MOHAWK VALLEY COMMUNITY COLLEGE

UTICA & ROME, NEW YORK

SCHOOL OF SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS - CAREER

**Course Outline:** **CT 226 – Reinforced Concrete Design**

1. **Catalog Description**

CT 226 Reinforced Concrete Design [C-2, P-2, CR-3]

This course explores the design of reinforced concrete beams, slabs, columns, footings, and walls. Emphasis is placed on the application of the ACI Code using conventional methods. (Spring semester)

Prerequisite: CT 221 - Strength of Materials

1. **Materials**

Text: *Reinforced Concrete Design, Abi Aghayere – ISBN-13: 978-0-13-471535-3*

Other: Scientific calculator, engineering computation paper, 3-ring Binder

1. **Course Objectives**

The objectives of this course are (1) to develop an understanding of the process of reinforced concrete design and associated detailing and (2) to familiarize the student with the requirements of ACI Code and other codes which affect the design of concrete structures.

1. **Student Learning Outcomes** *(ETAC-ABET Assessment Criteria)*
2. Students will be able to identify fundamental reinforced concrete design concepts.
3. Students will be able to identify the behavior of structural members composed of concrete and reinforcing steel.
4. Students will be able to analyze and design rectangular beams and T-beams. (1)
5. Students will be able to analyze and design concrete columns. (1)
6. Students will be able to analyze and design footings. (1)
7. Students will be able to analyze and design walls. (1)
8. Students will be able to design a retaining wall as a final project. (1)
9. Students will be able to demonstrate the application of appropriate ACI codes. (3)
10. **Major Topics**

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| **Week** | **Topic** |
| 1 | Introductions, review – moment of inertia, section modulus, radius of gyration |
| 2 | Properties of concrete, loads, building codes, design specifications |
| 3 | ACI 318-19(22), Rectangular beam analysis |
| 4 | Rectangular beam design, Slab analysis & design |
| 5 | Slab analysis & design |
| 6 | T-beam analysis & design |
| 7 | T-beam analysis & design |
| 8 | SPRING BREAK - NO CLASS - ENJOY!! |
| 9 | Doubly reinforced beam analysis & design |
| 10 | Doubly reinforced beam analysis & design |
| 11 | Shear in beams – stirrup design |
| 12 | Development Length |
| 13 | Columns |
| 14 | Footings |
| 15 | Walls |

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| **Date** | **Faculty Name** | **Change** | **Input** | **Measurement** | **Assessment** | **Action** |
| 27 Feb 2015 | Brittany Fuller | Edited to match format |  |  |  |  |
| 20 Jan 2018 | Dave Bauer | Book information |  |  |  |  |
| 7 Jan 2019 | Mike Sisti | Reviewed for content, updated book/course information to reflect the newest ACI codes/specs, updated ABET assessment criteria |  |  |  |  |
| 14 Jan 2020 | M Sisti | Updated course description & objectives |  |  |  |  |
| 15 Jan 2021 | M Sisti | Reviewed |  |  |  |  |
| 18 Jan 2022 | M Sisti | Reviewed |  |  |  |  |
| 10 Jan 2023 | M Sisti | Reviewed & updated policies |  |  |  |  |
| 10 Jan 2024 | M Sisti | Reviewed & updated policies |  |  |  |  |
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