STUDENT LEARNING OUTCOMES

The Radiography Program at Indiana University Kokomo has established student outcomes that we except from our graduates. These outcomes are as follows:

1. Students will demonstrate knowledge and practice radiation protection by applying ALARA principles and practices. Relates to Goal # 1, 3 and 4

2. Students will demonstrate professional and ethical behaviors according to the ARRT (American R of Radiologic Technologists) Code of Ethics while in the clinical education setting. Relates to program goal #'s 1 and 2.

3. Student will be able to perform basic patient care skills and assessments. Relates to program goal # 1

4. Students will be able to communicate effectively and apply interpersonal skills with patients, peers, physicians, and other vital members of the healthcare team. Relates to program goals #'s 1, 3 and 4.

5. Students will operate complex radiographic equipment to produce quality images. Relates to program goals # 1, 2 and 3.

6. Student will demonstrate positioning skills in the clinical area which allows the student to work in routine, emergency, and trauma situations while completing the procedure with speed and accuracy. Relates to program goals #'s 1 and 3.

7. Students will develop organizational and critical thinking skills to increase efficiency in the performance of radiographic examinations. Relates to program goal #'s 3 and 4.

8. Students will be able to asses the patient's condition, interpret medical data, and assist the radiologist/ physician by communicating data and assisting with procedures. Relates to program goals #'s 2, 3 and 4.

9. Students will select appropriate technical factors to assure quality images and patient care. Relates to goal # 's 1 and 4.

10. Students will demonstrate desires life-long learning through completion of a portfolio and accumulates of professional points. This relates to goal #1.

Goals for Radiography Program 2016 – 2020

- To provide the regional (north central Indiana) medical community with entry-level radiographers who display professionalism
- To provide students opportunities that will allow them to communicate effectively
- To provide students opportunities that will allow them to think critically and solve problems
- To provide educational experiences that produce clinically competent individuals prepared for employment as entry-level radiographers

The Student Learning Outcomes can be broken down into Cognitive, Behavioral and Affective Outcomes. At the end of the Radiography Program students should be able demonstrate:

I. **Cognitive Domain**: students will be able to:
   A. Demonstrate critical thinking skills by describing patient care and positioning for non-trauma and trauma patients as well as population diversities.
   B. Demonstrate evidence of Radiation Safety and know effects of excessive radiation doses.
   C. Manipulate exposure techniques and radiographic equipment.
   D. Demonstrate knowledge of medical terminology as related to radiology
   E. Identify human anatomy and pathology related to radiographer.

II. **Behavior Domain**: students swill be able to:
   A. Correctly Position Patients for routine examinations
   B. Communicate data and patient information to help in diagnosis
   C. Deliver Patient care to include assist a patient and take vital signs
   D. Evaluation of Radiographs
   E. Process radiographic images

III. **Affective Domain**: students will be able to:
   A. Abide by the ASRT and ARRT Code of Ethics
   B. Demonstration of lifelong learning desires through completion of a portfolio
   C. Demonstrate compliance with program dress code
   D. Demonstrate comprehension of radiologic procedures

Where in the curriculum are can assessment of affective, cognitive and psychomotor domain be demonstrated and measured?

Didactic Content courses:

Courses	**R100**	**R101**	**R102**	**R200**	**R201**	**R202**	**R205**	**R207**	**R208**	**R 222**	**R 250**	**R 260**
Cognitive Domain												
A		X		X								
B		X			X							X
C			X			X		X			X	
D	X	X	X	X	X	X	X	X	X	X	X	X
E		X	X	X	X		X	X		X		
Behavioral Domain	**R100**	**R101**	**R102**	**R200**	**R201**	**R202**	**R205**	**R207**	**R208**	**R 222**	**R 250**	**R 260**
A		X			X		X					
B	X	X			X		X					
C	X	X			X		X	X		X		
D		X	X	X	X	X	X	X	X			
E			X			X			X			
Affective Domain	**R100**	**R101**	**R102**	**R200**	**R201**	**R202**	**R205**	**R207**	**R208**	**R 222**	**R 250**	**R 260**
A	X							X				
B	X	X					X					
C	X	X										
D				X				X		X		

Where in the curriculum are can assessment of affective, cognitive and psychomotor domain be demonstrated and measured?

