ATCM-2540: TRIMBLE GPS/GNSS CERTIFIED OPERATOR

Cuyahoga Community College

Viewing: ATCM-2540 : Trimble GPS/GNSS Certified Operator

Board of Trustees:
JUNE 2026

Academic Term:
Fall 2026

Subject Code
ATCM - Appd Indus Tech-Cement Masonry

Course Number:
2540

Title:
Trimble GPS/GNSS Certified Operator

Catalog Description:
This course will demonstrate and practice the setup and layout procedures using Trimble Field Link, the specific operational software, for Trimble GPS/GNSS layout equipment in the construction industry.

Credit Hour(s):
3

Lecture Hour(s):
3

Requisites

Prerequisite and Corequisite
Departmental Approval: admission to Cement Mason's apprenticeship program.

Outcomes

Course Outcome(s):
Relate the Field Link work mode icons to the operational usage of Trimble GPS/GNSS equipment.

Objective(s):
1. Examine Trimble Field Link software and the 4 work mode icons.
2. Identify each icon and its usage with the device.
3. Relate how each applies to the operation and usage of the equipment.
4. Summarize the work mode icons and their functions.

Course Outcome(s):
Illustrate the Device work mode icon and the Setup and Connection of a Trimble GPS/GNSS unit.

Objective(s):
1. Recognize the Device work mode icon and the procedure to correctly set up and connect to a Trimble GPS/GNSS unit.
2. Describe the order of operations to correctly set up and connect to a Trimble GPS/GNSS unit.
3. Rewrite a personal order of operation list.
4. Demonstrate the procedure of setup and connection to a Trimble GPS/GNSS unit using the Device work mode icon.

Course Outcome(s):
Explain the Create and More work mode icons and how they relate to each other.

Objective(s):

1. Examine the Create work mode icon and its 6 functions.
2. Compare the functions of the More work mode icon with the Create work mode icon.
3. Examine the More work mode icon and its 7 functions.
4. Develop a new job using a model provided by their instructor.
5. Modify this job and create points to use for layout.

Course Outcome(s):

Implement the usage of the Measure work mode icon.

Objective(s):

1. Summarize the 5 functions of the Measure work mode icon.
2. Choose the correct method to lay out the points students created in their job.
3. Produce the layout points from the job they created.

Course Outcome(s):

Produce their skills using Field Link software and a Trimble GPS/GNSS unit.

Objective(s):

1. Demonstrate their skills in a physical examination.
2. Cite the correct methods in a written examination.

Methods of Evaluation:

1. Participation
2. Homework
3. Hands on projects
4. Exams

Course Content Outline:

1. Field Link Software-Overview
    a. Examine the 4-work mode icons.
        i. Device
        ii. Create
        iii. More
        iv. Measure
    b. Uses of the 4 work mode icons
    c. Application of the 4 work mode icons
        i. Device-setting up a Trimble GPS/GNSS unit
        ii. Create-creating and managing points
        iii. More-managing jobs and files
        iv. Measure-layout and collection of points
    d. Summary of the icons and their functions
        i. Examine a pre-populated work mode icon infographic
        ii. Create a work mode icon infographic of their own
2. Setting up and Connecting a Trimble GPS/GNSS unit using the Device work mode icon
    a. Device work mode icon and its functions
        i. Connection
        ii. Device Settings
        iii. Setup
    b. Order of Operations for Device Setup
        i. Tablet connection
        ii. Control Point Setup

1. 4 Control Points
2. 3 Control Points
3. Known Point/Base Station Setup

c. Creation of a Student Order of Operations
   i. Create an Order of Operations from a provided template
   ii. Reference the correct procedure from the original Order of Operations
d. Demonstrate the process of Setup and Connection of a Trimble GPS/GNSS unit using the Device work mode icon in the field
   i. Tablet Connection

