Washtenaw Community College Comprehensive Report

MRI 135 MRI Quality Assurance
Effective Term: Fall 2022

Course Cover

College: Health Sciences
Division: Health Sciences
Department: Allied Health
Discipline: Magnetic Resonance Imaging
Course Number: 135
Org Number: 15600
Full Course Title: MRI Quality Assurance
Transcript Title: MRI Quality Assurance
Is Consultation with other department(s) required: No
Publish in the Following:
Reason for Submission: Inactivation
Change Information:
Distribution of contact hours
Rationale: This course content is being combined with MRI 101 in the Fall semester.
Proposed Start Semester: Fall 2022
Course Description: In this course, students receive a comprehensive overview of the Magnetic Resonance Imaging (MRI) quality assurance program. Topics include the qualifications of personnel, the quality control program, safety policies and image quality specific to MRI.

Course Credit Hours

Variable hours: No
Credits: 1
Lecture Hours: Instructor: 15 **Student:** 15
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 15 **Student:** 15
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Enrollment Restrictions
Admission to Magnetic Resonance Imaging (MRI) program.

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Define the roles of the medical director, medical physicist, and technologist in the Magnetic Resonance Imaging (MRI) quality assurance program.
   Assessment 1
   Assessment Tool: Departmental final exam
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: answer key
   Standard of success to be used for this assessment: 80% of the students will score 70% or higher on the outcome related questions.
   Who will score and analyze the data: Departmental Faculty

2. Identify the concepts of quality control testing and the annual system performance evaluation of Magnetic Resonance Imaging (MRI) equipment.
   Assessment 1
   Assessment Tool: Departmental final exam
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: answer key
   Standard of success to be used for this assessment: 80% of the students will score 70% or higher on the outcome related questions.
   Who will score and analyze the data: Departmental Faculty

Course Objectives

1. Discuss the purpose and benefits of Magnetic Resonance Imaging (MRI) accreditation.
2. Describe the process leading to the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
3. Discuss what it means for a magnetic resonance imaging facility to be accredited by the American College of Radiology (ACR).
4. Identify the time limit for the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
5. Identify the key elements of an effective Magnetic Resonance Imaging (MRI) quality assurance (QA) program.
6. Outline the Magnetic Resonance Imaging (MRI) quality assurance program recommended by the American College of Radiology (ACR).
7. List the credentials necessary for physicists, physicians and technologist for the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
8. Discuss the responsibilities of technologists regarding the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation process.
9. Review the required quality control tests that are to be performed by the MRI technologists in accordance with the ACR MRI accreditation process.
10. Identify the clinical images that must be submitted to the American College of Radiology (ACR) for the MRI accreditation process.
11. List the normal range of values expected from the magnetic resonance (MR) phantom quality assurance test.
12. List the steps required to prepare the magnetic resonance (MR) phantom for scanning and completing the weekly quality assurance scan.
13. Determine high and low contrast values based on the quality assurance scan.

14. Measure the geometry of the phantom from the quality assurance scan.
15. Compare and contrast the most common artifacts found on magnetic resonance images.
16. Evaluate the quality assurance magnetic image (MR) scan for image artifacts.
17. Determine table positioning accuracy using the phantom scan.
18. Describe the Magnetic Resonance Imaging (MRI) annual systems performance evaluation process.
19. Discuss why quality control matters in the Magnetic Resonance Imaging (MRI) environment.
20. Discuss the requirements for maintaining the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
21. Discuss the ramification of failing to meet the Magnetic Resonance Imaging (MRI) accreditation standards.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Testing Center
Other: OE 121 Radiography Lab will be used.

Reviewer	Action	Date
Faculty Preparer:		
Catherine Blaesing	*Faculty Preparer*	*Dec 15, 2021*
Department Chair/Area Director:		
Kristina Sprague	*Recommend Approval*	*Dec 17, 2021*
Dean:		
Shari Lambert	*Recommend Approval*	*Jan 10, 2022*
Curriculum Committee Chair:		
Randy Van Wagnen	*Reviewed*	*Feb 07, 2022*
Assessment Committee Chair:		
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Feb 11, 2022*

Washtenaw Community College Comprehensive Report

MRI 135 MRI Quality Assurance
Effective Term: Fall 2015

Course Cover

Division: Math, Science and Health
Department: Allied Health
Discipline: Magnetic Resonance Imaging
Course Number: 135
Org Number: 15600
Full Course Title: MRI Quality Assurance
Transcript Title: MRI Quality Assurance
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: New Course
Change Information:
Rationale: This course is required for the Magnetic Resonance Imaging (MRI) program curriculum.
Proposed Start Semester: Winter 2016
Course Description: In this course, students receive a comprehensive overview of the Magnetic Resonance Imaging (MRI) quality assurance program. Topics include the qualifications of personnel, the quality control program, safety policies and image quality specific to MRI.

