



**COWLEY COLLEGE  
& Area Vocational Technical School**

**COURSE PROCEDURE FOR**

**RADIOGRAPHIC TESTING II  
NDT3465 3 Credit Hours**

**Student Level:**

This course is open to students on the college level in either the freshman or sophomore year and to high school vocational students.

**Catalog Description:**

**NDT 3465 - RADIOGRAPHIC TESTING II (3 hrs)**

This course is devised to give a detailed study of the processes of radiography. It provides the in-depth study and hands-on experience needed to prepare the student for a position in the field of radiography. The course is designed to meet certain NDT Level II requirements in accordance with A.S.N.T., SNT-TC-1A, and NAS-410.

**Prerequisites:**

NDT3464 Radiographic Testing I or instructor approval.

**Controlling Purpose:**

This course is designed to impart advanced applied radiography principles, applications, techniques, and process controls so that the student could perform radiographic inspections, and pass a certification examination in accordance with ASNT TC-1A NAS-410.

**Learner Outcomes:**

Upon completion of this course the student will be able to:

1. Explain x-ray interaction with matter.
2. Explain radiographic image quality.
3. Prepare load, expose, and develop film.
4. List and define the limitations of the inspection method.
5. Apply mathematical calculations required in radiographic inspection.
6. Interpret radiographs and report the results of an inspection.
7. Correctly apply all safety attitudes and procedures associated with radiographic testing that will insure a safe work place environment.
8. Understand and perform the duties of a Level II Radiographer.

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the

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learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

**Units Outcomes and Criterion Based Evaluation Key for Core Content:**

The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

- A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.
- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.
- D = A few of the major goals have been achieved, but the student’s achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

<b>UNIT 1: Properties Of Matter</b>						
Outcomes: Upon completion of this unit, the students will be able to successfully define properties of matter.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Apply knowledge and calculations to describe properties of matter.
						List and describe the properties of matter.

## UNIT 2: X-Ray Devices And Inspection Gama Radiation

Outcomes: Upon completion of this unit, the students will be able to successfully perform inspections using x-rays or gamma rays.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Apply knowledge of equipment to produce and evaluate radiographs to given codes and standards.
						Apply knowledge of state and local regulations to produce radiographs to a given standard or code.

## UNIT 3: Radiographic Image Quality

Outcomes: upon completion of this unit, the students will be able to successfully produce radiographs with image quality equal to or exceeding code requirements.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Operate x-ray equipment to produce radiographs that meet quality requirements of given codes or standards.

## UNIT 4: Film Handling, Loading And Processing

Outcomes: Upon completion of this unit, the student will be able to successfully load and process film that meets requirements of certain codes.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Apply knowledge of film handling and process as to produce a radiograph free of film artifacts.
						Demonstrate the ability to process film correctly in manual and automatic process.

### UNIT 5: Exposure Techniques

Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate the proper use of exposure techniques.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Demonstrate the ability to correctly select the proper exposure technique.
						Show examples of proper exposure techniques on three parts.

### UNIT 6: Calculations For Radiography

Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate the ability to perform the required calculations needed to produce radiograph.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Solve calculations for change of source to film distance.
						Solve calculation for change of density.
						Solve calculations relating to radiation safety.
						Solve calculations for change of film.

### UNIT 7: Radiographic Viewing

Outcomes: Upon completion of this unit, the students will be able to successfully process a radiograph.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Assess the acceptability of radiographs per D1.1.
						Assess the acceptability of radiographs per API 1104.

## UNIT 8: Application Of Results To Codes And Procedures

Outcomes: upon completion of this unit, the students will be able to successfully determine the results and report the result of viewing a radiograph.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Classify and report on defects per a given code.

### **Projects Required:**

As assigned

### **Textbook:**

Contact Bookstore for current textbook.

### **Materials/Equipment Required:**

None

### **Attendance Policy:**

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

### **Grading Policy:**

The grading policy will be outlined by the instructor in the course syllabus.

### **Maximum class size:**

Based on classroom occupancy

### **Course Timeframe:**

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

**Refer to the following policies:**

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

**Disability Services Program:**

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.