thead>
<tr>
<th>Question #</th>
<th>Description</th>
<th>SP/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Resonance</td>
<td>6/7 86%</td>
</tr>
<tr>
<td>4</td>
<td>Tesla</td>
<td>7/7 100%</td>
</tr>
<tr>
<td>20</td>
<td>Maximum amplitude</td>
<td>7/7 100%</td>
</tr>
<tr>
<td>25</td>
<td>Z-axis</td>
<td>5/7 71%</td>
</tr>
<tr>
<td>31</td>
<td>RF pulse</td>
<td>6/7 86%</td>
</tr>
<tr>
<td>39</td>
<td>STIR pulse</td>
<td>6/7 86%</td>
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Follow-up: (How have you used or how will you use the data to improve student learning?)
- Continue to help streamline quizzes to exams so that students understand and retain the material.
- Continue to use MR Basics as an additional resource for class to help to reinforce difficult concepts.
- Review sessions were offered to help students understand difficult concepts. Both in person and online reviews were held.
- Using the MIC Crosstrainer as an additional resource to assist students in learning difficult concepts.

Budget Justification: (What resources are necessary to improve student learning?)
No new resources needed at this time.