**BARTON COMMUNITY COLLEGE**

**COURSE SYLLABUS**

# **GENERAL COURSE INFORMATION**

Course Number: MEAS 1103

Course Title: Gas Quality Analysis

Credit Hours: 4

Prerequisite: None

Division/Discipline: Workforce Training and Community Education/ Gas Measurement Program.

Course Description: This instructor led and web based course prepares the student to work with standard gas quality analyzers used in all aspects of the measurement industry. The student will learn how to collect and analyze gas quality data in order to make determinations about its quality and safety.

# **INSTRUCTOR INFORMATION**

# **COLLEGE POLICIES**

Students and faculty of Barton Community College constitute a special community engaged in the process of education. The College assumes that its students and faculty will demonstrate a code of personal honor that is based upon courtesy, integrity, common sense, and respect for others both within and outside the classroom.

Plagiarism on any academic endeavors at Barton Community College will not be tolerated. The student is responsible for learning the rules of, and avoiding instances of, intentional or unintentional plagiarism. Information about academic integrity is located in the Student Handbook.

The college reserves the right to suspend a student for conduct that is determined to be detrimental to the College educational endeavors as outlined in the College Catalog, Student Handbook, and College Policy & Procedure Manual. (Most up-to-date documents are available on the College webpage.)

Any student seeking an accommodation under the provisions of the Americans with Disability Act (ADA) is to notify Student Support Services via email at disabilityservices@bartonccc.edu.

# **COURSE AS VIEWED IN THE TOTAL CURRICULUM**

Knowledge of gas quality analysis is an important aspect of the measurement industry. The student must be able to monitor and make critical judgments about gas quality in order to be successful in his/her job. With safety as the first priority of any gas technician, the student must learn under which conditions the gas quality must pass or fail the analytical process.

1. **ASSESSMENT OF STUDENT LEARNING**

Barton Community College assesses student learning at several levels:  institutional, program, degree and classroom.  The goal of these assessment activities is to improve student learning.  As a student in this course, you will participate in various assessment activities.  Results of these activities will be used to improve the content and delivery of Barton’s instructional program.

## Course Outcomes, Competencies, and Supplemental Competencies:

1. State the purposes of different gas sampling systems.
2. List the problems associated with H2S, Sulfur, water vapor, and CO2 in natural gas.
3. State the standards which govern gas sample system design and sampling methods.
4. List the governmental agencies which regulate natural gas quality.
5. Paraphrase regulations for hazardous content in gas.
6. Describe the mechanisms of gas sample distortion.
7. Define phase behavior.
8. Contrast standards of cleanliness and contamination.

1. Explain the key considerations for designing a gas sampling system.
2. Detail considerations for spot, composite and online gas chromatography.
3. List elements of a basic gas sampling layout.
4. Outline sample cylinder handling & preparation.
5. Describe the various methods of gas sampling.
6. Detail GPA separator issue in spot sampling.
7. Explain the use of stain tubes and other electronic devices for gas quality sampling
8. Interpret documentation and notation on gas sample labeling and reporting.
9. Contrast types of composite gas sampling systems.
10. List the applications for composite samplers YZ Systems, PGI International, and Welker Engineering.
11. List purposes for cover flow proportional composite sampling.
12. Describe routine maintenance items performed on gas sampling systems.
13. List common scheduled maintenance items on gas sampling systems.
14. Discuss effects of poor maintenance on sample distortion.
15. Outline functions of the principle gas quality analyzers.
16. Detail the operation of O2, H2S, CO2, total sulfur, water vapor and hydrocarbon dew point analyzers.
17. **INSTRUCTOR'S EXPECTATIONS OF STUDENTS IN CLASS**
18. **TEXTBOOKS AND OTHER REQUIRED MATERIALS**
19. **REFERENCES**
20. **METHODS OF INSTRUCTION AND EVALUATION**
21. **ATTENDANCE REQUIREMENTS**
22. **COURSE OUTLINE**