

Course Syllabus

Course Information

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| <i>Course Number/Section</i> | MECH 3351 |
| <i>Course Title</i> | Design of Mechanical Systems |
| <i>Term</i> | Spring 2013 |
| <i>Days & Times</i> | Tuesday and Thursday: 1:00 - 2:15 PM |

Professor Contact Information

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| <i>Professor</i> | Dong Qian |
| <i>Office Phone</i> | 972-883-4890 |
| <i>Email Address</i> | dong.qian@utdallas.edu |
| <i>Office Location</i> | ECSN 3.206 |
| <i>Office Hours</i> | Tuesday and Thursday 2:15 - 3:15 PM |
| <i>Other Information</i> | Please call or email for appointments if you can not meet during office hour |

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre or Co-requisite: MECH 3350.

Course Description

This course will focus on the design and analysis tools for mechanical systems. Specific design criteria based on reliability and functionality will be introduced. Students will also develop skills of communication and coordination through team projects.

Student Learning Objectives/Outcomes

1. Learn working principles of mechanical components and systems
2. Learn how to design important mechanical components such as shaft and shaft accessories, bearings, gears and others
3. Develop the ability:
 - a. to find solutions to open-ended problems by applying various knowledge acquired through previous engineering courses
 - b. to interpret a design problem to model it into a solvable engineering problem
 - c. to understand and synthesize engineering analysis results
4. Experience a team-oriented long-term design project

Required Textbooks and Materials

Required Texts

Shigley's Mechanical Engineering Design, 9th ed., McGraw-Hill by Budynas and Nisbett

Academic Calendar

The following topics will be covered. The timeline is approximate and subjected to change based on the actual schedule

- Engineering Materials (1 week)
- Load and Stress Analysis (1 week)
- Deflection and Stiffness (1 weeks)
- Failure due to Static Loading (2.5 weeks)
- Fatigue Failure due to Variable Loading (2.5 weeks)
- Stochastic Design (1.5 week)
- Design of Shafts (1.5 week)

- Design of Bearing and Shaft-bearing Systems (1.5 week)
- Gear and Gear systems (2.5 weeks)
- Mechanical Joints (1 week)

There will be homework every one to two weeks. Homeworks are typically due one week after assigned. They are collected at the beginning of the class.

If you have to be absent on the due date, you need to place the submission in the collection folder in front of my office before the due date.

Final exam is scheduled May 9th 2013 from 11AM to 1PM at ECSS 2.311. This will be a comprehensive exam, but the material covered after the midterm will be more emphasized.

Academic Integrity

Academic integrity is a serious matter. Students can discuss about the assignments and projects. However, direct copy from one to another or from solution manual will lead to a zero grade for all the party involved. Any violation of the academic conduct policy will be dealt with according to the University Policy.

Grading Policy

Course Credit will be temporarily distributed as follows: Midterm (20%), Final exam (30%), Homework/Quizzes (30%), Team project (20%)

Grade appeals shall be submitted within *one week* of the return date for the assignment or exams and *must be submitted in writing*. The reason for requesting a regrade must be clearly stated. Requests submitted later than one week after the return date or not in writing will not be processed.

Course Policies

Make-up exams

No make-up exams will be given with the only exception of a serious emergency. Advanced notice must be given in such a case.

Late Work

Late work will not be graded.

Class Attendance

Students are expected to attend each class. Missing class or be late for class on a frequent base (more than 3) will receive deduction of points.

Cell phone/electronic device usage

Cell phone and any other type of electronic devices for communication must be turned off during the class. Computer and tablet can ONLY be used for the purpose of taking notes.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.