

<b>COURSE TITLE BLACKBOARD SITE</b>	Advanced Mechanics of Materials Spring 2011 – <a href="http://my.ltu.edu">http://my.ltu.edu</a> and select CRN 3792
<b>INSTRUCTOR</b>	Dr. A.K. Khosrovaneh Adjunct Professor – Mechanical Engineering Department Primary email address: akhosrova@ltu.edu Office hours: Regular office hour will be held during the semester. Exact time and day will be provided after the first week of the class. Phone: 586-907-5726
<b>SCHEDULE</b>	January 10, 2010 – May 07, 2010  See <a href="http://www.ltu.edu/registrars_office/calendar_final_exam.index.asp">http://www.ltu.edu/registrars_office/calendar_final_exam.index.asp</a> for LTU academic calendar information.
<b>LEVEL/ HOURS PREREQUISITE</b>	Graduate or Undergraduate Degree / 3 credit hours Admission / prerequisite requirements: EME 3013 Mechanics of Materials
<b>REQUIRED TEXT</b>  (See Blackboard for additional resources)	Ansel C. Ugural, Saul K. Fenster Advanced Strength and Applied Elasticity Fourth Edition, Prentice Hall, ISBN 0-13-047392-8  Available for online purchase through LTU Bookstore at: <a href="http://lawrence-tech1.bkstore.com/bkstore/TextbookSelection.do?st=489">http://lawrence-tech1.bkstore.com/bkstore/TextbookSelection.do?st=489</a>
<b>ADDITIONAL RESOURCES</b>	LTU Online student resources: <a href="http://www.ltu.edu/ltuonline/">http://www.ltu.edu/ltuonline/</a>
<b>TECHNICAL SUPPORT</b>	Technical support for using Blackboard is provided by the Helpdesk. Visit <a href="http://www.ltu.edu/ehelp">www.ltu.edu/ehelp</a> or 248.204.2330 or <a href="mailto:helpdesk@ltu.edu">helpdesk@ltu.edu</a>

## COURSE SCHEDULE FOR TRADITIONAL SEMESTER COURSES

This fully online course begins with a partial week online course orientation period to familiarize yourself with the online learning environment and to meet online or via the phone with your instructor. Each subsequent week starts on a Monday and ends on a Sunday.

Dates	Modules	Topics / Readings	Assignments Due
Prior to Semester Start and Jan 10 – Jan 12	Module 0	Overview of textbook Online Learning Orientation Course Orientation and group formation	Course orientation Instructor conversation Individual pre-assessment
Week of Jan 10 – Jan 16	Module 1.1 Module 1.1-Example Module 1.2 Module 1.2 Example	Chapter 1 – Analysis of stress Read sections 1.1 through 1.11	Problems 1.7,1.8,1.9,1.19
Week of Jan 17 – Jan 23	Module_HW1_solution Module 1.3 Module1.3-Example	Chapter 1– Analysis of stress Read section 1.11-1.12	Problems 1.21,1.23,1.32
Week of Jan 24 –Jan 30	Module_HW2_solution Module1.4 Module1.4-Example	Chapter 1 – Analysis of Stress Read sections 1.12-1.16	Problems 1.42,1.49, 1.60
Week of Jan 31- Feb 6	Module_HW3_solution Module2.1 Module2.2 Module2.2 Example	Chapter 2– Strain and Stress-Strain Relations	Problems 2.3,2.4,2.25,2.26,2.29,2.30,2.37
Week of Feb 7 –Feb 13	Module_HW4_solution Quiz No. 1 Module3.1 Module3.1-Example	Chapter 3 – Two Dimensional Problems in Elasticity Read sections 3.1-3.3	
Week of Feb 14 – Feb 20	Module3.2 Module3.2-Example Module 3.3 Module3.3_Example	Chapter 3 – Two Dimensional Problems in Elasticity Read sections 3.4-3.10	Problems 3.5,3.7,3.8,3.14,3.17,3.19
Week of Feb 21- Feb 27	Module_HW5_soulution Module3.4 Module3.5	Chapter 3 – Two Dimensional Problems in Elasticity Read section 3.13 Chapter 5 – Bending of Beams – Read section 5.13-5.14	Problem 3.25,3.43,3.46
Week of Feb 28- Mar 6	Module_HW6_solution Module 3.6	Chapter 3 – Two Dimensional Problems in Elasticity Read section 3.11	

