

**SEWARD COUNTY COMMUNITY COLLEGE
COURSE SYLLABUS**

I. TITLE OF COURSE: CT2103- Internal Corrosion

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

An in-depth study of internal corrosion found in oil and gas wells, pipelines, refineries, process plants, and other industrial installations including the common forms of nondestructive testing, internal corrosion monitoring techniques, and chemical corrosion treatment methods.

Rationale: A basic understanding of the types of corrosion found in the petroleum, petrochemical and chemical industries should enable a Corrosion Engineer to predict the most common types of corrosion his/her facilities will experience. This course will also provide the student with knowledge of the analytical methods needed to diagnose, treat, and monitor corrosion to reduce costs, protect the environment, and increase safety.

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. Corrosion Basics – An Introduction. 2nd Edition. Pierre R. Roberge. 2006 by NACE International. ISBN: 1-57590-198-6,
2. Field Guide for Investigating Internal Corrosion of Pipelines text by Eckert published in 2003 by NACE International. ISBN: 1-57590-171-4.

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
- 6: Exhibit skills in information and technological literacy

9: Exhibit workplace skills that include respect for others, teamwork competence, attendance/punctuality, decision making, conflict resolution, truthfulness/honesty, positive attitude, judgment, and responsibility

VI. COURSE OUTCOMES:

1. Students will identify and define the various types of internal corrosion using the correct terminology.
2. Students will demonstrate knowledge of internal corrosion control methods that are appropriate for different circumstances.
3. Students will calculate corrosion rates and scaling tendencies from liquid and gas analysis data and utilize appropriate corrosion test instrumentation.
4. Students will operate, calibrate, and maintain common internal corrosion testing equipment.
5. Students will write clear technical reports which include purpose, procedure, results, conclusions, and recommendations.
6. Students will demonstrate good work habits which include safety, cleanliness, efficiency, quality of work, and respect for expensive instrumentation.
7. Students will illustrate their ability to manage projects, to manage their time, and demonstrate good work habits through punctuality, completion of assigned work on time, and respect for the attendance and honesty policies of SCCC.

VII. COURSE OUTLINE:

1. Forms of Internal Corrosion
2. Uniform Attack
3. Local-Cell Corrosion
4. Velocity-Related Corrosion
5. Environmental Cracking
6. Introduction to Corrosion Inhibitors
7. Basic Types of Inhibitors & How They Work
8. Environmental Factors
9. Green Inhibitors
10. Application Techniques
11. Safety Precautions

VIII. INSTRUCTIONAL METHODS:

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

IX. INSTRUCTIONAL AND RESOURCE MATERIALS:

[Inst_Res_Mat]

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 Hobbie Academic building, room 149 A.

Syllabus Reviewed: 5/20/2021