Course Name:
Steel Design I

<table>
<thead>
<tr>
<th>Course Number: 20-221</th>
<th>Credit: 3</th>
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<tbody>
<tr>
<td>Program: Undergraduate</td>
<td>Course Type: Technical required</td>
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<tr>
<td>Prerequisite: Structural Analysis I</td>
<td>Corequisite: -</td>
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Course Description (Objectives):
The course covers the design of steel members of building structures including beams, columns, bracing, beam-columns.

Course Content (outline):

- **Chapter 1**: Components of steel structures. Types of Steel and steel sections. Steel physical behavior: stress-strain, fatigue, brittle fracture, corrosion.
- **Chapter 2**: Design Philosophies: ASD, LRFD. Design codes.
- **Chapter 4**: Compression Members: Limit states in compression. Effective length. Built-Up compression members. Bracing design.
- **Chapter 6**: Beam-Columns: P-Δ effects and effective length. Types of analyses. Frame design.

References:

- Steel Structures: Design and Behavior, C. G. Salmon and J. E. Johnson, Prentice Hall.
- Structural Steel Design, J. C. McCormac, Prentice Hall.
- Iranian Building Code, Chapter 10.
- AISC/ANSI 360.