

FALL 2010 COURSE SYLLABUS  
ME 336: MATERIALS PROCESSING #18040

**Instructor:** Eric M. Taleff, Professor, Department of Mechanical Engineering

Office: ETC 9.170

Tel: 471-5378

Email: [taleff@mail.utexas.edu](mailto:taleff@mail.utexas.edu)

Web: <http://uhcs.me.utexas.edu/>

**Lectures:** MWF 8:00–8:50 AM in ETC 2.132

**Office Hours:** Monday: 1:00–2:00 PM

Wednesday: 9:00–10:00 AM and 1:00–2:00 PM

**Required Textbook:** John A. Schey. *Introduction to Manufacturing Processes*, Third Edition. (McGraw-Hill Higher Education: Boston, MA) 2000.

**Course Description:** Topics covered include casting, joining, forming, machining, effects of processing on materials properties, materials selection, and manufacturing process selection.

**Prerequisites:** Mechanical Engineering 311 and 111L and Engineering Mechanics 319, with a grade of at least C in each, and admission to an appropriate major sequence in engineering are required.

**Corequisites:** Students taking Mechanical Engineering 336 are required to be concurrently enrolled in the companion laboratory course, Mechanical Engineering 136L.

**Grading Policy:** Course grades will be calculated using scores on two in-class exams, a final exam and homeworks/quizzes/class participation, with weights given in the table below on the left. Letter grades will be assigned based on average course scores, as given in the table below on the right.

Item	Weight	Grade	Minimum Score
Exam I	30%	A	90
Exam II	30%	B	80
Final Exam	30%	C	70
HW/Quiz/Class	10%	D	60

**Important Dates:** Make note of the following important dates.

Fri., Sep. 10th — Twelfth class day.

Sat., Dec. 11th — **Final Exam**, 7:00–10:00 PM in location assigned by U.T.

**Homework:** Homework is due at the *beginning* of class, typically one week following its assignment. Any homework not turned in to the instructor by the beginning of class (8:00 AM) is late. Late homework is not accepted and receives no credit! When academic conflicts arise, a written notice must be given to the instructor at least two weeks *in advance* in order to schedule an alternative due date for homework assignments. In case of personal emergency, the instructor should be notified as soon as is convenient to discuss what arrangements can be made. Solutions to homeworks will be posted as described by the instructor during lecture.

**Exams:** All exams, except the final exam, will be conducted during normal lecture periods in the assigned classroom on dates specified by the instructor. The final exam will be conducted *only* at the time and location scheduled by the University. Students are allowed to prepare one 3" x 5" index card, with any notes desired on its front and back, for use during each exam. Each index card must be handed in with the exam for which it is used. Cards larger than the specified size will not be allowed. The only other items allowed for use during exams are calculators, pencils, pens, straight edges and drafting triangles.

**Attendance:** Attendance and participation in lecture are mandatory and will be considered in grading. Students are expected to keep up with the assigned reading and be prepared to answer questions on these readings during lecture. The instructor must be given written notice a minimum of two weeks in advance for any absences other than emergencies. Refer to the General Information Catalog, available on-line at

<http://www.utexas.edu/student/registrar/catalogs/>

for University policy on attendance. If absence is required because of an emergency, such as personal illness or severe illness of a family member, the instructor should be notified at the earliest convenient opportunity.

**Regrades:** Errors in grading should be noted *in writing* and provided to the instructor with the graded item for review *no later than one week* after the item is made available to the student. *No regrades will be accepted without a written description* of the grading error, and regrades will only be conducted *in private* by the instructor.

**Honesty:** Any academic dishonesty will be dealt with according to University policy, including the stiffest penalty which the instructor may assess, usually a failing grade in the course. Dishonesty damages the reputation of the University and its students and will not be tolerated. See the University Honor Code on the U.T. web pages for additional information.

**Evaluations:** The course and instructor will be evaluated using standard evaluation forms at the end of the course. Students are encouraged to provide continuous feedback to the instructor throughout the course. The most effective way to do this is by visiting the instructor during office hours.

#### **Other Items of Importance:**

- The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259.
- By UT Austin policy, you must notify the instructor at least fourteen days prior to any absence for observance of a religious holy day.
- Web-based, password-protected class sites are associated with all academic courses taught at the University. Syllabi, handouts, assignments and other resources are types of information that may be available within these sites. Site activities could include exchanging e-mail, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1.

## Course Schedule and Assigned Reading

Week	Topics	Chapters
1: 8/25	Introduction, material properties	1–5
8/27	Materials selection methodology	1–5
2: 8/30	Metallurgy of casting	6
9/1	Metallurgy of casting	6
9/3	Industrial casting processes	7
3: 9/8	† Industrial casting processes	7
9/10	† Casting defects	6,7
4: 9/13	† Metallurgy of welds	18
9/15	Metallurgy of welds and weld defects	18
9/17	Industrial welding processes	18
5: 9/20	Brazing and soldering	18
9/22	Brazing, soldering and adhesive bonding	18
9/24	Plasticity theory and friction	8, notes
6: 9/27	Plasticity theory and friction	8, notes
9/29	Forging	9
10/1	<i>Exam I</i>	
7: 10/4	Rolling	9
10/6	Extrusion, and drawing	9
10/8	Sheet metalworking	10
8: 10/11	Sheet metalworking	10
10/13	Orthogonal cutting operations	16
10/15	Orthogonal cutting operations	16
9: 10/18	† <i>X-Planes</i> Case study I	video
10/20	† <i>X-Planes</i> Case study II	video
10/22	Oblique and realistic cutting operations	16
10: 10/25	Machinability, friction, and wear	16
10/27	Industrial machining processes	16
10/29	Industrial machining processes	16
11: 11/1	Non-traditional machining processes	17
11/3	Mechanical behavior of polymers	13
11/5	<i>Exam II</i>	
12: 11/8	Mechanical behavior of polymers	13
11/10	Polymer processing and manufacturing technologies	14
11/12	Composite materials	15
13: 11/15	Ceramics processing	12
11/17	Ceramics processing	12
11/19	Powder metallurgy	11
14: 11/22	Corrosion and environmental effects on materials	notes
11/24	Surface modification and coatings	19
15: 1/29	Microelectronics manufacturing	19
12/1	Microelectronics manufacturing	20
12/3	Course Instructor Surveys	
17: 12/11	<i>Final Exam: Saturday, December 11th, 7:00–10:00 PM</i>	

† *Guest Lecturer*