3. Explaining the functions of the Create and More work mode icons and their relationship to one another
   a. Examine the Create work mode icon and its 6 functions
      i. Plan
      ii. Linework
      iii. Point Manager
      iv. From Model
      v. Grid
      vi. Pattern
   b. Compare the functions of the Create and More work mode icons.
      i. Map - Plan
      ii. Jobs - Linework
      iii. Point Manager – Reports
      iv. Trimble Connect – From Model
   c. Examine the More work mode icon and its 7 functions
      i. Map
      ii. Jobs Reports
      iii. Trimble Connect
      iv. About
      v. Minimize
      vi. Exit
   d. Develop a new job using a model provided by the course instructor
      i. Import a model
      ii. Place the model
      iii. Scale the model
   e. Modify this job and create points to use for layout
      i. Create end, mid, and intersection points
      ii. Create multiple offset points
4. Implement the usage of the Measure work mode icon
   a. Summarize the 5 functions of the Measure work mode icon
      i. Layout
      ii. Collect
      iii. Wall Penetration
      iv. Surface
      v. Layout Plane
      vi. Settings
   b. Choose the correct method to layout the points students created in their job
      i. Layout points
      ii. Layout line
      iii. Layout to a line
      iv. Layout Arc
   c. Produce the layout points from the job they created
      i. Choosing the correct point
      ii. Following the Direction Bar
      iii. Using Visual Layout
      iv. Using the Bullseye Mode
5. Produce their skills using Field Link software and a Trimble GPS/GNSS unit.
   a. A demonstration of the necessary skills will be required to successfully complete a physical examination
      i. A knowledge assessment form will be used to evaluate the correct procedures of use of the Trimble GPS/GNSS unit in a physical examination
      ii. A written examination of 75 questions will be given to interpret a student's skills and knowledge

Religious Accommodation

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

Religious Accommodation:

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: https://portal2.tri-c.edu/ReligiousAccommodation/ Religious Accommodation Form. Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

Other Required Instructional Policies:

https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf

Weekly Schedule

	Topics
Week 1	Topic: Field Link Software Overview Examine the 4 work#mode icons (Device, Create, More, Measure) Uses and applications of each icon Overview of icon functions Review a pre#populated work#mode infographic
Week 2	Topic: Creating a Work#Mode Infographic Build a custom work#mode icon infographic Compare student infographic to provided example Discuss how icons relate to field workflows
Week 3	Topic: Device Mode: GPS/GNSS Setup Fundamentals Device icon functions Connection basics Device settings overview Setup menu structure
Week 4	Topic: Order of Operations for Device Setup Tablet connection Control point setup (3#point & 4#point) Known point / base station setup Create a student “Order of Operations” document
Week 5	Topic: Field Demonstration: Device Setup Tablet connection in the field Connecting to GNSS receiver Verifying control points Troubleshooting common setup issues
Week 6	Topic: Create Mode: Overview of Functions Plan Linework Point Manager From Model Grid Pattern
Week 7	Topic: More Mode: Overview of Functions Map Jobs Reports Trimble Connect About / Minimize / Exit Compare Create vs. More functions
Week 8	Topic: Job Creation Using a Model Importing a model Placing and scaling the model Adjusting orientation Saving and managing job files

Week 9	Topic: Creating Points for Layout End, mid, and intersection points Offset points (single & multiple) Organizing points in Point Manager Preparing points for field layout
Week 10	Topic: Measure Mode: Overview of Functions Layout Collect Wall Penetration Surface Layout Plane Settings
Week 11	Topic: Layout Methods & Techniques Layout points Layout line Layout to a line Layout arc When to use each method
Week 12	Topic: Executing Layout in the Field Selecting the correct point Following the direction bar Using visual layout Using bullseye mode Field accuracy best practices
Week 13	Topic: Integrated Field Skills Practice Setup and connection Job loading Point creation Layout execution Field troubleshooting
Week 14	Topic: Physical Skills Examination Prep Required competencies Common errors and how to avoid them Practice scenarios Review of order of operations
Week 15	Topic: Knowledge Assessment Preparation Review of correct procedures Icon functions and workflows GPS/GNSS concepts Sample questions and practice quiz
Week 16	Topic: Week 16 — Final Examinations Physical skills examination Knowledge assessment form 75#question written exam Course wrap#up and feedback

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Additional Resources for the Instructor

- by Trimble Navigation Limited (Author) Trimble RTS Series Total Station User Guide, Publisher: Trimble Navigation Limited, Publication date: January 2013
- by Trimble, Inc. (Author) FieldLink User Guide v6.1, Publisher: Trimble, Inc, Publication date: October 2021
- Trimble Inc. 2025. https://www.trimble.com (https://www.trimble.com)
- Trimble Learn. 2025. https://www.trimble.com/en/learn (https://www.trimble.com/en/learn/)

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