Short Course Outline: **New Product Ideation**   Dates: 5 March – 16 April   *version:* 4 March 2013 © Mark R. Cutkosky

Week	Day 1	Day 2	Materials, references	Meetings

1 (5/3)	Course Introduction
	  Intro. to Stanford/IDEO creative engineering design process, tools, activities
	  Deep Dive video (DDV)
	  "needs pull" vs "technology push" and a closer look at schedule.
	  Topic introduction & begin technical background as time permits.
			ME310 & d.school Outline
			Deep Dive Video (mpeg)
			Panasonic Video
			2011-12 ME310 Corning Glass example
			Brainstorming, need-finding slides.	

(7/3)		Team formation Continue topic technical background. & bio-inspired design. Directional adhesion slides (adapt from MRS2012) Demonstrate samples. Brainstorming intro (ref. DDV) Brainstorming session	Need materials: large sheets of paper (1-2 per team) or whiteboards (1/team) and markers for brainstorming. Need breakout space for N teams.	Schedule short meetings before next thurs, with each team to review brainstorming results and candidate idea(s), suggest benchmarking.
Results	Week 1 provides participants with an introductory understanding of the "Stanford D.school/IDEO" design methodology and, particularly, what is done in the early stages of new product development .			

2 (12/3)	Benchmarking and Need-Finding
	  Technology Benchmarking: Looking inside and outside of a discipline.
	  Experience Benchmarking
	  "Extreme users."
	  Persona development.
			Directional adhesion slides (adapt from MRS2012)
			Benchmarking & Persona slides from ME310
			Need materials: large sheets of paper (1-2 per team)	

(14/3)		Short presentations by teams of chosen candidate topics and personas. Ideas for refinement, modeling, benchmarking, testing.	Distribute Stanford gecko adhesive samples now, if not earlier (2 per team)	
Results	Week 2 provides a bit of "hands on" experience with D.school/IDEO style brainstorming and with the some tools for "user centered" product definition. The creation of "personas" is done to make it more likely that proposed designs actually attend to user's physical and psychological needs. By the end of week 2 teams should be embarked on their design process, with whatever candidate project ideas they have chosen.			

3 (19/3)	Tools for design exploration. Mapping, matrix selection. How/Why graphs. User-centric versus technology-centric. Short mapping session.		Need materials: large sheets of paper (1-2 per team) or whiteboards (1/team) and markers for brainstorming.	
(21/3)		Fabrication issues - how intended function and market determine production (and vice versa). Intro. to Critical Function and Critical Experience Prototyping (CFP and CEP).	Slides from directional adhesive fabrication. CEP and CFP intro slides, notes.	
Results	During Week 3, teams begin to explore the design and technology space associated with their chosen topics. To facilitate this activity, we introduce some representation tools, the main utility of which is to make the teams' ideas more concrete – to themselves as well as others. These tools can be used in the early stages of any design project to make concepts and connections more concrete.			
4 (4/4)	Continue CFP and CEP discussion. Requirements definition. Short hands-on brainstorming and hands-on session to identify CFP focus topics for each team.		Slides form Requirements Definition and CFP review. Need materials: quick prototyping materials available to teams for hands-on session.	
(9/4)		Wrapping it up. Design Development Proposing (who is the audience, what do they need to know?) Team coaching sessions for CFP/CEP	Need materials: quick prototyping materials available to teams for hands-on session.	
Results	In Week 4, teams are focused on identifying "critical functions" and "critical user experience" elements that could ultimately determine whether the proposed product is worth developing further. This is a first early prototyping cycle, undertaken when many details are still vague. But it builds intuition.			
5 (11/4)	CFP/CEP Bazaar -- show work in progress on the early prototypes.		Need a room with space and tables so teams can show what they are doing. If can't get enough tables for all teams, can split into two sessions I,II with half the teams in each.	
(16/4)		Final presentations of development proposals based on technology, personas, user needs, identified requirements.	This can be in a more auditorium-like space.	
Results	Teams have experienced a condensed version of what is covered in ME310a at Stanford. They have seen that a team can go very quickly from vague ideas about what a product might be to having some confidence about whether a proposed direction is reasonable and what should be done in the next steps.			