MOHAWK VALLEY COMMUNITY COLLEGE

UTICA & ROME, NEW YORK

**Course Outline:** **CT 231 – Transportation Engineering**

1. **Catalog Description**

CT 231 Transportation Engineering [C-2, P-2, CR-3]

This course covers transportation modes, including the interlocking relationships among transportation, economics, community, and the environment. Emphasis is placed on the process behind a transportation project including planning, design, construction and maintenance, especially on highway design.

Prerequisite: MA121 Foundations of College Mathematics 1.

1. **Course Objectives**

The purpose of this course is to familiarize students with the fundamentals of transportation engineering with an emphasis on highway design. The course includes a wide variety of topics from engineering ethics to transportation planning and the development of plans, specifications, and estimate package for a highway project.

1. **Student Learning Outcomes** *(ETAC-ABET Assessment Criteria)*
2. Students will be able to identify the professional and ethical responsibilities of an engineer according to the engineering cannons/code of ethics.
3. Students will be able to identify the various modes of transportation.
4. Students will be able to interpret and apply geometric design standards for a highway design project. (1, 2)
5. Students will be able to apply knowledge and principles to solve technical problems relating to the layout of horizontal and vertical curves and superelevation calculations. (1, 2)
6. Students will be able to describe and identify appropriate pavement treatments in order to make improvements to an existing highway facility. (1, 2, 3)
7. Students will be able to draw cross-sections and typical sections. (1, 2)
8. Students will be able to perform a life cycle cost analysis. (1, 2)
9. Students will be able to estimate material quantities relating to a highway project. (1, 3)
10. Students will be able to demonstrate the ability to use basic software (Word, Excel, PPT).
11. Students will be able to function effectively as a member of a team. (5)
12. **Major Topics**

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| **Week** | **Topic** |
| 1 | Introductions and fundamentals, transportation issues |
| 2 | Overview of FHWA, NYSDOT, etc., discussion of NYS Transportation Master Plan |
| 3-4 | Project level planning and project management (NYSDOT PDM) |
| 5-8 | Overview of highway design (APOGDOHAS and NYSDOT HDM) |
| 9-11 | Pavement management and pavement treatments (NYSDOT Pavement DM) |
| 12-15 | Development of plans, specifications, and estimate for a highway design project utilizing the NYSDOT Specifications and Standard Sheets. |