

**SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS**

I. TITLE OF COURSE: CT1104- Cathodic Protection

II. COURSE DESCRIPTION: 4 credit hours
1 credit hours of lecture and 3 credit hours of lab per week.

This course provides an in-depth study of corrosion control of buried or submerged metallic structures utilizing both impressed and galvanic cathodic protection systems. Emphasis on Installation of Cathodic Protection Systems, Maintaining and Repairing Rectifiers, Mitigation of Interference Problems, Test and Repair Shorted Casings, Conducting Close Interval Surveys, Coating Inspection and High-Pressure Blasting.

For each unit of credit, a minimum of three hours per week with one of the hours for class and two hours for studying/preparation outside of class is expected.

Pre-requisite: None

III. PROGRAM AND/OR DEPARTMENT MISSION STATEMENT:

The Corrosion Technology program at Seward County Community College provides students with the opportunity to develop and enhance their skills in the corrosion technology field through educational and technical instruction.

IV. TEXTBOOK AND MATERIALS:

1. Pipeline Corrosion and Cathodic Protection by Parker and Peattie, ISBN 0-87201-149-6
2. Cathodic Protection Survey Procedures, Second Edition by Holtsbaum, ISBN 1575902524

V. SCCC OUTCOMES

Students who successfully complete this course will demonstrate the ability to do the following SCCC Outcomes.

- 1: Read with comprehension, be critical of what they read, and apply knowledge gained to real life
- 2: Communicate ideas clearly and proficiently in writing, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
- 3: Communicate their ideas clearly and proficiently in speaking, appropriately adjusting content and arrangement for varying audiences, purposes, and situations.
- 4: Demonstrate mathematical skills using a variety of techniques and technologies.
- 5: Demonstrate the ability to think critically by gathering facts, generating insights, analyzing data, and evaluating information

VI. COURSE OUTCOMES:

1. Students will describe the three types of cathodic protection and determine the best design based upon economic considerations.
2. Students will demonstrate the ability to operate and maintain cathodic protection instruments.
3. Students will demonstrate work habits which include safety, cleanliness, efficiency, quality of work, and respect for expensive instrumentation.
4. Students will comprehend pipeline schematics, mapping systems, and other record keeping practices related to cathodic protection.
5. Students will identify federal and state rules and regulations which apply to cathodic protection installations.

6. Students will troubleshoot cathodic protection systems.
7. Students will apply the principles of corrosion to design, operate, and maintain corrosion control systems within the guidelines of a budget.

VII. COURSE OUTLINE:

1. How CP Works/Soil Resistivity
2. Potential Surveys
3. Locating Pipeline and Cable
4. Line Currents
5. Current Requirement Systems
6. Rectifier Systems for Coated Lines
7. Ground Bed Design & Installation
8. Cathodic Protection Measurement
9. Test Station Repair
10. Galvanic Anodes on Coated Lines
11. Hot Spot Protection, Stray Current Electrolysis, and Interference in CP

VIII. INSTRUCTIONAL METHODS:

1. Lecture
2. Demonstrations
3. Discussion
4. Field Labs
5. Field Demonstrations/Experience

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

1. Pipeline Corrosion and Cathodic Protection by Parker and Peattie, ISBN 0-87201-149-6
2. Cathodic Protection Survey Procedures, Second Edition by Holtsbaum, ISBN 1575902524

X. METHODS OF ASSESSMENT:

1. Outcome #1 will be assessed through exams, homework assignments, and projects
2. Outcome #2 will be assessed through class discussions, power point presentations, and projects
3. Outcome #5 will be assessed through rectifier assembly, lab exam, team projects

XI. ADA STATEMENT:

Under the Americans with Disabilities Act, Seward County Community College will make reasonable accommodations for students with documented disabilities. If you need support or assistance because of a disability, you may be eligible for academic accommodations. Students should identify themselves to the Dean of Students at 620-417-1106 or going to the Student Success Center in the Hobble Academic building, room 149 A.