

ITP 499: Innovation Workshop – Design Thinking Industry Collaboration

Units: 2

Spring 2018—Day: Monday —Time: 2-3:50 pm

Location: Tbd

Instructor: Chris Swain

Office: See Blackboard > Contacts **Office Hours:** By Appointment

Contact Info: cswain@usc.edu, 310 403 0798

Teaching Assistant: Listed on Blackboard under Contacts

Office: See Blackboard > Contacts
Office Hours: See Blackboard > Contacts
Contact Info: See Blackboard > Contacts

IT Help:

Hours of Service: 8 am - 9 pm

Contact Info: 213 740 0517, engrhelp@usc.edu

Course Description

In this class students engage hands-on with an LA tech company to innovate and solve problems using the Design Thinking methodology. Design Thinking is used by Google Ventures, Facebook, Apple, Virgin, AirBNB, and many others to find market fit on new ideas efficiently. At heart Design Thinking involves a) understanding the needs of the people who touch a problem and b) systematically testing prototypes to meet those needs. The class has three phases: Learn Design Thinking, Client Engagement, and Client Solutions. The class is especially pertinent for students seeking skills in product development, startup operation, capital efficiency, and innovation.

The word "design" in "Design Thinking" refers to how things work and how they are used by people. This as opposed to how they look visually. Progressive companies and countless startups are embracing Design Thinking to crack new markets and drive an internal culture of innovation. Design Thinking has been used by organizations to:

- create new kinds of products and services examples: Uber, Apple Watch, IBM Watson product lines, Google X initiatives
- streamline existing products and services examples: Kaiser Permanente patient experience; Virgin Airlines passenger experience, Netflix user engagement, SAP product line

The Design Thinking process is highly iterative and involves moving back and forth – framing and reframing problems - within the following categories:

- Empathy ask questions of the people in the problem space to understand their needs
- Define use the information to develop insights, draft use cases, and establish a point of view.
- Ideate brainstorm a myriad of ideas and suspend judgment. Quantity is encouraged.
- Prototype build a rough but tangible sketch, model, or functioning apparatus
- Test get feedback from real users

Students will deliver a sequence of Design Thinking prototypes for an LA startup team. This sequence of materials will receive a final polish and be delivered at the end of the semester as a Final Project.

Learning Objectives

In this class students will:

- 1. Build hands-on skill finding market fit using the Design Thinking methodology
- 2. Engage with a LA-tech team to create a sequence of prototypes relevant to their business
- 3. Meet leading practitioners of Design Thinking and Google Design Sprints
- 4. Gain a collection of Design Thinking prototypes for their professional portfolio

Prerequisite(s): No prerequisite.

Co-Requisite(s): n/a

Concurrent Enrollment: n/a

Recommended Preparation: Review functionality and concepts for the G Suite by Google Cloud – e.g.

Drive, Docs, Sheets, Drawings, Forms, Hangouts.

Course Notes

This is a 2 unit class for letter grade. All course materials will be posted to Blackboard (http://blackboard.usc.edu). Students will turn in Assignments using their USC accounts on G Suite by Google Cloud as directed by the instructor.

Technological Proficiency and Hardware/Software Required

Students will learn the G Suite by Google Cloud – e.g. Drive, Docs, Sheets, Drawings, Forms, Hangouts – as that platform will be required for group assignments and collaborating with Client from industry

Required Readings and Supplementary Materials

Readings are listed in syllabus below. Students will need the following textbooks:

- 1. The Field Guide to Human---Centered Design
- 2. Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days
- 3. The Medici Effect

Optional Textbooks

- The Lean Product Playbook: How to Innovate with Minimum Viable Products and Rapid Customer Feedback
- 2. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation
- 3. User Story Mapping: Discover the Whole Story, Build the Right Product
- 4. Value Proposition Design: How to Create Products and Services Customers Want

Description and Assessment of Assignments

See description of assignments under Course Schedule.

