

Advanced Mechanics of Materials
 Course Schedule

No.	Data	Topics	Reading	HW
1	1/11 (M)	Introduction	Syllabus	
2	1/13 (W)	Vectors and Tensors	Chap1 (H)	
3	1/18 (M)	NO CLASS (Martin Luther King Day)		
4	1/20 (W)	Vectors and Tensors	Chap1 (H)	HW 1
5	1/25 (M)	Vectors and Tensors	Chap1 (H)	
6	1/27 (W)	Vectors and Tensors	Chap1 (H)	
7	2/1 (M)	Vector and Tensor Calculus	Chap1 (H)	
8	2/3 (W)	Integral Theorems	Chap1 (H)	HW 2
9	2/8 (M)	Review		
10	2/10 (W)	Review		
11	2/15 (M)	EXAM I		
12	2/17 (W)	The Geometry of Deformation and Strains	Chap2 (H)	
13	2/22 (M)	Deformation Gradient	Chap2 (H)	
14	2/24 (W)	Change of Volume and Area	Chap2 (H)	
15	3/1 (M)	Theory of Stress Tensor	Chap3 (H), Chap2 (B)	HW 3
16	3/3 (W)	Differential Equation of Equilibrium	Chap3 (H), Chap2 (B)	
17	3/8 (M)	Linear Stress and Strain Relation	Chap4 (H), Chap3 (B)	
18	3/10 (W)	Elastic Constitutive Theory	Chap4 (H), Chap3 (B)	
19	3/15(M)	NO CLASS (SPRING BREAK)		
20	3/17 (W)	NO CLASS (SPRING BREAK)		
21	3/22 (M)	Inelastic Material Behavior	Chap 4 (B)	HW4
22	3/24 (W)	Yield Criteria: General Concept	Chap 4 (B)	
23	3/29 (M)	Yield of Ductile Metals	Chap 4 (B)	
24	3/31 (W)	Review		
25	4/5(M)	EXAM II		
26	4/7(W)	Boundary Value Problems in Elasticity	Chap 5 (H)	
27	4/12 (M)	Principle of Virtual Work and Variational Theorems	Chap 5 (H)	HW5
28	4/14 (W)	Ritz Approximation for BVP	Chap 6 (H)	
29	4/19 (M)	Finite Element Approximation for BVP	Chap 6 (H)	
30	4/21 (W)	Linear Theory of Beam	Chap 7 (H)	
31	4/26 (M)	Principal Virtual Work for Beams	Chap 7 (H)	HW6
32	4/28 (W)	Review		
33		Final – TBA		

(H): Hjelmstad Book and (B) Boresi Book

Course 4300:554:801
Advanced Mechanics of Materials
Course Syllabus

Pre-requisites

The prerequisites for Course 4300:554:801 are differential equations, vector calculus, and strength of materials. This course is prerequisite for Courses 4300:609:801 (Finite Element Analysis I and II) and provides a solid introduction to continuum mechanics, structural mechanics and numerical methods.

Instructor

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General Information

Class hour: MW 5:10 PM ~ 6:25 PM
Classroom: Schrank S 222

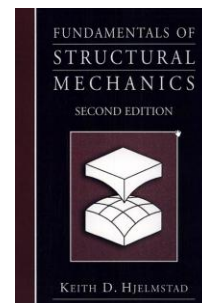
Class web site: Springboard <https://springboard.uakron.edu/index.asp>

Classnotes, exams, homework solutions and handouts will be posted in Springboard. You can also check your updated final grades.

Office Hour: M 2:30 PM ~ 4:00 PM or email to make an appointment
Office: ASEC 209F

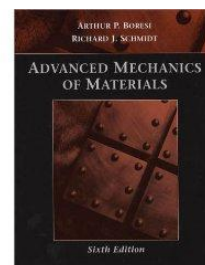
Textbook

Keith D. Hjelmstad. *Fundamentals of Structural Mechanics* 2nd Edition
Springer 2004. A booklet of solved problems will be available.



References

Boresi, A.P. and Schmidt, R.J. *Advanced mechanics of materials*, 6th Edition, Wiley,



Homework (20%)
Exam I and II (50%)
Final (30%)

Grading

90 and above: A
87~89: A-
85~86: B+
80~84: B
75~79: C+
70~74: C
65~69: D+
60~64: D
Below 60: F