

# Columbia St. Mary's School of Radiologic Technology



# **Columbia St. Mary's School of Radiologic Technology**

## **Mission Statement**

Columbia St. Mary's School of Radiologic Technology is dedicated to the preparation of students who are competent in the entry-level employment skills of a Radiologic Technologist. It is also our goal to provide the student with the necessary clinical and academic experiences to enable them to successfully complete the American Registry of Radiologic Technology (ARRT) certification examination. As part of our mission, we impress upon the student how these goals are met while preserving the dignity of every person with compassion and care of the highest standard.

## **Philosophy**

The philosophy of the program is to maintain a teaching facility in and for the community. To offer a high quality educational program for the development of technical skills and personal qualities of the student, both of which are necessary to provide exceptional patient care.

We believe that education is a joint responsibility of both the student and the school. Education also presents itself in many ways, therefore students must exhibit an inquisitive nature to take advantage of non-traditional learning opportunities. In many ways, the students initiate and direct their own learning, enabling them to exceed beyond the entry level performance of a radiographer.

## **Goals**

1. The graduate will possess the didactic knowledge and the clinical skills necessary to achieve entry-level competency in radiologic technology.
2. The graduate will communicate effectively and professionally in the medical environment and function as a team member in the radiology department.
3. The graduate will demonstrate the critical thinking and problem-solving skills necessary to act appropriately in non-routine and emergency situations.
4. The graduate will practice their discipline with an obligation to abide by moral, legal and professional standards.

## **Accreditation**

The school is accredited by the Joint Review Committee on Education in Radiologic Technology in conjunction with the American Medical Association and the American Society of Radiologic Technologists and the Association of Educator in Radiologic Sciences (AERS)

**Program Outcomes**

- A. To provide an environment where the graduate of the Columbia St. Mary's School of Radiologic Technology (CSM) shall:
- Possess the knowledge and academic skills necessary to competently practice diagnostic radiography in a clinical setting.
  - Make application to sit for the certification examination in radiography given by the American Registry of Radiologic Technologists (ARRT) and pass the examination at a rate consistent with or exceeding national averages.
  - Provide patient care and comfort as well as recognize emergency patient conditions and initiate appropriate patient aid and support.
  - Communicate effectively and professionally in the medical environment and function as a team member in the health care setting.
  - Practice radiation protection and radiation safety techniques for the patient, themselves and others.
  - Possess the critical thinking and problem solving skills necessary to act appropriately in non-routine clinical encounters.
  - Participate in professional activities and continuing education, understand the career opportunities available in radiography, and utilize insights gained to promote continual professional and personal growth.
  - Seek employment as a diagnostic radiographer or continue with the educational process in a field associated with medical imaging.
  - Express satisfaction with the education received with respect to academic and clinical skills.
  - Demonstrate to the satisfaction of the employer the knowledge, affective behaviors and clinical skills necessary to competently perform as an entry-level radiographer.
- B. To maintain the CSM School of Radiologic Technology within compliance of the Standards for an Accredited Education Program in the Radiologic Sciences provided by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

**Program Description**

Columbia St. Mary's School of Radiologic Technology is a 24-month (six semester) program, which prepares students in the didactic and clinical practice of diagnostic radiography. Upon graduation the student is prepared to take the diagnostic radiography certification examination sponsored by the American Registry of Radiologic Technologists (ARRT).

## Curriculum

The curriculum schedule is subject to change. Curriculum content may be up-graded based on JRCERT requirements.

### SEMESTER 1

Credits	Class
2	Introduction to Radiography
3	Radiographic Exposure 1
3	Radiographic Procedures I
2	Radiation Protection
2	Radiography Clinical Education I

### SEMESTER 2

Credits	Class
3	Methods of Patient Care
2	Medical Terminology
3	Radiographic Exposure II
3	Radiographic Procedures II
2	Radiography Clinical Education II

### SEMESTER 3

Credits	Class
1	Radiographic Procedures III
4	Radiography Clinical Education III

### SEMESTER 4

Credits	Class
2	Radiologic Physics I
3	Digital Imaging
3	Cross-sectional anatomy
3	Radiographic Procedures IV
3	Radiography Clinical Education IV

### SEMESTER 5

Credits	Class
2	Radiographic Physics I
2	Quality Assurance
2	Independent Study
2	Radiographic Pathology
2	Radiobiology
4	Radiography Clinical Education V

### SEMESTER 6

Credits	Class
1	Professional Development
4	Radiography Clinical Education VI

## **Course Descriptions**

The curriculum is divided into six major categories. Students are required to maintain a GPA of 80% to fulfill the requirements of graduation. At the beginning of each class, the student will be provided with a course syllabus, complete with course goals and objectives. The required courses are as follows:

### **Introduction to Radiography**

**2 credits**

This 16 week two-credit course is designed as an introduction to provide an overview of the foundations in radiography and the practitioner's role in the health care delivery system. Principles, practices and policies of the health care organizations are examined and discussed in addition to professional responsibilities of the radiographer. Course content will include an introduction to basic concepts of body mechanics, vital signs, EKG, infection control and medical emergencies.

