MOHAWK VALLEY COMMUNITY COLLEGE

UTICA & ROME, NEW YORK

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

**Course Outline:** **CT 225 – Structural Steel Design**

1. **Catalog Description**

CT 225 Structural Steel Design [C-2, P-2, CR-3]

This course explores the design of structural steel members and connections using accepted design methods (LRFD & ASD). Emphasis is placed on the application of the most recent AISC Code and Specifications to steel structures using the Steel Construction Manual. (Spring semester)

Prerequisite: CT 221 - Strength of Materials

1. **Materials**

Text: *Steel Design (6th Edition), William Segui – ISBN-13: 978-1-337-09474-0*

 *AISC Steel Construction Manual (15th Edition)* – obtain discount code from instructor

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

1. **Course Objectives**

As an introductory course in structural steel design, course objectives are (1) to develop an understanding of the process of structural steel design and (2) to familiarize the students with the requirements of the AISC Code, specifications, and other technical resources which influence the design of steel structures.

1. **Student Learning Outcomes** *(ETAC-ABET Assessment Criteria)*
2. Students will be able to analyze and design steel tension members. (1, 2)
3. Students will be able to analyze and design steel compression members. (1, 2)
4. Students will be able to analyze and design steel beams considering moment, shear, and deflection. (1, 2)
5. Students will be able to design steel columns considering axial load and moment. (1, 2)
6. Students will be able to design a bolted connection or a standard framed beam connection to safely resist a given force or reaction. (1, 2)
7. Students will be able to identify and select standard steel shapes. (1)
8. Students will be able to calculate centroids (1st moment of area). (1)
9. Students will be able to calculate center of pressure. (1)
10. Students will be able to reference the AISC Steel Construction Manual and other codes to apply to the design of steel members. (3)
11. **Major Topics**

|  |  |
| --- | --- |
| **Week** | **Topic** |
| 1 | Introductions, review – moment of inertia, section modulus, radius of gyration |
| 2 | Structural design, loads, building codes, design specifications |
| 3 | AISC Steel Construction Manual, LRFD vs ASD |
| 4 | Tension members |
| 5 | Tension members |
| 6 | Tension members |
| 7 | Compression members |
| 8 | SPRING BREAK - NO CLASS - ENJOY!! |
| 9 | Compression members |
| 10 | Compression members |
| 11 | Beams |
| 12 | Beams |
| 13 | Beam-columns |
| 14 | Simple connections |
| 15 | Simple connections |

Course Name: CT 225 Structural Steel Design

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Date** | **Faculty Name** | **Change** | **Input** | **Measurement** | **Assessment** | **Action** |
| 27 Feb 2015 | Brittany Fuller | Edited to match format |  |  |  |  |
| 20 Jan 2018 | Dave Bauer | Book info, change columns to compression members |  |  |  |  |
| 7 Jan 2019 | Mike Sisti | Reviewed for content, updated book/course information to reflect the newest AISC codes/specs, updated ABET assessment criteria |  |  |  |  |
| 14 Jan 2020 | M Sisti | Updated course description and 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 |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |