MOHAWK VALLEY COMMUNITY COLLEGE

UTICA & ROME, NEW YORK

**Course Outline:** **CT 141 – Introduction to Civil Engineering Technology**

1. **Catalog Description**

CT 141 Introduction to Civil Engineering Technology [P-4, CR-2]

This course introduces the many aspects of Civil Engineering to students who are interested in pursuing a career in either the Civil Engineering and/or Surveying Technology field. It also introduces students to the various tools required for use in these fields as well as the fields of engineering or engineering technology program. The use of personal computers is introduced as engineering tools for work enhancement. Experience is provided with a variety of microcomputer software applications, including word processing, electronic spreadsheets, presentations, file management, and database software. Engineering and surveying ethics are also introduced.

Prerequisite: None

1. **Materials**

Scientific calculator, engineering computation paper, 1” 3-ring binder, engineer’s scale

1. **Course Objectives**

The objective of this course is to familiarize students with various aspects of the civil engineering field and the importance of ethics as it pertains to civil engineering. Students will develop an understanding of the skills and tools required in the civil engineering field.

1. **Student Learning Outcomes** *(ETAC-ABET Assessment Criteria)*
2. Students will be able to define the requirements of a professional engineer’s license.
3. Students will be able to recognize the importance of engineering ethics and be able to apply them to a real-world situation.
4. Students will be able to state a civil engineering problem correctly, reason analytically to a solution, and interpret the results using trigonometry. (1, 2)
5. Students will be able to solve civil engineering technology related problems using correct engineering units. (1, 2)
6. Students will be able to read a basic contour map and use it to develop a profile and compute grades/slopes. (1, 2)
7. Students will be able to use MS Excel to perform average end area calculations. (1, 2, 3)
8. Students will be able to use MS Excel to develop a stress-strain curve from tensile test data. (1, 3)
9. Students will be able to solve problems relating to azimuths and bearings. (1)
10. Students will be able to solve problems relating to the Cartesian coordinate system. (1)
11. Students will be able to use an engineering scale to perform measurements from a set of drawings/plans. (1, 2)
12. Students will be able to read a set of plans and answer related questions.
13. Students will be able to calculate areas and volumes for various geometric shapes.
14. Students will be able to manipulate/organize and store files within the MS Windows environment.
15. Students will be able to demonstrate the ability to use basic software (Word, Excel, PPT).
16. Students will be able to create, store, and output word processing, spreadsheet, and presentation documents.
17. Students will be able to navigate the internet for information retrieval.
18. Students will demonstrate the ability to use email and Blackboard as modes of communication and document sharing/transfer.
19. Students will demonstrate the ability to perform an oral presentation with a corresponding written report.
20. **Major Topics**

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| **Week** | **Topic** |
| 1 | Introductions, engineering science vs tech., CE vs architecture, etc. |
| 2 | Engineering ethics |
| 3 | Math: Tools for your toolbox: problem evaluation |
| 4 | Slopes and grades, contour maps |
| 5 | Cartesian coordinate system |
| 6 | Azimuths and bearings |
| 7 | Plan reading |
| 8 | Plan reading |
| 9 | Average end area, volume |
| 10 | Basic computer topics (Word, PowerPoint) |
| 11 | Basic computer topics (Excel, MicroStation, AutoCAD) |
| 12 | Research/Final project |
| 13 | THANKSGIVING BREAK - ENJOY YOUR TIME OFF!! |
| 14 | Final project |
| 15 | Final project |