### **Radiation Protection**

**2 credits**

This is a two-credit course. Content is designed to present an overview of the principles of radiation protection including the responsibilities of the radiographer for patients, personnel and the public. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations are incorporated. Course includes all aspects of radiation protection, dose limiting recommendations, detection duties and the cardinal principles of protection.

### **Radiographic Exposure I**

**3 credits**

This is a three-credit course; content is designed to provide an overview of basic mathematics, an introduction to x-ray production, exposure factors, the control panel, beam restriction, filters, computed radiography, grids and radiographic quality.

### **Radiographic Procedures I**

**3 credits**

This is a three-credit course utilizing lectures, demonstrations and laboratory practice. Items to be covered include radiographic anatomy and procedures and of the upper and lower extremities, chest, abdomen, and barium studies. Pediatric imaging for each procedure will be discussed. The students will identify radiographic anatomy, assess radiographic images for accurateness and identify evaluation criteria for a variety of procedures. This course integrates knowledge and skills from several didactic units.

### **Radiography Clinical Education I**

**2 credits**

This unit is the clinical application of the didactic information. Principles from all areas of the curriculum will be put into practical use as the student develops the skills required to be a diagnostic radiologic technologist.

### **Methods of Patient Care**

**3 credits**

This is a three-credit course; content is designed to provide the basic concepts of patient care, including consideration for the diversity, physical and psychological needs of the patient and family. In addition the course will provide the intern with advanced knowledge of aseptic and sterile techniques, venipuncture, pharmacology and medical ethics and law.

### **Medical Terminology**

**2 credits**

This is a two-credit course. This will be a self-study unit. Students will be required to complete all tests on the intranet. All assignments must be completed by the end of the second semester. Course work includes medical suffixes and prefixes, word-roots, and combining forms.

**Radiographic Exposure II****3 credits**

This is a three-credit course; content is designed to provide knowledge on radiographic film, screens and film processing, radiographic quality, special imaging equipment.

**Radiographic Procedures II****3 credits**

This is a three-credit course, utilizing lectures, demonstrations and laboratory practice. Radiographic anatomy and procedures for the bony thorax, vertebral column, and iodinated studies will be covered. Pediatric imaging for each procedure will be discussed. The pharmacology of contrast media will be introduced. The student will identify radiographic anatomy, assess radiographic images for accurateness and identify evaluation criteria for a variety of procedures. This course integrates knowledge and skills from several didactic units.

**Radiography Clinical Education II****3 credits**

This unit is the clinical application of the didactic information. Principles from all areas of the curriculum will be put into practical use as the student develops the skills required to be a diagnostic radiologic technologist.

**Radiographic Procedures III****1 credit**

This is a one-credit course, utilizing lectures, demonstrations and laboratory practice. Radiographic anatomy and procedures for the cranium, facial bones will be discussed. Pediatric imaging for each procedure will be discussed. The students will identify radiographic anatomy, assess radiographic images for accurateness and identify evaluation criteria for a variety of procedures. Historical exams and special fluoroscopic imaging will also be presented. This course integrates knowledge and skills from several didactic units.

**Radiography Clinical Education III****4 credits**

This unit is the clinical application of the didactic information. Principles from all areas of the curriculum will be put into practical use as the student develops the skills required to be a diagnostic radiologic technologist.

**Radiographic Physics I****2 credits**

This is a two-credit course. Course content is designed to establish basic knowledge of atomic structure and terminology. Also presented are the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter. Introduction will include magnetism, electricity, and electromagnetism.

**Digital Imaging****3 Credits**

This is a three-credit course; content is designed to impart an understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition display, archiving and retrieval are discussed. Guidelines for selection of exposure factors and evaluating images within a digital system assist interns to bridge between film-based and digital imaging systems.

**Cross Sectional Anatomy****3 credits**

This is a three-credit course designed to give the student basic knowledge of cross-sectional anatomy at a minimum of the head and neck, thorax and abdomen. Instruction incorporates CT and MR images.

