



ME4182 & Interdisciplinary Capstone Design (ChBE, ME, ECE)

Common Lab Session for Week #2

Date 08/24/2020

Recap/Reminders

- ALL Links, SLIDES and VIDEOS are posted here:
<http://mecapstone.gatech.edu/students>
- Visit <http://mecapstone.gatech.edu/assignments> to check your team assignments.
 - Teams will be introduced to their respective sponsor contacts in the next 24 hours. Please be patient until then.
 - Some projects are still available. Check the marketplace to review which ones are available and email your bid to amit.jariwala@gatech.edu with cc to your team's assigned faculty advisor.
- **EVERYONE** type take the brief online poll!

Common Studio Topics

1. Course Overview, Projects, Teams and Bids, Communication
2. User needs / Engineering Design Specifications
3. Market research and Prior Art
4. Ideation, Concept Generation, Design Process
5. Industrial Design & Human Factors
6. Risk, Liability, Codes & Standards
7. Prototyping
8. Social, environmental, sustainability considerations
9. Analysis
10. Effective Communications / Plan for Expo
11. Intellectual Property Protection, Filing Patent Claims
12. Forming a company

Associated deliverables and reports may be due in your section lab meetings

Studio Schedule

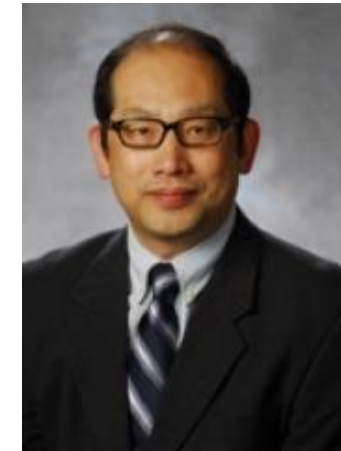
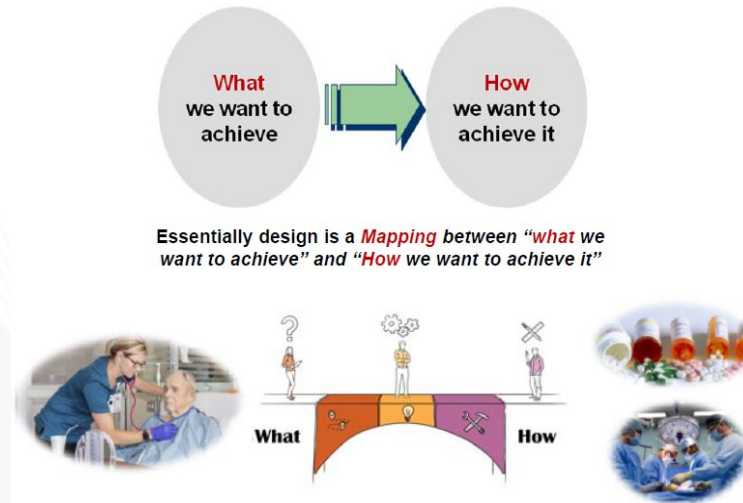
2	8/24 - Common Studio	1. User Needs, Design Specifications, etc. (Slides) 2. Market Research and Prior Art (Slides)
	8/26 - Lab meeting	Team organization & Section policies
3	8/31 - Common Studio	3. Ideation, Concept Generation, Design Process 4. Industrial Design/Human Factors
	9/2 - Lab meeting	-
4	9/7 - Labor Day	Institute Holiday
	9/9 - Lab meeting	-
5	9/14 - Common Studio	5. Risk, Liability, Codes & Standards 6. Prototyping
	9/16 - Lab meeting	-

6	9/21 - Career Fair	Studio cancelled
	9/23 - Lab meeting	-
7	9/28 - Common Studio	7. Societal Impact Assessment 8. Sustainability
	9/30 - Lab meeting	-
8	10/5 - Common Studio	9. Analysis 10. Expo Plan and Effective Communication
	10/7 - Lab meeting	-
9	10/12 - Common Studio	11. IP Overview and Patents 12. Expo video Preview Session (all teams share 1-minute video of their project problem/background with the class)

14	11/16 - Common Studio	13. Discuss your IP plan prior to public disclosure – Legal Buzz Live with Patent Attorney 14. Expo Poster Feedback Session (all teams share a draft poster with the class).
	11/18 - Lab meeting	-
15	11/23 @ 12:30pm	Final Presentation to faculty
	11/23 @ 3:30pm	Virtual Expo Platform Trial
	11/24 (4-8pm)	Virtual Capstone Design Expo
16	12/1	-

Thank You!

1. Customer Needs and Engineering Specifications



Dr. Roger Jiao
Associate Professor
G.W.W. School of Mechanical Engineering

2. Prior Art Search, Market Research and Marketing

Market research is used to determine idea viability and create marketing plans

- What?
 - Verify need for product
 - Determine market size: How big is my idea?
 - Choose target customer: Where do we focus first?
 - Understand target customer
- How?
 - Primary
 - Methods: Surveys, Focus groups
 - Risks: Question & facilitator bias
 - Secondary
 - Methods: Reports and studies
 - Risks: Report or study bias

The diagram features a blue circle divided into four segments: Potential Market, Available Market, Target Market, and Penetrated Market. A green arrow points from the 'What?' section to the 'Target Market' segment. Another green arrow points from the 'How?' section to a group of people icon.



Mr. David Moeller,
CSO, Sectigo
GT BSME 2002

User Needs, Design Specifications, etc.

- What is the design problem, motivation, and need?
- What is the intended use?
 - Who will use it?
 - Who cares, and why? (stakeholders)
 - What's the use environment?
- What are the desired functions, special features, points of interaction with other products/devices (e.g., hardware/software integration), etc?
- What is the value statement; the benefits to user(s) and other stakeholders?
- What will customers require?
- What human factors considerations apply?
- What are relevant constraints?

Engineering Specifications Table

				Issued:		
			For:		Page:	
			Specification			
No.	Date	D/W	Requirements	Responsible	Source	How Validated
General						
Physical Characteristics						
Electrical						
Mechanical						
Performance						

Market Research and Prior Art

- How will you perform relevant market research, primary or secondary or both?
- Who will use it?
- Who cares, and why?
- What are the desired functions, special features, points of interaction with other products/devices (e.g., hardware/software integration), etc?
- What competitor designs/products are already on the market, have been on the market in the past, or have been disclosed through prior publications?
- What are the commercial applications of the technology?
- What are the applicable or relevant patents?
 - How do these patents and products relate to your problem?
 - How do these patents or product constrain or enable your solution?