Grading Breakdown

Assignment	Points	% of Grade
In Class Exercises	15	15%
Short Assignments 1-10	35	35%
V1 Prototype	15	15%
V2 Prototype	20	20%
Quizzes 1 and 2	5	5%
Final Project	10	10%
TOTAL	100	100

Grading Scale

Course final grades will be determined using the following scale

A 95-100 A- 90-94

B+ 87-89 B 83-86

B- 80-82

C+ 77-79

C 73-76

C- 70-72 D+ 67-69

D 63-66

D- 60-62

F 59 and below

Assignment Rubrics

See details at the end of this document in Appendix 1

Assignment Submission Policy

Students will submit small assignments each week via G Suite and Google Docs as directed by instructor.

Grading Timeline

Assignments will be graded weekly.

Additional Policies

Assignments - Assignments are posted weekly under Assignments on Blackboard. Exercises are to be submitted online via G Suite only. Barring an extended G Suite outage, no work submitted by email will be graded. Exercises are due the day assigned. It is the student's responsibility to turn in assigned exercises on or before deadlines as set by the instructor. If student misses class, assignment is still due that day and can be turned in on Blackboard from anywhere in the world with internet access. If absent due to illness, bring written note from medical facility to get exception.

Save your work - You are required to save your to the cloud using G Suite. You must keep a copy of all labs. You will not be able to save your work on the ITP lab computers.

Quiz - During the first half of the semester, a quiz will be given (to be announced at least one week ahead of time). A second Quiz will be given in the second half of the semester (also to be announced one week ahead of time). Both Quizzes will be administered via Google Forms.

Athletes - If you must miss class due to an athletic event, you must notify instructor in advance of the absence. You are still expected to turn in all work. As noted above, assignment is still due that day and can be turned in on Blackboard from anywhere in the world with internet access.

Late Submissions - Exercises/assignments turned in late will be reduced by **20%** the first day it's late, and by **50%** the second day. On or after the third day, a zero is entered in the grade center. Extensions are granted based on written excuse and are granted on a case-by-case basis only; no guarantee that an extension will be granted.

Make-up policies - To make up for a missed assignment, student must turn in assignment on Blackboard (subject to lateness penalty per above). To make up for a missed exam, the student must provide a satisfactory reason (as determined by the instructor) along with proper documentation. No make-up exams (except for documented medical or family emergencies) will be offered nor will there be any changes made to the Final Exam schedule, except as permitted by university rules.

Attendance - Students should notify instructor by email in advance if a class will be missed. Students are expected to come to class on time and attend each class. The course reader is online. Read it. Do the homework online.

Electronics in the Classroom - Students are encouraged to use internet-connected devices during class

Final Project

In Week 6 students will enter the Phase 2: Client Engagement section of the course. From this point student teams will engage with an LA-based startup. Students will utilize Design Thinking to create a sequence of materials that frame and reframe the problem of their Client. The Final Project for the course will be the team's collection of all the Client-related materials delivered via the team's G Suite.

Objective:

Students will work in teams to engage Client with the following Objectives:

- 1. Understand needs of Client's customers (or other relevant Stakeholder)
- 2. Formally map out where Stakeholders touch the problem addressed by their Client
- 3. Develop V1 and V2 prototypes that address Stakeholder needs
- 4. Test V1 and V2 prototypes
- 5. Deliver final Client Recommendations

Scope:

Students will create the following materials for their Client:

- G Suite
- V1 Stakeholder Analysis and Empathic Interview
- V2 Stakeholder Analysis and Empathic Interview
- Journey Map
- Partnership Map
- V1 Prototype
- V1 Test Report
- V2 Prototype
- V2 Test Report
- Client Recommendations

How the Final Project Will Be Evaluated

In Week 16 the instructor will evalate a team's collection of materials against each of the Objectives defined above. To receive an A teams must a) clearly demonstrate an understanding of their Client's stakeholder needs and b) develop a V2 Prototype that objectively addresses those needs.