Clinical Experience courses:

Course	R 181	R 182	R 281	R282	R283	R 290
Cognitive Domain						
A			X	X	X	X
B	X	X	X	X	X	X
C			X	X	X	X
D	X	X	X	X	X	X
E	X	X	X	X	X	X
Behavioral Domain	**R 181**	**R 182**	**R 281**	**R282**	**R283**	**R 290**
A	X	X	X	X	X	X
B	X	X	X	X	X	X
C	X	X	X	X	X	X
D	X	X	X	X	X	X
E	X	X	X	X	X	X
Affective Domain	**R 181**	**R 182**	**R 281**	**R282**	**R283**	**R 290**
A	X	X	X	X	X	X
B						X
C	X	X	X	X	X	X
D	X	X	X	X	X	X

Program Number 0502 **Program Name** Indiana University Kokomo

Date 06/01/2016

Radiography Curriculum Analysis

DIRECTIONS: Determine the course(s) in which each of the following content area is covered and enter the course number(s) and/or title(s). For guidance in what should be covered for each content area, please refer to the Radiography Curriculum (2012) published by the American Society of Radiologic Technologists.

Professional Curriculum	Program Course(s)
Clinical Practice	
Clinical Practice	**R 181, R 182, R 281, R 282, R 283 and R 290 (Clinical Expereinece I - IV)**
Procedural Performance	**R 181, R 182, R 281, R 282, R 283 and R 290 (Clinical Expereinece I - IV)**
Clinical Competency	**R 181, R 182, R 281, R 282, R 283 and R 290 (Clinical Expereinece I - IV)**
Digital Image Acquisition and Display	
Basic Principles of Digital Radiography	**R 102 Prinicples of Radiography 1; R 222 Principles of Radiography III**
Image Acquisition	**R 102 Prinicples of Radiography 1; R 222 Principles of Radiography III**
Image Acquisition Errors	**R 202 Principles of Radiography II; R 222 Principles of Radiography III**
Fundamental Principles of Exposure	**R 102 Prinicples of Radiography 1**
Image Evaluation	**R 102 Principles of Radiography I; R 202 Principles of Radiography II; R 222 Principles of Radiography III**
Quality Assurance and Maintenance Issues	**R 202 Principles of Radiography II; R 208 Topics in Radiography; R 222 Principles of Radiography III; R 250 Physics Applied to Radiography**
Display	**R 222 Principles of Radiography III**
Data Management	**R 222 Principles of Radiography III**
Ethics and Law in the Radiologic Sciences	
Ethics and Ethical Behavior	R 100 Orientation to Rad Tech.; R 207 Seminars in Radiography

Ethical Issues in Health Care	R 100 Orientation to Rad Tech
Legal Issues	R 100 Orientation to Rd Tech
Legal Doctrines	R 100 Orientation to Rad Tech.; R 207 Seminars in Radiography
Patient Consent	R 100 Orientation to Rad Tech.; R 207 Seminars in Radiography

Professional Curriculum	Program Course(s)
Human Structure and Function	
Anatomical Nomenclature	ANAT - A 215 Human Anatomy; R 101 Radiographic Procedures 1 R 201 Radiographic Procedures II; R 200 Pathology; R 205 Radiographic Procedures III; R 207 Seminars in Radiography
Chemical Composition	R 102 Principles of Radiography I; R 260 Radiobiology and Rad Protection
Cell Structure and Genetic Control	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 260 - Radbioilogy and Rad. Protection
Metabolism	PHYS - P 215 Human Physiology R 260 - Radbioilogy and Rad. Protection
Tissues	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 200- Pathology; R 260 - Radbioilogy and Rad. Protection
Skeletal System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 200 Pathology; R 101 and R 201 Radiographic Procedures I and II
Muscular System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 101 and R 102 Radiographic Procedures I and II; R 200 Pathology
Nervous System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Pathology
Sensory System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 200 - Pathology
Endocrine System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 200 - Pathology
Digestive System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Patholog
Cardiovascular System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Pathology; R 222 Prinicples of Radiography III
Lymphatic System and Immunity	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Patholog
Respiratory System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Patholog
Urinary System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Patholog
Reproductive System	ANAT - A 215 Human Anatomy; PHYS - P 215 Human Physiology R 222 Prinicples of Radiography III; R 200 Patholog

