SS 3630 001: Design Thinking

Spring 2022

Class meetings: Mondays, Wednesdays, and Fridays from 10:00am - 10:50am in DH 110

Instructor	**Contact**	**Office Location & Hours**
Dr. Katie Panciera	panciera@msoe.edu 612-804-6543 (cell)	DH 435 11am-12pm Fridays or by appointment calendly.com/panciera

📖 Course Description

This course introduces students to the foundations of design thinking as a human-centered approach to solving complex problems. Design thinking is approached as a methodology that drives innovation and creativity across diverse fields: from user experience, business, to engineering and beyond. The course draws on the design thinking theory and best practices. Additionally, students learn about design thinking approaches adopted by top technology and business companies, healthcare providers, social innovation, and hospitality services. The course emphasizes leveraging the designing thinking framework for problems with a significant human element to them. Course projects provide students with hands-on experience of how to apply the design thinking process, tools, and methods in the discovery phase of a project. (Students who received credit for UX 241H may not receive credit for this course). (prereq: GS 1001 or GS 1010H, GS 1002 or GS 1020H, GS 1003 or GS 1030H, and sophomore standing)

🛠️ Student Learning Outcomes

- Describe how design thinking drives innovation and change across disciplines and industries
- Demonstrate key steps and techniques of design thinking, especially in brainstorming, re-framing, sketching, and iterative prototyping
- Apply design thinking to solve human-centered problems
- Implement design thinking in individual and group projects
- Adopt and exhibit a design thinking mindset
- Communicate a design thinking process to stakeholders

📑 Required Materials

Free online materials including:
- TED Talks, Podcasts from Radiotopia and NPR, Abstract (YouTube made by Netflix), and more

Optional materials:
- The projects in this course can be completed with Legos, art supplies, a pile of recycling, or even Minecraft. If you wish to purchase supplies you can, but if you choose not to, that will not impact your grade. However, you may have to get creative with materials.

🖼️ Course Assignments Outline

- **Weekly Reflections**: On a weekly basis, you will be asked to reflect on their activities, readings, and discussions to deepen their understanding and contemplate additional problems.
- **Sprint 1:** Topic is pediatric trauma OR _____
  - **Group Work**: Sprint 1 and subsequent prototyping will be conducted as a group. As a team, you will turn in artifacts from your sprint process (sketches, photos, interview script, interview findings) as well as your prototypes, test plan, and a short write up about your process as a team
  - **Individual Work**: Each individual will submit a private write up of their participation in the sprint and prototyping process as well as a reflection of how they felt about the process, what they wish had gone differently, etc.
- **Sprint 2:** Topics are TBD
  - **Group Work**: Sprint 2 will be conducted as a group but the prototyping will be conducted individually. As such, as a team you will turn in artifacts from your sprint process (sketches, photos, interview script, interview findings) as a group.
  - **Individual work:** Your individual work for Sprint 2 will include the write up of your process and reflection on the process in addition to prototypes.
- **Presentation**: Each Sprint 1 team will have time to present their Sprint 1 materials. This will serve to help me assess communication skills around design thinking as well as allowing them to share work they are proud of with their classmates, broadening the reach of their ideas.
- **Student Portfolio**: In lieu of a final exam, students will have to write several short pieces to convey their experience to a potential employer. This will include summaries and analyses of both their major projects as well as a rationale for the latter project and a reflection on the course and what they learned throughout.
- **Activities:** Over the course of the quarter various other small assignments will be used to deepen understanding of certain course material. These may be done on Canvas, Mural, Teams, or Qualtrics depending on the assignment. Examples of these include:
  - Sketching exercises
  - Prototyping exercises
  - Small group summaries of Design Thinking philosophies

🗓️ Week by Week Outline (This is in flux)

Readings and Materials are TBD and may fluctuate based on the needs of the class.

WEEK	TOPIC	DUE
1	**Introductions & Impact of Design Thinking** Watch: GE Children's MRIs Read: What is Design Thinking and Why is it so Popular? Watch: The Explainer: Design Thinking Listen: Your Choice of 99% Invisible Episode #469: The Epic of Collier Heights #462:I Can't Believe It's Pink Margarine	First Day Survey Reflection 1 Group Survey

	#451: Hanko #444: Pipe Dreams #437: Science vs Snakes #428: Beneath the Skyway #405: Freedom House Ambulance Service Watch your choice of Abstract: Tinker Hatfield (Sneaker Design) Abstract: Bjarke Ingels (Architecture) Abstract: Ralph Gilles (Automotive Design)	
2	**Design Thinking Process** Read: A Girls-Only Space to Get Trusted Advice on Life, Love, and Sex Read: Art of the User Interview Read: A Comprehensive Guide to UX Research Read: A Day in the Life of a Design Researcher Read: Design Research From Interview to Insights	Summaries of DT Philosophies Reflection 2
3	**Design Thinking Toolkit** Read: The Youth Mental Health Center of the Future Read: Why Everyone Should Prototype, not just designers Read: How to understand problems Read: How to define problems Read: Service Design 101	Reflection 3 Sketching Exercise
4	**Design Thinking Toolkit/Sprint 1 Kickoff**	Reflection 4
5	**Sprint 1** Listen/Read: How to love criticism	Reflection 5
6	**Sprint 1: Prototyping and Critique**	Reflection 6
7	**Sprint 1: Reflection**	Sprint 1 Materials
8	**Presentations**	Reflection 8 Presentation
9	**Sprint 2**	Reflection 9
10	**Sprint 2: Prototyping and Critique**	Sprint 2 Materials
11	**Exam Week**	Final Portfolio