**Radiographic Procedures IV****3 credits**

This is a three-credit course. Topics to be covered include Special Orthopedic positioning, special gastrointestinal positioning, interventional procedures, basic principals of CT and MRI imaging.

**Radiographic Physics II****2 credits**

This is a two-credit course. Content is designed to establish knowledge in tube and generator circuitry. Also presented are the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter.

**Quality Assurance****2 credits**

This is a two-credit course; content is designed to provide the student the ability to evaluate all aspects of the imaging system from processor to generator. The student will perform basic equipment tests, identify and trouble shoot equipment problems. Lecture on quality control and quality assurance procedures within a radiology department will be covered.

**Independent Study****2 credits**

Students will be assigned a written research project that will include an oral presentation, video display or a scientific exhibit. This project will be assigned two credits. This will enable the student to develop critical thinking, research and writing skills along with an appreciation for professional development. Evaluation will be on the basis of research organization, completeness and presentation. The student will select a topic of their choice. Successful completion of the independent study is a graduation requirement.

**Radiographic Pathology****2 credits**

This is a two credit course; content is designed to introduce concepts related to disease and etiological considerations with emphasis on radiographic appearance of disease and impact on exposure factor selection

**Radiobiology****2 credits**

This is a two-credit course; content is designed to provide an overview of the principles of the interaction of radiation with living systems. Radiation effects on molecules, cells, tissues and the body as a whole are presented. Factors affecting biologic response are presented, including acute and chronic effects of radiation.

**Radiography Clinical Education V****4 credits**

This unit is the clinical application of the didactic information. Principles from all areas of the curriculum will be put into practical use as the student develops the skills required to be a diagnostic radiologic technologist.

**Professional Development****1 credit**

This is a one-credit course that serves as an overview of the entire program. This course will prepare the intern for the American Registry of Radiologic Technologists. Course will also include study of the evolution of modern health care systems and professional organizations in Radiology. Evaluation will be on the basis of mock registry examinations.

**Radiography Clinical Education VI****4 credits**

This unit is the clinical application of the didactic information. Principles from all areas of the curriculum will be put into practical use as the student develops the skills required to be a diagnostic radiologic technologist.

**CLINICAL FACILITIES**

St Mary's Hospital of Milwaukee  
2323 N. Lake Dr, Milwaukee, WI 53211

Columbia Hospital  
2025 E. Newport Ave. Milwaukee, WI 53211

St Mary's Hospital Ozaukee  
13111 N. Port Washington Rd, Mequon, WI 53097

River Woods Outpatient Center  
375 W. River Woods Parkway, Glendale, WI 53212

Sixteenth Street Community Health Center – Parkway  
2906 S. 20<sup>th</sup> Street, Milwaukee, WI 53215

**Clinical Sites may be added or removed at the school's discretion.**

## Expenses

Listed below are the major expenses involved with attending the School of Radiologic Technology.

- Tuition is \$5000 per year (\$10,000 for the two-year program).
- \$500 is required prior to physical examination and criminal background check. This is refundable to applicants failing to meet requirements and is applied to tuition for those students accepted.
- The remaining \$4500 for the first year of tuition is required by August 2009.
- Tuition (\$5000) for the second year of training is required in August 2010.
- Textbook and educational fees vary. The cost is approximately \$1500 for the 2 years. Book fees are due the first day of classes.
- Uniforms are required and will need to be purchased by the student. Briefly, the dress code consists of ceil blue scrubs and solid white sneakers or medical type shoes.
- Meals are available in the hospital cafeteria at a reasonable cost.
- Parking is available at no charge to students at the St. Mary's Milwaukee and St. Mary's Ozaukee Hospital campuses. Free off-site parking and shuttle service is available to students at the Columbia Hospital campus.
- Housing is the responsibility of the student. Some dormitory housing is available through the Columbia College of Nursing at standard dormitory rates. Information is available to accepted students.
- There is health insurance available to the student through Columbia St Mary's.

## Refund Policy

Students who withdraw or are dismissed from the program will receive the following percentage of tuition refund:

Prior to the end of the first week of classes.....	80%
2 <sup>nd</sup> -4 <sup>th</sup> week of classes.....	50%
After first month.....	NO REFUND

Application and Book Fees are non-refundable.

## Financial Assistance

CSM DOES NOT PARTICIPATE IN THE FEDERAL FINANCIAL AID PROGRAM. The program is accredited by the Veterans Administration.

## Advanced Placement

Due to the nature of the curriculum and the relationship of all courses to program goals, advanced placement is not available.

