ME 356	Machine Design Analysis	AQ 01	Kumar		
	General Course Information				
Instructor	Prof. Vipin Kumar MEB 312 <u>vkumar@u.washington.edu</u> 206-543-5535				
Office hours	MWF 9 to 10.30 or by appointment	MWF 9 to 10.30 or by appointment			
Lecture	MWF 11:30 – 12:20, Loew Hal	MWF 11:30 – 12:20, Loew Hall 201			
Lab / Recitation	Conducted by TA, Th. 9:30 – 12:20, MEB 238				
ТА	Nick Silverman nls2@u.washington.edu	Nick Silverman nls2@u.washington.edu			
TA Office Hours	M F 1 – 2; Tu 1-3 in MEB 236				
Text	Mechanical Engineering Design by Shigley and Mischke, McGraw Hill, 6 th Ed., 2001.				
Homework	Assigned weekly on Wednesdays.				
Grading	Homework15%Lab activities15%Midterm 120%Midterm 220%Final Exam30%				

Lab/Recitation The lab time will be used in a flexible manner. Activities will include working on design examples more involved than can be covered in the lecture. Some hand-on exercises are planned, and some short projects may be undertaken. The lab activity will often involve students working as a team. The lab grade will primarily depend on student participation, so **attendance is essential**.

Examinations	Midterm 1	Friday, Oct. 19
	Midterm 2	Friday, Nov. 9
	Final Exam	Thursday, Dec. 13, 9:30 – 11:20, in MEB 238

Course Objectives This course will introduce the student to the design process as applied to the design of mechanical elements and systems. The course attempts to bring together a large amount of knowledge and information from previous courses. The first half of the course can be thought of as 'theory': we will briefly review aspects of strength of materials, material properties, stress concentration factors, then look at how to prevent failure in design for static loads and finally for fatigue loads. In the second half of the course we will apply these analytical tools to the design of a variety of machine components such as bolts, power screws, welds, springs, gears, etc.

Tentative course outline (Any changes will be announced in class.)

Week	Торіс
1	Review of principles of mechanics
2	Design to prevent failure: static loads
3	Design to prevent failure: static loads, cont'd.
4	Design to prevent failure: time-varying loads
5	Design to prevent failure: time-varying loads, cont'd
6	Design of Mechanical Elements: power screws
7	Design of Mechanical Elements: bolts, bolted joints
8	Design of Mechanical Elements: welded joints
9	Design of Mechanical Elements: helical springs
10	Design of Mechanical Elements: bearings and gears
11	Course review and final exam.