📋 Grading Policies

Participation and Attendance

This course is all about people and your engagement is critical. During class we'll be doing exercises and learning about new methods.

Participation can look like:
- Showing up to class (on time!)
- Actively engaging in class
- Actively engaging in online discussions
- Actively engaging in group projects
- Checking Canvas for assignments, readings, and information

If you cannot attend class (or will be significantly late), please let me know BEFORE class starts. You can always ask for a recording or for the class to be streamed and I will try to accommodate.

I am not grading participation and attendance this year because I know it might represent a hardship and I don't want people coming to class when sick. HOWEVER I do notice who comes to class and who doesn't and I'm not just having class meetings for the heck of it or to amuse myself.

Assignment Due Dates

Without a discussion with the professor, late assignments will be docked one half grade (5% off the total points possible) per day late and are only accepted up to one week beyond the original due date. After that, a grade of zero (0) will be given. Finishing an assignment is not an excuse to miss class.

There is more (but not infinite) flexibility if you communicate with the professor.

Grading

Follows standard MSOE grading scale: A, AB, B, BC, C, CD, D, F

For this course, your grade will be determined as follows:

Activities & Reflections: 20%
Sprint 1 Group Deliverables: 20%
Sprint 1 Individual Deliverables: 5%
Sprint 2 Group Deliverables: 5%
Sprint 2 Individual Deliverables: 20%
Group Presentation: 10%
Final Portfolio: 20%

Grading Philosophy

This class may be quite different from what you're used to at MSOE. While you will have a list of requirements, the emphasis here is on the process, not necessarily the end product.

Some assignments will be graded based on detailed rubrics, some will be graded on whether or not they were completed. You will not receive detailed feedback on every assignment.

Extra Credit
Extra credit may be offered by the professor periodically during the quarter. It will be offered to the entire class and no later than Friday of Week 9.

Communication Policies

Respect
All class communications should be professional and respectful. Unprofessional communications (verbal or written), will not receive a response. This includes, but is not limited to: racism, sexism, transphobia, homophobia, aggressive language (with or without profanity), slander, inappropriate topics, etc. This applies not only to communications with myself but with your fellow students as well. If you feel that a classmate is not being respectful, please let them know or talk to me.

This especially applies to microaggressions. I look at the impact, not the intent of the comment. Please think carefully about how you communicate in the class.

I will try to call issues out when I see them, but may miss some. My goal is for this class to be a safe, inclusive environment for all. **Please let me know if you do not feel that this is the case.**

Electronic Communication
In general, email or MS Teams are the best ways to contact me. I will try to return email within 24 hours on weekdays. I will check email once between 5pm and 8:30pm every weeknight and once a day on weekends. Expect a slower response during evenings and weekends than during the workday.

I expect you to check Canvas regularly for readings, assignments, grades, and announcements. Their app is supposedly useful.

Phone Communication
I have listed my cell phone number above. Please respect that this is my personal phone number and use it only if you need to reach me immediately. My phone is off from 10pm to 7am, so you will not get through at that time. Texts usually get quicker responses than phone calls.

When In Doubt
If you think maybe you have a question or find yourself guessing at my intended meaning, please reach out and ask the question or for clarification. Chances are you aren't the only one. In addition, communication is critical for online work. If you are sick and have to miss class, please let me know. If you're starting to spiral into anxiety, let me know (in addition to talking to the Wellness Center). If I don't know, I can't help.

BE VOCAL
While I taught this course last spring, this is still somewhat new and I guarantee I will make mistakes. Please be vocal. Tell me if things aren't working for you. Let me know when assignments are confusing. I also appreciate suggestions for how to improve things, but it's up to you to share those with me. I want this to be a good class, but I need your help!

Current Circumstances

Personal Wellbeing

I am your professor, but first and foremost, I am a human. If you do not have a home, food, or childcare or are caring for someone who is sick or are sick yourself, please let me know. I may not be able to help directly, but I can try to connect you to others who can. This will also allow me to understand why you may have additional difficulties turning in work, participating in your group, etc.

