



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

Common Lab Session for Week #3

Date 08/31/2020

# 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 have been introduced to their respective sponsor. Please email [amit.jariwala@gatech.edu](mailto:amit.jariwala@gatech.edu) if this is not the case for your team/project.
- **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

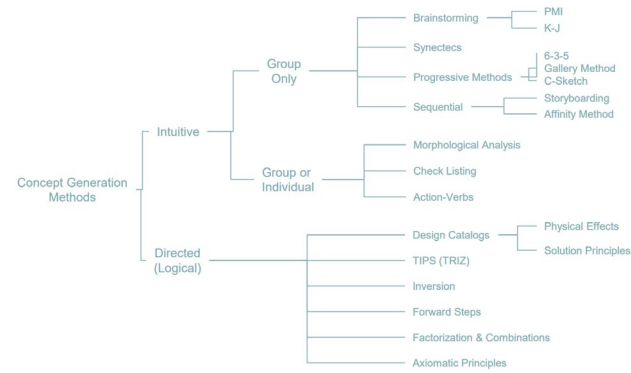
11/24 (4-8pm) Virtual Capstone Design Expo

16 12/1 -

# Thank You!

## 3. Ideation & Concept Generation

### Overview of Methods



Redrawn from figure 10.3, Product Design

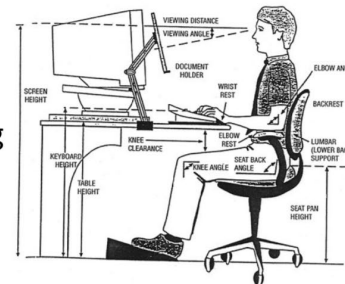


**Dr. Julie Linsey**  
Associate Professor  
G.W.W. School of Mechanical Engineering

## 4. Industrial Design & Human Factors

### Physical ergonomics

- How to design for the comfort and functioning of the human body
- Anthropometrics – measuring humans
- Physiology – how the body functions
- Bio Mechanics – study of the structure of the body from a mechanical view – forces and actions



[www.megep.meb.gov.tr](http://www.megep.meb.gov.tr)



**Dr. Katherine Fu**  
Assistant Professor  
G.W.W. School of Mechanical Engineering

# Ideation & Concept Generation

- What are the functions that the design needs to satisfy? (Functional decomposition)
- How can those functions be accomplished (means)? (morph charts)
- What are your integrated concepts/initial design alternatives, and how do they map to these functions and means?
- How will you weigh customer desires vs. specific functional performance?
- How are your concepts informed by and influenced by prior art?
  
- What formal selection processes will you use to identify the promising concept(s) to be further explored?
- What feasibility analyses may be necessary for your concepts?

# Industrial Design & Human Factors

- How do human factors impact your design problem?
- How will you explore human factors issues in your design process?
- What are the human interaction-points with your design problem? (from manufacture through to disposal)
  
- What Industrial Design considerations impact your design?
- How does visual hierarchy and language impact your design?
- How does branding factor into your design problem?

# Additional Support Hours

- Nicholas Mulka  
([nicholasmulka@gatech.edu](mailto:nicholasmulka@gatech.edu))



- Wednesdays 12:00-3:00pm
- <https://bluejeans.com/943012627>

- Kinsey Herrin  
([kinsey.herrin@me.gatech.edu](mailto:kinsey.herrin@me.gatech.edu))



- Tuesdays 11:00-12:00 noon
- <https://bluejeans.com/495884992>