

<b>Instructor</b>	<b>Dr. Mahmoud R. Taha, P. Eng</b> <b>Professor &amp; Chair – Department of Civil Engineering</b> Centennial Engineering Center: 3006 Tel: 277-1258, e-mail: <a href="mailto:mrtaha@unm.edu">mrtaha@unm.edu</a>
<b>Lectures</b>	Twice Weekly: <b>Tuesday and Thursday 12:30 – 1:45 pm</b> <b>Centennial Engineering Center CENT 1026</b>
<b>Textbooks</b>	- Steel Design, by William T. Segui, 5th Edition, 2013, Cengage Learning. Supplemental: AISC Manual of Steel Construction: Load & Resistance Factor Design, 14th Edition, 2011, AISC. - Lecture notes delivered on UNM Learn.
<b>Lecture Notes</b>	- Lecture notes will be distributed by the instructor and will be available on UNM Learn - Lecture notes are made to compliment the textbook. Students are supposed to read lecture notes and the textbook.
<b>Office Hours</b>	Tuesday & Thursday 10:00-12:00 am or by appointment. You can always communicate with me by email.
<b>Learning Objectives</b>	<b><u>After completing this course the student shall be able to</u></b> <ol style="list-style-type: none"><li>1. Apply the AISC LRFD Design Code in designing steel structures.</li><li>2. Model the different types of loads acting on a structure and calculate response to these loads.</li><li>3. Select structural systems for resisting lateral and gravity loads.</li><li>4. Analyze the strength and capacity of steel structural members.</li><li>5. Design and select suitable tension members of steel structures.</li><li>6. Design and select suitable compression member of steel structures.</li><li>7. Design and select suitable beam member of steel structures.</li><li>8. Design and select suitable beam-column member of steel structures.</li><li>9. Design simple bolted and welded steel connections.</li><li>10. Design of steel/concrete composite section</li><li>11. Design of plate girders</li><li>12. Use simulation software and analyze and design steel structures.</li><li>13. Detail the structural steel members and connections.</li></ol>
<b>Expected Outcomes (In accordance with Civil Engineering Departmental Goals)</b>	<ul style="list-style-type: none"><li>• This course contributes to the following educational outcomes in the objectives of the CE Department:</li><li>• A familiarity with the modern tools for engineering analysis, including computers and sophisticated laboratory equipment.</li><li>• An ability to approach and solve engineering problems in a structured manner.</li><li>• Synthesis of knowledge from various sources to produce creative, cost-effective designs for civil engineering facilities.</li><li>• A commitment to become registered as professional engineers.</li></ul>

- An ability to communicate effectively, both in written and oral forms, as well as an ability to listen.
- A sensitivity to practice personal and professional ethics.
- A basic understanding of societal and environmental issues as they affect engineering decisions

**Assignments**

- A list of all assignments and their due dates are listed below
- All assignments represent 20% of the total course grade.
- Assignments shall be delivered by the due date or will be marked of a maximum of 50%.
- Assignments delayed for one week from due date will be rejected.

**Course Project**

A structural steel design project is expected from all students. The project will include providing a design of a building or a bridge structure including performing the basic design calculations and providing basic design drawings. Projects groups will be made by Dr. Taha. Further information will be provided by end of October.

**Expected performance**

Students are expected to be familiar with computer programs for structural analysis (e.g. SAP 2000 and/or ANSYS). Students shall also get familiar with engineering-programming environments such as MATLAB, MathCad and Excel. Examples in these programs will be used. It is the duty of the student to get familiar with these programs. Feel free to ask the instructor if you have questions in these programs.

**Grading**

Component	% Final Grade
Assignments	20
Mid Term 1	15
Mid Term 2	15
Course Project	20
Final Exam	30

**Other information**

All information will usually be posted on the course website UNM Learn

**CE 424/524 Assignments (assignment due date appears on assignment page)**

#	Assignments	%
1	Design Philosophies: LRFD/ASD	10%
2	Tension Members	15%
3	Connections	15%
4	Compression members	15%
5	Beams & Beam Column	15%
6	Composite construction	15%
7	Plate girders	15%

**CE 424/524 Lectures: Tentative Schedule**

<b>Lecture #</b>	<b>Date</b>	<b>Topic</b>
1	August 19	Chapter 1: Introduction
2	August 21	Chapter 2: Design Philosophies: LRFD/ASD
3	August 26	Chapter 2: Design Philosophies: LRFD/ASD
4	September 28	Chapter 2: Design Philosophies: LRFD/ASD
5	September 2	Chapter 3: Tension members
6	September 4	Chapter 3: Tension members
7	September 9	Chapter 3: Tension members
8	September 11	Chapter 4: Connections
9	September 16	Chapter 4: Connections
10	September 18	Chapter 4: Connections
11	September 23	Chapter 4: Connections
---	<b>September 25</b>	<b>FIRST MID-TERM (15 % of Total Grade)</b>
12	September 30	Chapter 5: Compression members
13	October 2	Chapter 5: Compression members
14	October 7	Chapter 5: Compression members
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15	October 14	Chapter 6: Beams
16	October 16	Chapter 6: Beams
17	October 21	Chapter 6: Beams
18	October 23	Chapter 6: Beams
---	<b>October 28</b>	<b>SECOND MID-TERM (15 % of Total Grade)</b>
19	October 30	Chapter 7: Beam-column
20	November 4	Chapter 7: Beam-column
21	November 6	Chapter 7: Beam-column
22	November 11	Chapter 8: Composite construction
23	November 13	Chapter 8: Composite construction
24	November 18	Chapter 8: Composite construction
25	November 20	Chapter 9: Plate girders
26	November 25	Chapter 9: Plate girders
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27	December 2	Chapter 9: Plate girders
---	<b>December 4</b>	<b>Project Presentations</b>
---	<b>December 9</b>	<b>FINAL EXAM 2:00 to 4:00 CENT 1026</b>