Introduction to Sectional Anatomy	R 205 Radiographic Procedures III; R 222 Prinicples of Radiography III; R 281 and R 282 Clincial Expereince III and IV
Image Analysis	
Image Appearance Standards	**R 101, R 102, R 205 Radiographic Procdures I, II and III; R 102, R 202 and R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography**
Imaging Standards	R 101, R 102, R 205 Radiographic Procdures I, II and III; R 102, R 202 and R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography
Image Appearance Characteristics	R 101, R 102, R 205 Radiographic Procdures I, II and III; R 102, R 202 and R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography
Procedural Factors	R 102, R 202 and R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography
Corrective Actions	R 102, R 202 and Principles of Radiography I and II; R 207 Seminars in Radiography
Imaging Equipment	
X-ray Circuit	**R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography**
Radiographic Equipment	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography
Diagnostic X-ray Tubes	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography
Image Intensified Fluoroscopy	R 202 and R 222 Prinicples of Radiography II and III; R 250 Physics Applied to Radiography
Quality Control	R 202 Prinicples of Radiography II; R 208 Topics in Radiography; R 250 Physics Applied to Radiography
Modality Exploration and Radiation Therapy	R 201 Radiographic Procedures; R 222 Principels of Radiography; R 281 and R 282 Clinical Experinces III and IV

Professional Curriculum	Program Course(s)
Introduction to Computed Tomography	
Components, Operations, and Processes	R 201 Radiographic Procedures; R 222 Principels of Radiography; R 281 and R 282 Clinical Experinces III and IV
Radiation Protection	R 201 Radiographic Procedures; R 222 Principels of Radiography; R 260 Radiobiology and Rad Protection; R 281 and R 282 Clinical Experinces III and IV
Introduction to Radiologic Science and Health Care	
The Health Science Professions	R 100 Orientation to Rad Tech; R 222 Principles of Radiography III
The Health Care Environment	R 100 Orientaiton to Rad Tech; R 207 Seminars in Radiography
Quality Management	R 100 Orientaiton to Rad Tech; R 207 Seminars in Radiography; R 208 Topics in Radiography
Hospital Organization	R 100 Orientation to Rad Tech
Radiology Organization	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Accreditation	R 100 Orientation to Rad Tech; R 207 Seminars in Radiography; R 208 Topics in Radiography
Regulatory Agencies	R 100 Orientation to Rad Tech; R 207 Seminars in Radiography; R 208 Topics in Radiography; R 260 Radiobiology and Radiation Protection
Professional Credentialing	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Professional Organizations	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Professional Development and Advancement	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Medical Terminology	
The Word-Building Process	CLAS - C 209 or AHLT - M 195 Medical Terminiiology, R 100 Orientaiton to Rad Tech; and R 101 Radiographic Procedures I
Medical Abbreviations and Symbols	R 100 Orientaiton to Rad Tech; R 101 and R 201 Radiographic Procedures I and II
Radiologic Technology Procedures and Terminology	R 100 Orientaiton to Rad Tech; R 101 and R 201 Radiographic Procedures I and II; and R 207 Seminars in Radiography
Understanding Orders, Requests, and Diagnostic Reports	R 100 Orientaiton to Rad Tech; R 101 and R 201 Radiographic Procedures I and II
Patient Care in Radiologic Sciences	
Health Care Team	R 100 Orientaiton to Rad Tech; R 101 Radiographic Procedures I
Professionalism and Communication in Patient Care	R 100 Orientaiton to Rad Tech; R 101, R 201, R 205- Radiographic Procedures I, II and III; All clinical expereince courses (I - VI) R 181 - R 290