## Conditions of Graduation

To graduate from Columbia St Mary's School of Radiologic Technology, the student must meet all course requirements and fulfill all financial obligations to the school.

## General Information

- Classes begin the first Tuesday after Labor Day in September.
- To ensure introduction to and experience in all clinical aspects of radiography, the student will periodically be assigned to different shift rotations, including evening shifts. The total number of combined academic and clinical hours shall not exceed 40 per week.

## Opportunities

Radiographers are needed in hospitals, clinics, physician offices, industry, and medical examiner offices.

Manufacturers of medical radiographic equipment and products need radiographers for sales, as well as technical representatives.

## Advancement

Advances in this field of health care have resulted in the specialization of radiographers in the areas of surgery, CT, vascular procedures, cardiac catheterization, MRI and the area of management.

Continuing your clinical education is possible in the fields of special procedures, nuclear medicine, ultrasonography and radiation therapy. Many colleges will accept your training for credit towards an advanced degree, should you wish to continue your education in a more traditional fashion.

## Admission Information

Requirements for admission to the Columbia St. Mary's School of Radiologic Technology are listed below.

- CSM has a competitive admission procedure with acceptance into the program being based on a point system. The student receives points based on their cumulative GPA from high school and college (if applicable). Additional points are given for math and science courses completed with a grade of "C" or better, ACT scores above 17 or SAT scores above 790, employment for a year or more, and employment or volunteer experience in a health care setting.
- Physical requirements of the job include:
  - Must be able to lift 50 pounds.
  - Must be able to reach 72 inches from the floor.
  - Must be able to hear patient alarm systems.
  - Must have the visual acuity to adjust CRT monitor, as well as visualize facial features in indirect lighting situations.
- The ideal candidate will possess:
  - Cumulative high school and/or college GPA of 2.5 or higher.
  - 2 years of math and science classes with a "C" or better grade. These classes must have been taken and passed within the past 5 years.
  - GED score of 275 or higher.
  - Work / volunteer experience

After review of the preliminary application, an interview will be scheduled for those applicants who have the highest point score. Interviews for the Columbia St Mary's Hospital School of Radiologic Technology will be held from February - April. Applicants must also:

1. Meet all admission standards.
2. Attend an open information session offered by the school, qualified candidates will be sent an invitation in the mail.
3. Spend a minimum of four (4) hours job shadowing a radiologic technologist in a hospital environment.

Following the interview process, preliminary candidates will be selected and admitted to the School of Radiologic Technology after they have:

1. Received an acceptable finding from a criminal background check required for all caregivers according to Wisconsin State Law.
2. Passed a health assessment and physical screening provided at no cost by the CSM Occupational Health Department. This includes a drug screening as well as proof of appropriate vaccinations.
3. Submitted a school entrance fee of \$500. These monies will hold the candidates placement in the class. The fee will be applied toward tuition when class begins. Should the candidate choose to relinquish their position in the next class, the entrance fee is non-refundable.

### **Application Procedure**

To begin the application process to the CSM School of Radiologic Technology, the following steps should be followed.

- Complete the application for admission.
- Enclose a letter describing why you are interested in the field of Radiography and a brief autobiography of your life after high school.
- Enclose \$25.00 non-refundable application fee.
- Schedule and participate in a job shadow experience.
- **Have the following documents forwarded to the school:**
  - Two current, dated letters of reference. One should be an academic reference and the other an employment reference.
  - Certified high school transcript.
  - Certified college transcripts, if applicable.
  - Verification of any health care work experience or volunteer experience.

**All documents must be received by February 15<sup>th</sup> to be eligible for the class beginning in September of the same year.**

Mail all correspondence to:

Admissions  
Columbia St. Mary's School Radiologic Technology  
2121 E. Newport Avenue  
Milwaukee, WI. 53211

**Equal Opportunity Statement**

The Columbia St. Mary's School of Radiologic Technology believes that all persons are entitled to equal educational opportunities and does not discriminate against students or applicants for the school because of age, race, creed, color, religion, marital status, sex, national origin, ancestry, citizenship, sexual orientation, handicap, disability, arrest and/or conviction record, membership in the National Guard or any other reserve component of the military forces of the United States or Wisconsin or other protected status, as required by law, provided they are qualified and meet the physical requirements established by the hospital and the School for the position.

**Disclaimer**

This brochure is not a binding contract. The programs class, clinical schedule, and content can be adjusted at any time before, during, or after application and or admission into the program. This is only a general guide to the Columbia St. Mary's School of Radiology.