Dates	Modules	Topics / Readings	Assignments Due
Week of Mar 6- Mar 13	Mid- semester Break – No classes		
Week of Mar14- Mar 20	Exam No.1 Module 4.1 Module4.1-Example	Chapter 4 – Failure Criteria Read sections 4.1-4.12	Problems 4.3,4.4,4.11,,4.13,4.15,4.19
Week of Mar 21- Mar27	Module_HW7_solution Module5.1 Module5.1-Examples	Chapter 8 – Axisymmetrically Loaded Members Read sections 8.1-8.5	Problems 8.2,8.4,8.6,8.8,8.13
Week of Mar 28-Apr 3	Module_HW8_solution Module6.1 Module6.1-Example Module6.2 Module6.3	Chapter 10 – Energy Methods Read sections 10.1-10.8	Problems 10.1,10.2,10.3,10.7,10.10
Week of Apr 4-Apr 10	Module_HW9_solution Quiz No. 2 Module6.4 Module6.5	Chapter 10 – Energy Methods Read sections 10.9-10.13	Problem 10.32
Week of Apr 11-Apr 18	Module_HW10_solution Exam No. 2 Module7.1 Module7.2 Module7.3 Module 7-Example	Chapter 9 – Beams on Elastic Foundation Read sections 9.1-9.9	Problems 9.1,9.2,9.5
Week of Apr 18-Apr 24	Module_HW11_solution Module8.1	Chapter 12- Plastic Behavior of Materials Read sections 12.1-12.7	Problems 12.1, 12.8,12.12
Week of Apr 25-May 1	Module_HW12_solution Module9_Review		
Week of May 2-May 7	Final Exam		

## STUDENT EVALUATION

Exams/Assignments	Points
Exam 1	25
Exam 2	25
Final Exam	30
HW, Quizzes and Online Participation	20
Total Points	100

Class Points	Letter Grade
95 and above	A
90 – 94	A-
87 – 89	B+
83 – 86	B
80 – 82	B-
77 – 79	C+
73 – 76	C
70 – 72	C-
61 – 70	D (Undergrad Only)
60 and below	E

*Note: Grades lower than a "B" fall below the LTU graduate standard*

## EDUCATIONAL GOALS

*The objective of this course is to emphasis on all aspects of theory and application which prepare a student for more advanced study or for professional practice in design and analysis of mechanics of materials. Emphasis will be given to analysis of the stress, stress-strain relationship, and problems in elasticity, energy methods, and plastic behavior of materials.*

## STUDENT LEARNING OBJECTIVES / OUTCOMES

*The objective of this course is to emphasis on those aspects of theory and applications which prepare a student for more advanced study or for professional practice in design and analysis. These objectives will be evaluated through assignments, quizzes, examinations, and other methods throughout the course*

## PREREQUISITE SKILLS

EME 3013, Mechanics of Materials

## INSTRUCTIONAL METHODS AND COURSE ORGANIZATION

All the lecture materials supported by example problems.

**Blackboard Learning Environment** – Blackboard at my.ltu.edu contains the syllabus, all assignments, reading materials, streaming videos, narrated PowerPoint mini-lectures, podcasts, written lecture notes, chapter quizzes, links to Web resources, and discussion forums. You will submit all assignments via Blackboard, and are expected to participate regularly in discussion topics. Please take time to familiarize yourself with the organization of the Blackboard site. You will want to check the site frequently for announcements reminding you of new resources and upcoming assignments.

**Student/Instructor Conversations** – Students keep in touch with the instructor via e-mail messages, telephone conference calls, and IM conversations.

**Self-Assessments** – N/A

**Required Reading** – Textbook chapters should be read according to the schedule outlined in the syllabus. Chapters will be discussed online.

**Publisher Web Site** – N/A

**Assignments** – HW assignments are provided in this syllabus

## CLASS POLICIES AND EXPECTATIONS

*I plan to offer you a valuable learning experience, and expect us to work together to achieve this goal. Here are some general expectations regarding this course:*

Each student has a LTU email account. If you wish to use a different email address for this course, please **change your email address in Blackboard under “Blackboard Tools”, then “Personal Information”** and send an email to me so I can store your address in my email directory.

Readings, discussion forum participation, and HW assignments must be completed according to the class schedule. It is important to contact me as needed to discuss personal needs regarding course requirements and assignments.