Internet Access

I will post all assignments on Canvas and use Canvas and Teams for the majority of the coursework. If for some reason you lose internet access during the quarter please let me know so that I can be flexible. There is a Canvas App, but if your computer has to go to IT or you have other problems, please let me know. **I don't want you completing all this work from your phone.**

Empathy

This is a weird period for all of us and requires empathy and compassion. While I am willing to be flexible on occasion, I will be more understanding if you have a good track record in the class. If you've turned nothing in all quarter, have not responded to my emails or early alerts, and at the end of the quarter want to turn everything in all at once, that is not ok. However, if you have been communicative and have been a good teammate, I will be more understanding with delays that were not caused by you. Procrastination is never a valid excuse to turn things in late.

Similarly, I may have times in the quarter where things on my end start falling apart and I get your assignments back late or have to reschedule meetings. (I also have a 5 year old who may disrupt things on occasion.) Please be understanding of this as I am understanding of your situations.

Communication is key.

Resources

Mental and Physical Health

If you find yourself struggling with your mental or physical health this quarter, please feel free to approach me. I try to be flexible and accommodating. You can also receive assistance from The Wellness Center for Advising, Counseling, Health, & Accessibility Needs in Kern 250, 414-277-7590, or wellness@msoe.edu **Counseling can be done online.**

Drop In Hours

Drop in hours (office hours) are designed for you to ask questions (related to class or not) and get help as well as to have another sounding board or faculty connection. By talking to me, you're helping me get to

know you which may allow you to get industry connections, find scholarships, or discover jobs you didn't know existed.

If you have a specific question/concern, please stop by my office or email me or send me a message on Teams and we can find a time to have a quick video call. I am available most days from 9:00ish to 5:00ish. You can also use calendly.com/panciera to schedule a 15 minute appointment with me.

Student Accessibility Services
For students with documented disabilities, chronic medical conditions or mental health concerns; MSOE provides services to make reasonable accommodations available. If you are a student who requires or anticipates the need for accommodations, please contact Student Accessibility Services Office at 414-277-7281, by email at moureau@msoe.edu, or in person at Kern 250 to discuss appropriate accommodations and eligibility requirements.

Raider Success Coaches
To help all students be successful in this course, struggling students will be required to meet with a Raider Success Coach throughout the quarter. These meetings will focus on strategies for academic success. Students will be notified if they need to meet with a Raider Success Coach via email by either myself or Dr. Alicia Domack.

Academic Assistance
The Raider Center for Academic Success (RCAS) is available virtually and in person. In addition to 1:1 tutoring for some classes, they also offer writing assistance. Please take advantage of this if you are not a strong writer as communication skills are important to succeed in this class.

University Policies
Nondiscrimination Statement
Milwaukee School of Engineering admits students of any race, color, national and ethnic origin to all the rights, privileges, programs and activities generally accorded, or made available, to students at the university. It does not discriminate on the basis of race, color, national and ethnic origin, religion, age, gender, sexual orientation, marital status or disability in administration of its educational policies, admission policies, scholarship and loan programs, and athletic and other institutionally administered programs. MSOE also maintains its long-standing policy as an Equal Opportunity/Affirmative Action Employer of male and female personnel for its faculty and administrative staff.

Academic Integrity
Academic integrity means that any work you hand in as your own is truly your own and that it represents work developed by you. The consequences for handing in the work of someone else as your own will result in a failing grade for the semester for both you and the person who gave you the file or worksheet. Don't share your electronic files with your friends.

As a course requiring teamwork, collaboration will be necessary to complete assignments, but individuals will be responsible for handing in their own work.

See more detail: https://msoe.app.box.com/s/4c8k9jx8zso5ezybxmszr6zmc73zgoox

Sexual Misconduct

Sexual misconduct will not be tolerated at MSOE.
See more detail: https://msoe.app.box.com/s/o7c2rz2jdweq47trbhrzukeyecwxxb3x

COVID-19

I have regular contact with kiddos under 5 who cannot be vaccinated yet. Therefore in addition to the MSOE policy listed below, I ask that **if you meet with me in my office you also wear a mask**. If you are not comfortable doing this, please set up time for us to chat on Teams.

MSOE is committed to the health, safety, and well-being of all members of our community. Since classrooms and laboratories are constrained spaces where students and faculty are required to congregate for long periods of time and where social distancing is difficult to achieve, students, faculty, staff and guests of the university must wear a facial covering in all classrooms and laboratories at MSOE.

- Failure to wear a facial covering in class or laboratory will result in your faculty member requiring you to leave class and not return until you have secured a facial covering for yourself.
- Failure to comply with your faculty member's instructions will result in immediate referral to and action from the Office of the Dean of Students.
- Failure to comply with this policy will be handled according to the Student Code of Conduct and may result in sanctions, up to and including expulsion.

The university strongly encourages all students to keep an extra and clean facial covering on their person at all times and strongly discourages students from borrowing and lending others their facial coverings.

If you receive a positive COVID-19 test result; or are symptomatic of COVID-19; or are an unvaccinated student who has been a close contact of an individual who is symptomatic or positive, please login to my.msoe.edu and click on the COVID-19 Report Form located on the home page. Please do not physically come to campus if you are ill or suspect you may be ill. MSOE is committed to your education and your faculty will work to support your learning should you need to isolate or quarantine.