Patient/Radiographer Interactions	R 100 Orientaiton to Rad Tech; R 101 Radiographic Procedures I and all clinical expereince courses (I - VI) R 181 - R 290
Safety and Transfer Positioning	R 100 Orientation to Rad Tech; R 101, R 201 and R 205 Radiographic Procedures I, II and III
Evaluating Physical Needs	R 100 Orientation to Rad Tech; R 101, R 201 and R 205 Radiographic Procedures I, II and III
Infection Control	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Medical Emergencies	R 100 Orientation to Rad Tech; R 208 Topics in Radiography
Trauma	R 100 Orientation to Rad Tech; R 208 Topics in Radiography R 101 and R 102 Radiographic Procedures I and II; Clincial Expereinces specfics in R 281 and R 282 (III and IV)
Contrast Studies	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 208 Topics in Radiography; R 222 Principles of Radiography III
Reactions to Contrast Agents	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 208 Topics in Radiography; R 222 Principles of Radiography III
Tubes, Catheters, Lines, and Other Devices	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 208 Topics in Radiography; R 222 Principles of Radiography III
Mobile and Surgical Radiography	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 202 and R 222 Principles of Radiography II and III; R 260 Radiobiology and Rad Protection; R 281, R 282, R283 and R 290- Clinical Expereince (III, IV, V, VI)

Professional Curriculum	Program Course(s)
Pharmacology and Venipuncture	
Drug Nomenclature	R 100 Orientation to Rad Tech; R 208 Topics in Radiograph
Methods of Drug Classification	R 100 Orientation to Rad Tech; R 208 Topics in Radiograph
General Pharmacologic Principles	R 100 Orientation to Rad Tech; R 208 Topics in Radiograph
Six Rights of Drug Safety	R 100 Orientation to Rad Tech; ; R 207 Seminars in Radiography; R 208 Topics in Radiograph
Drug Categories of Relevance to Radiography (Uses and Impacts on Patient)	R 100 Orientation to Rad Tech; R 208 Topics in Radiograph
Contrast Agents	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 208 Topics in Radiography; R 222 Principles of Radiography III
Routes of Drug Administration	R 100 Orientation to Rad Tech; R 201 Radiographic Procedures II; R 208 Topics in Radiography
Venipuncture	R 100 Orientation to Rad Tech; R 205 Radiographic Procedures III
Current Practice Status	R 100 Orientation to Rad Tech; R 205 Radiographic Procedures III; R 207 Seminars in Radiography
Principles of Imaging	
Exposure Factors	R 102, R 202, R 222 Principles of Radiography I, II and III; R 250 Physics Applied to Radiography, and R 260 Radiobiology and Rad Protection
Brightness Digital Display/Density (Film)	R 102, R 202, R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography
Contrast	R 102, R 202, R 222 Principles of Radiography I, II and III
Recorded Detail/Spatial Resolution	R 102, R 202, R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography
Distortion	R 102, R 202 Principles of Radiography I and II; R 207 Seminars in Radiography
Exposure Latitude	R 102, R 202, Principles of Radiography I and II
Beam-Limiting Devices	R 102, R 202, Principles of Radiography I and II
Beam Filtration	R 102, R 202, R 222 Principles of Radiography I, II and III; R 207 Seminars in Radiography; R 250 Rad. Physics R 260 Radiobiology and Rad Protection
Scattered and Secondary Radiation	R 102, R 202, Principles of Radiography I and II; R 207 Seminars in Radiography; R 250 Rad. Physics R 260 Radiobiology and Rad Protection
Grids	R 102, R 202, Principles of Radiography I and II;
Exposure Factor Formulation	R 102, R 202, Principles of Radiography I and II; R 207 Seminars in Radiography; R 260 Radiobiology and Rad Protection

Radiation Biology	
Introduction	R 100 Orientation to Rad Tech; R 260 RadBio and Rad Protection
Molecule	R 260 Radiobiology and Rad Protection
Basic cellular biology	PHYS- P 215 Human Pysiology; R 260 Radiobiology and Rad Protection
Types of ionizing radiation	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Radiation Energy Transfer	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Radiation Effects	R 100 Orientation to Rad Tech; R 102 Prinicples of Radiography I; R 260 Radiobiology and Rad Protection
Radiosensitivity and Response	R 100 Orientaitont to Rad Tech; R 260 Radiobiology and Rad Protection
Radiation Production and Characteristics	
Structure of the Atom	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography
Nature of Radiation	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
X-ray Production	R 102 and R 202 Prinicples of Radiography I and II; R 250 Physics Applied to Radiography
Interactions of Photons with Matter	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection

