M E 325 – Kinematics and Machine Design
Pre-requisites: Engr 170, E M 306, Stat 305

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Grading:

3 Exams	**20 % Each**	**60%**
4 Group Assignments	**5 % Each**	**20%**
1 Final Exam	**20% Each**	**20%**

Text: ***Machine Design, An Integrated Approach, 2nd Ed.*, Norton**

Date	Week	Topic	Reading	Assignment
8/27	1	What is Design?	1 - 8	
8/28		The Design Process	8 - 18	
8/29		Factor of Safety	18 - 28	
8/31		**Problems Session**		Designing a compon.
9/4	2	Materials and Processes	31 - 44	
9/5		Optimization	Supplement	
9/7		Optimization	Supplement	Design Problem
9/10	3	Optimization	Supplement	
9/11		FEA	Supplement	
9/12		FEA	Supplement	
9/14		**Problems Session**		Optimization
9/17	4	FEA	Supplement	
9/18		FEA	Supplement	
9/19		Stress	143 - 150	
9/21		**Problems Session**		FEA Problem
9/24	5 Professor Flugrad will substitute	Stress	156 - 162 183 - 193	
9/25		Mohr's Circle	151 - 156	
9/26		Static Failure - MNST/MSST		
9/28		**Problem Session**		Failure Analysis
10/1	6	Static Failure-LEFM	193 - 200 265 - 266	
10/2		Static Failure-VM	253 - 262	
10/3		Review	263 - 264	
10/4 (Thursday)		**Exam 1**		
10/8	7	Brittle Fracture	269 - 274	
10/9		Fatigue Failure	317 - 340	
10/10		Fatigue Failure	346 - 357	
10/12		**Problems Session**		Failure Analysis

10/15	8	Fatigue Failure	361 - 374	
10/16		Fatigue Failure	381 - 408	
10/17		Shaft Design	539 - 546	
10/19		**Problems Session**		Part Analysis-Case Study
10/22	9	Shaft Design	546 - 558	
10/23		Shaft Design		
10/24		Review		
10/25(Thursday)		**Exam 2**		
10/29	10	Bearings	653 - 661	
10/30		Bearings		
10/31		Bearings		
11/2		**Problems Session**		Analysis of Fatigue Loading
11/5	11	Gears - Kinematics	Supplement	
11/6		Gears - Design	Supplement	
11/7		Gears - Design	Supplement	
11/9		**Problems Session**		Gear Train Analysis
11/12	12	Mechanisms	Supplement	
11/13		Mechanisms- Positions & Velocities	Supplement	
11/14		Mechanisms - Accelerations	Supplement	
11/16		**Problems Session**		Analysis of a 4-bar
11/26	13	Mechanisms - Synthesis	Supplement	
11/27		Mechanism Synthesis	Supplement	
11/28		Review		
11/29 (Thursday)		**Exam 3**		
12/3	14	Cam Analysis	Supplement	
12/4		Cam Analysis	Supplement	
12/5		Cam Design	Supplement	
12/7		**Problems Session**		Analysis of a cam
12/10	15	Cam Design		
12/11				
12/12				
12/14		**Course Review**		