Example Final Project Title:

[Client Name Here] Design Thinking Analysis and Recommendations

Course Schedule: A Weekly Breakdown

Provide a detailed course calendar that provides a thorough list of deliverables—readings, assignments, examinations, etc., broken down on at least a weekly basis. The format may vary, but the content must include:

- Subject matter (topic) or activity
- Required preparatory reading, or other assignments (i.e., viewing videos) for each class session, including page numbers.
- Assignments or deliverables.

IMPORTANT:

In addition to in-class contact hours, all courses must also meet a minimum standard for out-ofclass time, which accounts for time students spend on homework, readings, writing, and other academic activities. For each unit of in-class contact time, the university expects two hours of out of class student work per week over a semester.

(Please refer to the Contact Hours Reference at arr.usc.edu/services/curriculum/resources.html.)

Phase 1: Learning Design Thinking

to Build in My Life (due beform next class) Overview of Course + Explain Final Project Overview of Design Thinking Methodology Short History of Design Thinking Lab: Review of G Suite Exercise: Nails – How to Test for Hidden Assumptions to Build in My Life (due beform next class) G Suite Tutorials: Drive, Cloud Search, Groups, Docs, Sheets, Forms, Sites, Teams, Brainstorm, Hangouts, Drawings (due before next class) Drawings (due before next class) To Build in My Life (due beform next class) Forms, Sites, Teams, Brainstorm, Hangouts, Drawings (due before next class) To Build in My Life (due beform next class) Forms, Sites, Teams, Brainstorm, Hangouts, Drawings (due before next class) To Build in My Life (due beform next class) Forms, Sites, Teams, Brainstorm, Hangouts, Drawings (due before next class) To Build in My Life (due beform next class)		Topics/Daily Activities	Readings and Homework	Deliverable/ Due Dates
 Analysis Field Guide to Human-Centered Design, pages Lecture Why Build Empathy with your User Stakeholder Analysis and Need Finding Set Up Team G Suite (dubefore next class) Do readings for next lecture How to Develop an Empathic Approach in Design Thinking 	Week 1	Design Thinking Lecture: Overview of Course + Explain Final Project Overview of Design Thinking Methodology Short History of Design Thinking Lab: Review of G Suite Exercise: Nails – How to Test for Hidden		 Student Journal: What I Want to Build in My Life (due before next class) G Suite Tutorials: <u>Drive</u>, <u>Cloud Search</u>, <u>Groups</u>, <u>Docs</u>, <u>Sheets</u>, <u>Forms</u>, <u>Sites</u>, <u>Teams</u>, <u>Brainstorm</u>, <u>Hangouts</u>, <u>Drawings</u> (due before next class)
Lab:	Week 2	Analysis Lecture Why Build Empathy with your User Stakeholder Analysis and Need Finding Set Up Student Teams – students will work in teams of 4-5	 Field Guide to Human- Centered Design, pages 1-26 Field Guide to Human- Centered Design, pages 27-67 How to Develop an Empathic Approach in 	Set Up Team G Suite (due before next class)

Week 3	Exercise: Empathic Interview Exercise: Team Leap Define and Ideate Lecture Principles of Define and Ideate in Design Thinking The Medici Effect — Intersectional Innovation and Directional Innovation Announce Semester Client. Semester Client will be an LA startup. Lab Exercise: Wallet Project	Readings for this Lecture: • Field Guide to Human-Centered Design, pages 75-118 • Medici Effect – Introduction, Part 1, Part 2	Assignments: Read Semester Client Briefings, write Pre-Project Questions - (post to your G Suite before next class) Do readings for next lecture
Week 4	Prototyping Lecture Principles of Prototyping in Design Thinking Case Studies: Selective Prototypes, Emotional Prototypes, Service Prototypes Lab Exercise: USC Parking Hero Prototype	Readings for this lecture: Field Guide to Human-Centered Design, pages 119-157 Creation of Magic: The Gathering Class Client Briefings x3	Assignments: Pre-Project Stakeholder Brainstorm and Use Case Brainstorm (due before next class) Do readings for next lecture
Week 5	Testing, Reframing, Iteration Lecture Principles of Design Thinking: Testing, Reframing, and Iteration	Readings for this lecture: • How Reframing a Problem Unlocks Innovation • Reduce Risk Around Your Innovation Project with Assumption Testing	Assignments: • Work as a team to expand Pre- Project Assessment in format provided by instructor. (post to your G Suite before next class)