Professional Curriculum	Program Course(s)
Radiation Protection	
Introduction	R 100 Orientation to Rad Tech
Justification for radiation protection	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Potential biological damage of ionizing radiation	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Objectives of a radiation protection program	R 102 Prinicples of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Sources of radiation	R 100 Orientaiton to Rad Tech; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Legal and ethical responsibilities	R 100 Orientaiton to Rad Tech; R 260 Radiobiology and Rad Protection

Units, Detection, and Measurement	R 100 Orientaiton to Rad Tech; R 102 Principles of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Surveys, Regulatory/Advisory Agencies and Regulations	R 100 Orientaiton to Rad Tech; R 102 Principles of Radiography I; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection
Personnel Monitoring	R 100 Orientaiton to Rad Tech; R 260 Radiobiology and Rad Protection
Application	R 100 Orientaiton to Rad Tech; R 101 and R 201 Radiographic Procedures I and II; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection; All clinical Expereince courses R 181 - R 290 (Clinical Expereinces I - VI)
Patient Protection	R 100 Orientaiton to Rad Tech; R 101 and R 201 Radiographic Procedures I and II; R 250 Physics Applied to Radiography; R 260 Radiobiology and Rad Protection; All clinical Expereince courses R 181 - R 290 (Clinical Expereinces I - VI)
Radiographic Pathology	
Definitions/Terminology	R 101, R 201 and R 205 Radiographic Procedures I, II and III;
Classifications (Definition, Examples, Sites, Complications, Prognosis)	R 200 Pathology
Causes of Disease (Process, Examples)	R 100 Orientaiton to Rad Tech; R 200 Pathology; R 208 Topics in Radiography
Radiologic Pathology (Definitions, Etiology, Examples, Sites, Complications, Prognosis, Radiographic Appearance, Procedural and Technique Considerations, Appropriate Imaging Modality)	R 100 Orientaiton to Rad Tech; R 200 Pathology; R 208 Topics in Radiography
Radiographic Procedures	
Standard Terminology for Positioning and Projection	R 101, R 201 and R205 Procedures I, II and III; R 207 Seminars in Radiography
General Considerations	R 101, R 201 and R205 Procedures I, II and III; R 207 Seminars in Radiography
Patient Considerations	R 101, R 201 and R205 Procedures I, II and III; R 207 Seminars in Radiography
Positioning Considerations for Routine Radiographic Procedures	R 101, R 201 and R205 Procedures I, II and III; R 207 Seminars in Radiography
Procedural Considerations for Contrast Studies	R 101, R 201 and R205 Procedures I, II and III; R 208 Topics in Radiography; R 207 Seminars in Radiography
Additional Imaging Modalities and Radiation Therapy	R 201 and R 205 Radiographic Procedures II and III; R 222 Principles of Radiography III; R 281, R 282 and R 283 Clinical Expereinces (III, IV and V)

Educational programs in radiography are **required** to incorporate mathematical/logical reasoning and written/oral communication as general education elements in their curricula. There must be a minimum of 15 credit hours of general education coursework. Each program is required to submit information regarding the courses

Required Post-secondary General Education	**Credit Hour**	**Course Number**	**Course Title**
Mathematical/Logical Reasoning (required)	**3**	**M 105**	**College Algebra**
Written/Oral Communication (required)	3 3	W 131 S 121	Written Communications Public Speaking
Total Hours for Required Post-secondary General Education	IU does not require specific G.E. for Associate Degrees		

In the spaces below, list the additional post-secondary general education coursework students are required to complete that meets/exceeds the 15 hours

Category (See Below)	**Course Number**	**Course Title**	**Credit Hours**
Arts and Humanities	CLAS-C 209	Medical Terminology from Greek or Latin	2
Natural Sciences	PHSL P 215	Mammalian Physiology	5
Natural Sciences	ANAT-A215	Human Amantomy	5
Total Hours for Additional Post-secondary General Education Courses			**21**

Categories:

- Mathematical/logical reasoning
- Written/oral communication

- Arts and humanities
- Information systems
- Social/behavioral sciences
- Natural sciences