Louisiana State University
College of Engineering
Dept. of Civil & Environ. Eng.

CE 3415 STRUCTRL ANALYSIS I (3 credits)
Course Outline

Instructor: Dr. Aly Mousaad Aly
Office: 3513D Patrick F. Taylor Hall
Phone: 225-578-6654
Email: aly@LSU.edu
Office Hours: Tuesday & Thursday 3:00PM – 4:00PM

Semester: Spring 2014

Class Hours: Tuesday & Thursday 1:30PM – 3:00PM
Patrick F. Taylor Hall 1112

Credits: 3 hours (in class)
6 hours (out of class: reading and homework)

Prerequisites: CE 3400 Mechanics of Materials and MATH2065 Elementary Differential Equations

Description: The course topics include analysis of statically determinate structures such as beams, frames, trusses and arches for the effects of dead, live, moving and wind loads.

Objectives: The main objective of this course is to provide students with skills necessary to analyze statically determinate structures using traditional qualitative and quantitative methods as well as modern computational methods. After completing this course, students will be able to:

• Use structural analysis techniques of determinate structures;
• Perform both quantitative and qualitative analysis on trusses;
• Determine load, axial force, shear, and moment diagrams for beam and frame structures;
• Compute deflections of trusses, beams and frames;
• Determine influence diagrams and use these diagrams to develop controlling load cases;
• Use typical structural analysis software and critically evaluate the obtained results.


**Grading:** Assignment of final grades will be accumulated as follows:
- Homework and Quizzes (30 %)
- Two Partial Tests (40 %)
- Final Exam (30 %)
All examinations are closed book.

**Grading Scale:** The total grade is assigned as follows:
- A 90 – 100%
- B 80 – 89%
- C 70 – 79%
- D 60 – 69%
- F below 60%

**Policy** Students are responsible for attending classes and exams. All students should respect the right of others to have an equitable opportunity to learn and honestly demonstrate the quality of their learning. All students are deemed by the university to understand that if they are found responsible for academic misconduct, they will be subject to the academic misconduct procedures and sanctions, as outlined in the Code of Student Conduct.
**Tentative Schedule:**

1. **Classes**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Classes</th>
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<tbody>
<tr>
<td>Introduction, loads, supports, equilibrium, reactions,</td>
<td>6</td>
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<tr>
<td>stability and determinacy</td>
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<tr>
<td>Trusses</td>
<td>2</td>
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<tr>
<td>Review and test preparation</td>
<td>1</td>
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<tr>
<td>Partial test I</td>
<td>1</td>
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<tr>
<td>Shear and moment diagrams</td>
<td>2.5</td>
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<tr>
<td>Analysis of statically determinate frames</td>
<td>2.5</td>
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<tr>
<td>Deflections</td>
<td>3</td>
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<tr>
<td>Review and test preparation</td>
<td>1</td>
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<tr>
<td>Partial test II</td>
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<tr>
<td>Virtual work</td>
<td>3</td>
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<tr>
<td>Influence diagrams</td>
<td>2</td>
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<tr>
<td>Introduction to indeterminate structures</td>
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<tr>
<td>Review and test preparation</td>
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2. **Examination**
   a. Partial Test I: Will be announced one week in advance
   b. Partial Test II: Will be announced one week in advance
   c. Final: Wednesday, May 7\textsuperscript{th}, 2014 (12:30PM – 2:30PM)