It is essential that all students actively contribute to the course objectives through their experiences and working knowledge.

All assignments must be submitted on schedule, via Blackboard, and using Microsoft Office compatible software. If you need to submit an assignment via email, contact the instructor in advance.

Assignments must be completed to an adequate standard to obtain a passing grade. Requirements for each assignment are detailed in this syllabus.

Be prepared to log into Blackboard at least once each day. Please focus your online correspondence within the appropriate Blackboard discussion forums so that your colleagues can learn from you.

At midterm and at the end of the course, you will be invited to participate in a University evaluation of this course. Your feedback is important to the University, to LTU Online, and to me as an instructor, and I encourage you to participate in the evaluation process.

It is important for you as students to know what to expect from me as your instructor:

- I will be available to you via e-mail and phone, and will promptly reply to your messages.
- I will be available to you for face-to-face appointments as requested.
- I will maintain the Blackboard web site with current materials, and will resolve any content-related problems promptly as they are reported to me.
- I will send out a weekly e-mail update to all class members to guide upcoming work and remind you of assignment due dates.
- I will return all assignments to you promptly, and will include individualized comments and suggestions with each assignment.
- I will hold our personal written or verbal communications in confidence. I will not post any of your assignments for viewing by the class without requesting your approval in advance.
- I will treat all members of the class fairly, and will do my best to accommodate individual learning styles and special needs.
- If any of these points need clarification, or when special circumstances arise that require my assistance, please contact me so that we can discuss the matter personally.

## **PRACTICAL GUIDELINES FOR CLASS LOAD EXPECTATIONS**

A three-credit course generally requires at least nine hours per week of time commitment. Here are some practical guidelines to help schedule your time commitments for this online course:

- A 14-week semester (the summer semester is compressed into 10 weeks) would require at least 126 hours of time commitment to successfully complete all readings, activities, assignments, and texts as described in this syllabus.
- You should reserve at least 6 hours per week to read the required textbook chapters and resources, participate in online discussions, review presentation materials, and work through online quizzes. This effort will total at least 84 hours over the course of the semester.
- You should organize your remaining time to roughly correspond with the point value of each major assignment. This means that you should plan to spend at least:
  - 8-9 hours preparing your case study review;
  - 24-40 hours working with your group on the three parts of your semester-long project;
  - 8-9 hours working on the various components of your reflective consolidation (final exam).

These guidelines may not reflect the actual amount of outside time that you – as a unique individual with your own learning style – will need to complete the course requirements. The number of hours each week will vary based on assignment due dates, so please plan ahead to insure that you schedule your academic, work, and personal time effectively. The following graphic can be used to guide you in planning your weekly course work to remain on schedule:

Online Learning Schedule						
MON	TUES	WED	THU	FRI	SAT	SUN
Read Textbook Chapter						
		Take Online Chapter Quiz				
		Participate in Weekly Blackboard Discussions				
Individual and Group Project Work - Coordinate With Colleagues						
Instructor Communication - As Needed						

## ASSIGNMENT DETAILS

Course assignments and evaluation criteria are detailed below. Please review these requirements carefully. See the section Academic Resources / Assessment Guidelines for information about assessment of written and oral presentations.

Details for all assignments are shown below. All assignments are submitted using the Blackboard "Assignments" or "SafeAssign" function.

### 12 HW Assignment sets, 2 Quizzes and Online Participation (20 Points)

Each student is expected to actively participate in online activities. Class participation is evaluated to a maximum of 5 points based on actively participating in Blackboard discussion forums, responding to questions posted by the instructor, and interacting positively with other students. HW assignments have 5 points and 2 quizzes have 10 points (5 for each quiz).

### Quizzes and Exams (80 points)

2 Exams @25 pts each, and final exam 30 pts.

Each student is expected to actively participate in online activities.

## SYLLABUS ADDENDA

Please see the LTU Online "Current Students" web site <http://www.ltu.edu/ltuonline/> for comprehensive information about Lawrence Tech's academic services, library services, student services, and academic integrity standards. The content of this web site is explicitly included as syllabus requirements.

The LTU Online "Current Students" web site also includes grading rubrics used by your instructor to evaluate written assignments, discussion forum participation, and group assignments. Please note that the SafeAssign anti-plagiarism product will be used for written assignments submitted for this course. Please see the instructions included on the LTU Online web site regarding the use of the SafeAssign product.