



## ENGS 21. Introduction to Engineering

<b>Class Time</b>	MWF 11:15 am - 12:20 pm, Tue 12-12:50 pm (X-hour)
<b>Classroom</b>	Spanos Auditorium, Cummings Hall
<b>Instructors</b>	<a href="#">William Lotko</a> (lead), <a href="#">Peter Robbie</a>
<b>Grade Basis</b>	Project completion, development of a prototype; White paper; 3 written and oral reports – proposal, progress report, final report; Project notebook; class attendance; skill development; peer critiques

Week 1	Defining the Problem	
Monday Mar 30	Course Overview, Objectives and Expectations Introduction to the Engineering Method (Lotko) <b>Due by class time on Wednesday: Complete MBTI and Skill Session questionnaires in Blackboard Assignments</b>	
Tuesday Mar 31 X-Hr 12-12:50p	Use of Matrices for Design Decisions (Lotko)	
Wednesday Apr 1	Segmentation and Design Solutions (Lotko)	Questionnaires due
Thursday Apr 2 5:00-7:00pm	<b>Lab Initiation (attendance required): Thayer School Facilities, Teaching Assistants, Staff Pizza and refreshments</b>	
Friday Apr 3	Patterns of Innovation Engineering for Efficiency (Lotko) <b>Assignment of project groups</b>	What did you learn about the staff?

Week 2	Solution Strategies Involving Teamwork	
Monday Apr 6	Need Finding and Brainstorming (Robbie)	Team Wiki Project Notebook
Tuesday Apr 7 X-Hr 12-12:50p	Search Techniques: Literature, Markets, Patents ( <a href="#">Mark Mounts &amp; Janifer Holt</a> , <a href="#">Feldberg Library</a> )	
Wednesday Apr 8	Needs, Solution Ideas, Project Concepts (class)	
Friday Apr 10	Needs, Solution Ideas, Project Concepts (class)	

Week 3	Project Development	
Monday Apr 13	The White Paper (Lotko)	Add/drop Deadline
Wednesday Apr 15	Models, Mock-ups and 3D Modeling (Robbie)	
Wednesday Apr 15	<b>White Paper - 3 copies due in class</b> (5-pg limit, double spaced, plus appendices) Two bound copies + one 3-hole-punch loose copy	White papers due
Friday Apr 17	Product Design (Robbie)	
Friday Apr 17 5:30-8:00p	Thayer School of Engineering, <a href="#">Annual Engineering Exposition and Open House</a> Tours, exhibits, demonstrations by faculty, students, engineers from local industry Refreshments	Dimensions at Dartmouth

Week 4	Project Proposal	
Monday Apr 20	Elements of a Competitive Proposal The Art of Technical Persuasion Charts: The good, the bad and the ugly (Lotko)	
Tuesday Apr 21	<b>Executive Summary of Proposal due by noon</b> (1-page maximum) <b>Upload to Blackboard Digital Dropbox by the deadline</b>	Executive Summaries to Fairbrothers
Wednesday Apr 22	<b>Written Proposal - 3 copies due by 1 PM in team mailbox in 217 Cummings</b> 10-page limit, double spaced, plus appendices Two bound copies + one 3-hole-punch loose copy	Proposals due
Wednesday Apr 22 TBA	<b>Proposal – Presentation to Review Board</b>	
Friday Apr 24	Project Directions (class)	

Week 5	Design Development	
Monday Apr 27	<b>Mandatory Lecture on Safety at Thayer School</b> ( <a href="#">Chris Levey</a> ) -- unless you have already taken it (e.g., in ENGS 24). Check your status at <a href="http://engineering.dartmouth.edu/safety">engineering.dartmouth.edu/safety</a> . The Shop Safety course does not satisfy this undergraduate safety seminar requirement.	
Wednesday Apr 29	Project Management (Lotko)	
Friday May 1	Intellectual Property and Entrepreneurship ( <a href="#">Gregg Fairbrothers</a> D'76, Director of the <a href="#">DEN</a> )	

<b>Week 6</b>	<b>Informed Design</b>
Monday May 4	Sustainable Design ( <a href="#">Benoit Cushman-Roisin</a> )
Tuesday May 5 X-Hr 12-12:50p	Group Dynamics (ES21 Teaching Assistants)
Wednesday May 6	Statistical Methods in Engineering I ( <a href="#">Dr. Ron</a> )
Friday May 8	Effective Progress Reports (Lotko)

<b>Week 7</b>	<b>Progress Report</b>
Monday May 11	<i>No Class</i>
Monday May 11	<b>Written Progress Report - 3 copies due by noon in team mailbox</b> 15-page limit, double spaced, plus appendices Three bound or stapled copies
Tuesday May 12	<b>Executive Summary of Progress Report due by noon</b> (1-page maximum) <b>Upload to Blackboard Digital Dropbox by the deadline</b>
Wednesday May 13 TBA	<b>Progress Report – Presentation to Review Board</b>
Friday May 15	Introduction to Engineering Economics: Why Cost is not Price (Lotko)

<b>Week 8</b>	<b>Risk, Liability and Economics</b>
Monday May 18	Risk Management and Product Liability ( <a href="#">Gary Mayo</a> , <a href="#">A.B. Gile Inc.</a> )
Monday May 18	<b>Revised Written Progress Report - 3 copies due in class</b> 15-page limit, double spaced, plus appendices Two bound or stapled copies + one 3-hole-punch loose copy
Wednesday May 20	<i>No Class</i>
Friday May 22	The Venture Proposal (Lotko)

Week 9	Ethics and The Startup Venture
Monday May 25	<i>Memorial Day – No Classes</i>
Wednesday May 27	Business Planning and Pitching ( <a href="#">Gregg Fairbrothers</a> D'76, Director of the <a href="#">DEN</a> )
Friday May 29	Ethical Issues in Engineering: A professionals' outlook (Lotko) Questions and Answers on Final Report
Friday May 29	<b>Executive Summary of Final Report due by noon</b> (1-page maximum) <b>Upload to Blackboard Digital Dropbox by the deadline</b>

Week 10	Synthesis and Project Completion
Monday Jun 1 TBA	<b>Final Report and Prototype - Presentation to Review Board</b>
Tuesday Jun 2	<b>Written Final Report - 3 copies due by noon</b> <span style="float: right;">Final reports due</span> 20-page limit, double spaced, plus appendices Two bound + one 3-hole-punch loose copy in team mailbox in Rm 217 Cummings