	The Folly of Step Reliance		
La	ab		
•	Quiz 1: Students tested on readings to date via Google Forms Student teams assigned to Semester Clients Exercise: Pre-Project Assessment		

Phase 2: Client Engagement and the Design Thinking Toolkit

Week 6	Client Engagement Lecture Semester Client presents to Student Teams Lab Student Teams engage Semester Client Student Teams intro Semester Client to their G Suite collaboration site	Readings for this lecture: • n/a	 Assignment: Stakeholder Analysis and Empathic Interview Session 1 with Client Stakeholders (post to your G Suite before next class) Questions for Week 7 Guest Speaker Survey (due before next class) Do the readings for next lecture
Week 7	Guest Speaker: Levi Brooks, Use All Five (tentative) Lecture Leading design thinker from industry guest lectures and discusses his/her work Lab Guest speaker reviews student stakeholder analyses	Readings for this lecture LinkedIn profile, website, and related links for guest speaker	 Assignments: Stakeholder Analysis and Empathic Interview Session 2 with Client Stakeholders (post to your G Suite before next class) Do the readings for next lecture

	Student teams devise strategies for next round of Stakeholder Analyses and Empathic Interviews (based on learnings from last week's assignment)		
Week 8	Journey Mapping and User Stories Lecture Journey Mapping — principles and case studies User Stories — principles and case studies Lab Exercise: Journey Map for Semester Client Team synthesizes stakeholder analyses and prep plan for deliver to Semester Client	Readings for this lecture: Mapping Experiences: A Complete Guide to Creating Value through Journeys, Blueprints, and Diagrams — Chapters 1, 2, and 3 The User's Journey: Storymapping Products That People Love — Chapters 1, 2, and 6	 Assignments Teams polish Stakeholder Analysis and Journey Map for Semester Client (post to your G Suite before next class) Do readings for next lecture
Week 9	Google Design Sprints Lecture Explanation of the history and principles of the Google Design Sprint Lab Exercise: Partnership Map	Readings for this lecture Sprint, How to Solve Big Problems and Test New Ideas in Just Five Days, Introduction, Set the Stage (peruse remainder of the book)	 Assignments Teams post Partnership Map for Semester Client (post to your G Suite before next class) Do readings for next lecture
Week 10	Value Proposition Design Lecture Principles of Value Proposition Design Lab Exercise: Timeboxed Prototype for Semester Client	Readings for this lecture Value Proposition Design sections 1.1 through 3.4	Assignments: Teams work on and post V1 Prototypes for next week's Client visit (post to your G Suite before next class) Do readings for next lecture

	Team Work session: Prepping for Next Week's Client Visit		
Week 11	Client Engagement 2 Lecture Teams work with Client – review materials in G Suite Lab Teams and Clients work together.	Readings for this lecture • Client comments in the team G Suite	Assignments: No Assignment this week Do readings for next lecture
	Strategize next steps.		

