Manufacturing Analytics

DATA 1065 / TEDA 1065: 2 Credits / 60 Hours

Introduction

Welcome to Bridgerland Technical College. This course is competency-based, allowing you to progress at your own pace, while continually demonstrating competency through a variety of assignments and assessments. Specific requirements to successfully complete this course will be outlined in this syllabus.

Course Description

The Manufacturing Analytics course provides students with experience working as a data practitioner in the field of manufacturing. Utilizing real-world situations, they gain experience with the types of tasks which are required of data practitioners working in manufacturing. Students go through the data cycle with multiple sets of data and different situations that can arise in manufacturing situations. Students optimize manufacturing data and practice predictive maintenance. They access a Programmable Logic Controller (PLC)-driven manufacturing system to a database and process that data as though in a live working environment utilizing data analysis programs and techniques. Students who complete this course are able to work with manufacturing data.

Course Objectives

Upon completion of this course, you will be able to:

- Apply techniques learned throughout the program on datasets from the field of manufacturing.
- Analyze data from multiple real-world scenarios.
- Present findings using a visualization tool.
- Setup data transfer from a Programmable Logic Controller (PLC)-driven manufacturing system to a database using Kepware.
- Analyze data in a manufacturing optimization scenario.
- Analyze data in a manufacturing predictive maintenance scenario.

Instructor Information

Hayden Hoopes, Department Head

Office: Logan West building 1833

Office Hours:

- Tuesdays from 4:30 - 6:00pm
- Thursdays from 4:30 - 6:00pm

Phone: (435) 750 – 3253

Stephanie Nielson, High School Instructor

Office: Logan West building 1828

Office Hours:

- Tuesdays from 12:00 - 1:00pm
- Thursdays from 12:00 - 1:00pm

Contact: Canvas Mail only

Adjunct Instructors

Office: Logan West building 1828

Office Hours:

- Monday & Wednesday from 6:00 - 8:00pm

Contact: Canvas Mail only

In addition to regular satisfactory academic progress meetings, instructors are available in person and online according to the information below.

In-Person Office Hours: You may drop into your instructors office during their office hours. However, in order to assure that your instructor will not be attending to another student, please email them to schedule a time.

Online Office Hours: If you need to contact your instructor away from campus or outside regular in-person office hours, you may also schedule an appointment time for an online video chat or phone call. To schedule a time, email an instructor/s using your Canvas email.

Email: In order to make sure that your instructor can quickly respond to your emails, please only use Canvas email to communicate with your instructors.

Required Materials

The following texts and/or supplies are required for this course:

- Software: Python

For an updated list of materials, please check your student portal.

Classroom Hours

Classroom hours begin at 11:00 a.m. and end at 3:00 p.m., Monday through Friday, except for school holidays and closures. Information for the school event calendar is located on the BTECH website.

Course Activities

Begin the course at the Modules page and work your way down to the bottom, in order. The activities listed can include videos, text, assignments, quizzes, projects, and exams. Read each assignment description carefully. Follow the individual instructions on each graded assignment to know how to submit them. Unless instructed otherwise by your instructor, you should submit activities through Canvas directly.

Employment Skills

This program strives to prepare students for employment upon completion. Therefore, students are rated on the following ten employment skills while progressing through the program:

- **Communication with Instructors & Peers:** Actively listens. Accepts feedback.
- **Critical Thinking & Problem Solving:** Prioritizes work. Generates solutions. Considers alternatives based on evidence.
- **Demonstrates Confidence:** Succeeds under pressure. Perseveres through challenges. Seeks guidance appropriately.
- **Dress, Hygiene & Appearance:** Excellent hygiene and clean, suitable apparel.
- **Ethical Behavior:** Shows integrity in all facets of work. Willingly accepts accountability for performance.
- **Positive Attitude:** Maintains an optimistic outlook. Encourages others.
- **Professionalism:** Excellent attendance and punctuality. Proper use of electronic devices. Consistently engaged in learning.
- **Quality of Work:** Work is accurate and done safely.
- **Uses Time Productively:** Quickly self-starts. Stays on task until completion.
- **Works Cooperatively:** Accepts and collaborates well with others.

Employment Skill Ratings:

- 4 = Excellent
- 3 = Good
- 2 = Fair
- 1 = Poor

- 0 = Unsatisfactory

Academic Progress

Students must maintain academic progress toward completing each course by progressing at a rate that will allow the student to complete the program within the program's stated length. For more information on Academic Progress, see the Student Guide section on Academic Progress.

Course Grading

Grades will be tracked through Canvas. Below is a breakdown of what each letter grade and numerical rating means and how they will be awarded.

This will be replaced by a table populated with the course Grading Scheme.

Your overall grade will be weighted as follows:

This will be replaced by a table populated with the course Assignment Groups.

Students need to earn a percentage of 80% or higher to pass courses. If a student earns a 0 - 79% percentage for any course, they must meet with their instructor and the department head to discuss different options available for the student to improve their rating in that course. A percentage of 80 - 100% is required in a course before a student can proceed on to other courses. The student is encouraged to routinely check their rating in Canvas for their current percentage in the course.

Student Standards & Conduct

To learn more about the rules, expectations, and the rights associated with being a student of BTECH, please visit the Policies & Procedures page and the Student Guide.

Among these expectations is a high level of academic integrity. Cheating, plagiarizing, infringing on copyright laws, and giving, selling, or receiving unauthorized course or test information is unacceptable.

Technical Support

If you have technical difficulties with the Canvas course, first contact your instructor and make them aware of the issue. If the problem persists or your instructor(s) is unavailable, you can chat with a Canvas representative by clicking here:

Canvas Live Chat

Americans with Disabilities Act

For more information on the ADA or how to contact the College's ADA coordinator, see the Student Guide section on the Americans with Disabilities Act.