Course Credit Hours

Variable hours: No
Credits: 1
Lecture Hours: Instructor: 15 **Student:** 15
Lab: Instructor: 0 **Student:** 0
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 15 **Student:** 15
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Enrollment Restrictions
Admission to the Magnetic Resonance Imaging (MRI) program.

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Define the roles of the medical director, medical physicist, and technologist in the Magnetic Resonance Imaging (MRI) quality assurance program.
   Assessment 1
   Assessment Tool: Departmental final exam
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: answer key
   Standard of success to be used for this assessment: 80% of the students will score 70% or higher on the outcome related questions.
   Who will score and analyze the data: Departmental Faculty

2. Identify the concepts of quality control testing and the annual system performance evaluation of Magnetic Resonance Imaging (MRI) equipment.
   Assessment 1
   Assessment Tool: Departmental final exam
   Assessment Date: Winter 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: answer key
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Course Objectives

1. Discuss the purpose and benefits of Magnetic Resonance Imaging (MRI) accreditation.
   Matched Outcomes
2. Describe the process leading to the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
   Matched Outcomes
3. Discuss what it means for a magnetic resonance imaging facility to be accredited by the American College of Radiology (ACR).
   Matched Outcomes
4. Identify the time limit for the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
   Matched Outcomes
5. Identify the key elements of an effective Magnetic Resonance Imaging (MRI) quality assurance (QA) program.
   Matched Outcomes
6. Outline the Magnetic Resonance Imaging (MRI) quality assurance program recommended by the American College of Radiology (ACR).
   Matched Outcomes
7. List the credentials necessary for physicists, physicians and technologist for the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
   Matched Outcomes
8. Discuss the responsibilities of technologists regarding the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation process.
   Matched Outcomes
9. Review the required quality control tests that are to be performed by the MRI technologists in accordance with the ACR MRI accreditation process.
   Matched Outcomes
10. Identify the clinical images that must be submitted to the American College of Radiology (ACR) for the MRI accreditation process.
    Matched Outcomes
11. List the normal range of values expected from the magnetic resonance (MR) phantom quality assurance test.

Matched Outcomes

12. List the steps required to prepare the magnetic resonance (MR) phantom for scanning and completing the weekly quality assurance scan.
    Matched Outcomes
13. Determine high and low contrast values based on the quality assurance scan.
    Matched Outcomes
14. Measure the geometry of the phantom from the quality assurance scan.
    Matched Outcomes
15. Compare and contrast the most common artifacts found on magnetic resonance images.
    Matched Outcomes
16. Evaluate the quality assurance magnetic image (MR) scan for image artifacts.
    Matched Outcomes
17. Determine table positioning accuracy using the phantom scan.
    Matched Outcomes
18. Describe the Magnetic Resonance Imaging (MRI) annual systems performance evaluation process.
    Matched Outcomes
19. Discuss why quality control matters in the Magnetic Resonance Imaging (MRI) environment.
    Matched Outcomes
20. Discuss the requirements for maintaining the American College of Radiology (ACR) Magnetic Resonance Imaging (MRI) accreditation.
    Matched Outcomes
21. Discuss the ramification of failing to meet the Magnetic Resonance Imaging (MRI) accreditation standards.
    Matched Outcomes

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Testing Center
Other: OE 121 Radiography Lab will be used.

Reviewer	Action	Date
Faculty Preparer:		
Connie Foster	*Faculty Preparer*	*Nov 18, 2014*
Department Chair/Area Director:		
Connie Foster	*Recommend Approval*	*Nov 18, 2014*
Dean:		
Kristin Brandemuehl	*Recommend Approval*	*Nov 19, 2014*
Vice President for Instruction:		
Bill Abernethy	*Approve*	*Jan 05, 2015*