SPRING RECESS – March 11-18, 2018

Phase 3: Client Solutions

Week 12 Guest Speaker: Jesse Kawata, JPL (tentative) Lecture Leading design thinker from industry guest lectures and discusses his/her work Lab Guest speaker critiques student work in G Suite — Stakeholder Analyses, Journey Map, V1 Prototypes		Readings for this lecture: LinkedIn profile, website, and related links for guest speaker	 Assignment V1 Test Report - Teams test V1 Prototype with Stakeholders (post to your G Suite before next class) Do readings for next lecture
Week 13	Wicked Problems and Design Thinking for Social Change Lecture Understanding Wicked Problems Case Studies of Design Thinking for Social Change	Readings for this lecture: Wicked Problems: Problems Worth Solving A Vision for USC: Wicked Problems USC Provosts Wicked Problems Practicum, Memos 1 and 2	Teams prep V2 Prototype (post to your G Suite before next class)

	Students and Instructor review V1 Prototypes. Students strategize for V2 Prototypes. Students get greenlight from Instructor for V2 Prototypes.		
Week 14	Problem Space versus Solution Space Lecture Principles of the Problem Space versus the Solution Space Lab Students work on V2 Prototypes. Strategize for final presentation to Client next week.	Readings for this lecture: Lean Product Playbook, Introduction, Chapter 1,and Chapter 2	Assignment: • V2 Test Report - students test V2 Prototypes (post to your G Suite before next class)
Week 15	Future of Design Thinking and Product Development Lecture Short lecture on future of Design Thinking and Product Development Lab Prep for Quiz during Finals week Student teams present final prototypes to Client – gather feedback Course Wrap Up	Readings for this week No readings for this week week	 Assignment Students prepare one teamgenerated Client Recommendations document that incorporates Client feedback from today's lab (post to your G Suite before final session) Students collect and polish all materials for Final Project (post to your G Suite before final session)
FINAL	 Quiz 2: Students tested on readings since Quiz 1 via Google Forms Students deliver Final Project on their G Suite. Instructor 	Readings for this week n/a	Date: For the date and time of the final for this class, consult the USC Schedule of Classes at www.usc.edu/soc.

walks through checklist with each team during this final session.	

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" https://policy.usc.edu/scampus-part-b/. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Support Systems:

Student Counseling Services (SCS) - (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. https://engemannshc.usc.edu/counseling/

National Suicide Prevention Lifeline - 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. http://www.suicidepreventionlifeline.org

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 - 24/7 on call Free and confidential therapy services, workshops, and training for situations related to gender-based harm. https://engemannshc.usc.edu/rsvp/

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: http://sarc.usc.edu/

Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086 Works with faculty, staff, visitors, applicants, and students around issues of protected class. https://equity.usc.edu/

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. https://studentaffairs.usc.edu/bias-assessment-response-support/

The Office of Disability Services and Programs

Provides certification for students with disabilities and helps arrange relevant accommodations. http://dsp.usc.edu

Student Support and Advocacy – (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. https://studentaffairs.usc.edu/ssa/

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. https://diversity.usc.edu/

USC Emergency Information

Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible, http://emergency.usc.edu

USC Department of Public Safety -213-740-4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.

Provides overall safety to USC community. http://dps.usc.edu

Appendix 1: Assignment Rubric

	Sophisticated	Competent	Not yet Competent
Component			
Empathy & Design			
Identifies project objectives based on general description and client requirements	All important major and minor objectives are identified and appropriately prioritized.	All major objectives are identified but one or two minor ones are missing or priorities are not established.	Many major objectives are not identified.
Identifies relevant & valid information to support decision-making.	All relevant information is obtained and information sources are valid. Design recommendations are well supported by the information.	Sufficient information is obtained and most sources are valid. Design recommendations are mostly supported by the information.	Insufficient information is obtained and/or sources lack validity. Design recommendations are not supported by information collected.
Generation and analysis of alternatives.	Three or more alternatives are considered. Each alternative is appropriately and correctly analyzed for technical feasibility.	At least three alternatives are considered. Appropriate analyses are selected but analyses include some minor procedural errors	Only one or two alternatives are considered. Inappropriate analyses are selected and/or major procedural and conceptual errors are made.
Identifies relevant constraints (economic, environmental/ safety sustainability, etc)	All relevant constraints are identified and accurately analyzed.	Most constraints are identified; some are not adequately addressed or accurately analyzed.	Few or no constraints are identified or some constraints are identified but not accurately analyzed.
Generates valid conclusions/decisions	Recommended solution is based on stated criteria, analysis and constraints.	Solution/decision is reasonable; further analysis of some of the alternatives or constraints may have led to different recommendation.	Only one solution is considered or other solutions were ignored or incompletely analyzed. Many constraints and criteria were ignored.
	Sophisticated	Competent	Not yet Competent
Component			

