

NEW COURSE PROPOSAL

GRADUATE Level I _____ Level II _____

UNDERGRADUATE X

SCHOOL, DEPARTMENT, COLLEGE: College of Engineering

DATE: 27 Sept 2004

1. Proposed Course Number: COE3001 (Verify with Registrar's Office)	2. Hours: LECTURE <u> 3 </u> LAB/RECITATION <u> 0 </u> SEMESTER CREDIT <u> 3 </u>	
3. Descriptive Title: Mechanics of Deformable Bodies		
4. Recommended Abbreviation for Transcript – (24 characters including spaces): <div style="border: 1px dashed black; padding: 2px; text-align: center; font-family: monospace; font-size: 1.2em;">D E F O R M A B L E B O D I E S</div>		
5. Catalog Description – (25 words or less) Stress and strain analysis applied to beams, vessels, pipes, and combined loading; stress and strain transformations; beam deflection; column buckling		
6. Basis: L/G <u> X </u> P/F Audit		
7. Prerequisites: COE 2001(Statics) Prerequisites with concurrency: (MATH 2403 or MATH 2413 or MATH24X3) Corequisites:		
8. Has the course been taught as a special topic? No If YES, When Enrollment		
9. Is this course equivalent to another course (graduate or undergraduate) taught at Ga. Tech? No If yes, list course number(s):		
10. Are you requesting that this course satisfy: Humanities Social Science		
11. Expected Mode of Presentation:	<i>MODE</i>	<i>% of COURSE</i>
	Lecture	100
	Laboratory Supervised	_____
	Unsupervised	_____
	Discussion	_____
	Seminar	_____
	Independent Study	_____
	Library Work	_____
	Demonstration	_____
Other (Specify)	_____	_____
12. Planned Frequency of Offering:	<i>TERM TO BE OFFERED</i>	<i>EXPECTED ENROLLMENT</i>
	Fall	200
	Spring	200
	Summer	80
13. Probable Instructor(s) – <i>Please mark with an asterisk any non-tenure track individuals.</i> AE, CEE, and ME faculty		
14. Purpose of Course: Relation to other courses, programs and curricula: This course is an introduction to mechanics of materials. The proposed course provides a common course across COE.		
15. Required <u> X </u> Elective		
16. Please attach a topical outline of the course		

COE3001 Mechanics of Deformable Bodies

	<u># of lectures</u>
Introduction/Problem Solving Procedure	1
Stress and Strain	4
Definition of stress and strain	
Stress-strain diagrams	
Elasticity, plasticity and Hooke's Law	
Axial Deformation	5
Deformation of axially loaded members	
Statically indeterminate structures	
Thermal deformation	
Torsion	4
Torsion of circular bars	
Torsion testing	
Power transmission in circular shafts	
Stress and Strain Transformation at a Point	6
Principal stresses	
Maximum shear stress	
Mohr's circle	
Membrane stresses, pressure vessels and pipes	
Principal strains, maximum shear strain	
Shear Force and Bending Moment Diagrams	3
Stresses in Beams	7
Normal stress in beams	
Properties of sections	
Shear stress in beams	
Built-up beams	
Unsymmetric bending	
Principal stresses in beams	
Beam Deflection	7
Curvature and beam deflection equation	
Boundary conditions	
Statically indeterminate beams	
Energy methods	
Combined Stresses	2
Beams under bending and axial loading	
Column Buckling	3
Energy and equilibrium	
Buckling of columns with different boundary conditions	
Eccentric loading and imperfection	
Secant formula	
Exams	3
<hr/> Total	<hr/> 45