# Medical Imaging Course No. 14103 Credit: 0.5

|  |  |  |  |
| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes: Health Science (51.9999)

Course Description: **Technical Level:** Students acquire the knowledge and understanding of the skills needed for variety of careers in medical/diagnostic imaging. This class will look at the areas of X-ray radiography, magnetic resonance imaging (MRI), medical ultrasonography or ultrasound, endoscopy, elastography, tactile imaging, thermography, medical photography, and nuclear medicine functional imaging techniques as positron emission tomography. These courses usually include general health care topics as well, such as basic anatomy and physiology, patient care, identification and use of medical equipment, and medical terminology. Collaboration with local healthcare professionals and businesses related to this area is encouraged.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Introduction

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Describe the three basic areas of Medical/Diagnostic Imaging. |  |
| 1.2 | Define Radiology and common imaging devices used within the area. |  |
| 1.3 | Define Nuclear Medicine and types of computer technologies. |  |
| 1.4 | Define Ultrasound and various procedures performed. |  |
| 1.5 | Identify common situations medical imagining would be used in health related fields. |  |
| 1.6 | Research latest technological advancements within medical imaging. |  |

## Benchmark 2: Academics

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify the medical calculations needed to perform various duties in several fields of imaging. |  |
| 2.2 | Identify common terms and vocabulary used in medical imaging. |  |
| 2.3 | Identify and demonstrate correct term spelling, coding, notebooks, records, and reports. |  |
| 2.4 | Identify academic requirements for a Radiologic Technologist program. |  |

## Benchmark 3: Technical Skills

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Determine and discuss the basic process for x-rays and how they are used. |  |
| 3.2 | Determine and discuss the basic process for magnetic resonance imaging and how it is used. |  |
| 3.3 | Determine and discuss the basic process for ultrasonography (ultrasound) and how it is used. |  |
| 3.4 | Determine and discuss the basic process for endoscopy and how it is used. |  |
| 3.5 | Identify internal structures hidden by the skin and bones. |  |
| 3.6 | Identify various visual representations of the interior of a body used for clinical analysis. |  |
| 3.7 | Explain the role of infection control within diagnostic imaging. |  |
| 3.8 | Identify and describe common illnesses, trauma, and conditions identified with medical imaging. |  |
| 3.9 | Determine and discuss the basic process for nuclear medicine functional imaging and how it is used. |  |
| 3.10 | Determine and discuss the basic process for thermography and how it is used. |  |
| 3.11 | Determine and discuss the basic process for electroencephalography (EEG) and electrocardiography (EKG) and how they are used Identify and describe common uses of ultrasound in relation to pediatrics. |  |
| 3.12 | Explain the process of film development. |  |
| 3.13 | Describe the process for how the films are studied and stored. |  |
| 3.14 | Perform basic record keeping and written records commonly found with patient data. |  |
| 3.15 | Describe what interventional radiology is and common procedures performed within this area. |  |
| 3.16 | Explain the process of a “time out” and the importance of completing it. |  |

## Benchmark 4: Human Body

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify directional terms, anatomical planes and body position. |  |
| 4.2 | Identify body cavities and their major organs. |  |
| 4.3 | Describe the structure and function of the organs in the digestive system. |  |
| 4.4 | Describe the structure of the respiratory system, especially the lungs, and the basic mechanics of breathing. |  |
| 4.5 | Explain the basic structure and function of the skeletal system. |  |
| 4.6 | Identify the body’s major arteries and veins and name the body region supplied by each. |  |
| 4.7 | Describe the structure and function of the human urinary system.  |  |
| 4.8 | Outline the structure and function of the central nervous system. |  |

## Benchmark 5: Legal

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Describe the importance of patient confidentiality within the diagnostic imaging services. |  |

## Benchmark 6: Safety

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Identify appropriate safety precautions taken by health care workers while working in each imaging department. |  |
| 6.2 | Identify common patient safety precautions for a variety of diagnostic procedures. |  |
| 6.3 | Identify common industry safety procedures and regulations. |  |
| 6.4 | Identify protective clothing used by Diagnostic Imaging staff and patients. |  |

## Benchmark 7: Career

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Identify and discuss occupations that use medical/diagnostic imaging. |  |
| 7.2 | Determine and discuss occupations in medical/diagnostic imaging. |  |
| 7.3 | Describe the job responsibilities of a radiologist. |  |
| 7.4 | Describe the job responsibilities of a ultrasound technician. |  |
| 7.5 | Describe the job responsibilities of a MRI technician. |  |
| 7.6 | Identify regional businesses that use medical/diagnostic imaging. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

pathwayshelpdesk@ksde.org



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.