Communication			
Written Communication	Report is well organized and clearly written. The underlying logic is clearly articulated and easy to follow. Words are chosen that precisely express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify presentation of ideas. Sentences are grammatical and free from spelling errors.	Report is organized and clearly written for the most part. In some areas the logic or flow of ideas is difficult to follow. Words are well chosen with some minor exceptions. Diagrams are consistent with the text. Sentences are mostly grammatical and only a few spelling errors are present but they do not hinder the reader.	Report lacks an overall organization. Reader has to make considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text. Grammatical and spelling errors make it difficult for the reader to interpret the text in places.
Presentation	Slides are error-free and	Slides are error-free and	Slides contain errors and
Visual Aids	logically present the main components of the process and recommendations. Material is readable and the graphics highlight and	logically present the main components of the process and recommendations. Material is mostly readable and graphics reiterate the	lack a logical progression. Major aspects of the analysis or recommendations are absent. Diagrams or
Oral Presentation	support the main ideas.	main ideas.	graphics are absent or confuse the audience.
Body Language	Speakers are audible and fluent on their topic, and do not rely on notes to present or respond. Speakers respond accurately and appropriately to audience questions and comments.	Speakers are mostly audible and fluent on their topic, and require minimal referral to notes. Speakers respond to most questions accurately and appropriately.	Speakers are often inaudible or hesitant, often speaking in incomplete sentences. Speakers rely heavily on notes. Speakers have difficulty responding clearly and accurately to audience questions.
	Body language, as indicated by appropriate and meaningful gestures (e.g., drawing hands inward to convey contraction, moving arms up to convey lift, etc.) eye contact with audience, and movement, demonstrates a high level of comfort and connection with the audience.	Body language, as indicated by a slight tendency to repetitive and distracting gestures (e.g., tapping a pen, wringing hands, waving arms, clenching fists, etc.) and breaking eye contact with audience, demonstrates a slight discomfort with the audience.	Body language, as indicated by frequent, repetitive and distracting gestures, little or no audience eye-contact, and /or stiff posture and movement, indicate a high degree of discomfort interacting with audience.
	Sophisticated	Competent	Not yet Competent
Component			
Team Work			

(Based on peer evaluation, observations of group meetings and presentation) Delegation and fulfillment of Responsibilities	Responsibilities delegated fairly. Each member contributes in a valuable way to the project. All members always attended meetings and met deadlines for deliverables.	Some minor inequities in the delegation of responsibilities. Some members contribute more heavily than others but all members meet their responsibilities. Members regularly attended meetings with only a few absences, and deadlines for deliverables were met.	Major inequities in delegation of responsibilities. Group has obvious freeloaders who fail to meet their responsibilities or members who dominate and prevent others from contributing. Members would often miss meetings, and/or deadlines were often missed.
Team morale and cohesiveness	Team worked well together to achieve objectives. Members enjoyed interacting with each other and learned from each other. All data sources indicated a high level of mutual respect and collaboration.	Team worked well together most of the time, with only a few occurrences of communication breakdown or failure to collaborate when appropriate. Members were mostly respectful of each other.	Team did not collaborate or communicate well. Some members would work independently, without regard to objectives or priorities. A lack of respect and regard was frequently noted.