Course number: DES-INV 190 - Re-imagining Mobility - Ford

Overview:
This course is designed to explore several factors having to do with “Reimagining Mobility”. With a “Customer-focused” approach, and with the primary goal of creating better customer experiences, we will explore what consumers will want and need in tomorrow’s transportation ecosystem, set a decade or so from now. Using various design and innovation methodologies, we will attempt to gain insight into opportunities in important new areas of potential growth, and may design and prototype solutions in the areas of connectivity, mobility, autonomous vehicles, big data analytics and customer experience.

Goals and Objectives:
+ Learn the human-centered design process.
+ Gain first-hand experience in applying the design process to create innovative results.
+ Increased confidence in your ability to design effective solutions.
+ Explore, define, prototype innovative solutions regarding tomorrow’s transportation ecosystem.

Description/ Sequence:
The first portion of the course will focus on “problem-finding” as it relates to the subject of “re-imagining mobility” with the intent of learning what customers will want and need in future transportation ecosystems. Themes of “innovation, strategy, storytelling, experience” will be explored.

Concurrently, you will learn the iterative process of design - the “synthesis driver” for the project. You will learn how to uncover areas for design exploration, developing empathy for end-users, framing and structuring problems, designing and developing concepts, prototyping solutions, user-testing, and the iterative process of design refinement.

The latter portion of the class will be devoted to refining and developing your conceptual explorations into tangible design expressions and final presentations for executives at Ford.

Active Participation:
This course is highly experiential and will require active participation from all students. Some work will be completed individually, while most will be done in teams. Depending on course flow, you may potentially have the opportunity to work with multiple teams during this experience, encouraging greater collaboration and providing a richer learning experience.
The structure of this design course is substantially different from a lecture format course, more closely approximating a fast-paced, collaborative, project-based studio experience through which you will become a much more empathetic designer, one who is able to visualize, create, present and evaluate your ideas.

**Enrollment:**
Because of the hands-on nature of this course, there is a strict capacity limit of 30 students. A waitlist will be used to ensure that the class fills to capacity. You must attend the first session in order to be considered for the class.

**Prerequisites:**
There are no prerequisites for this course. Having prior experience with design is desirable but not required.

Instructor: Rob Hennigar  
Contact information: robhennigar@berkeley.edu  
GSI: Anna Roumiantsева  
Contact information: anna_roumiantsева@mba.berkeley.edu

Class meeting time: Monday 1:00 to 4:00 pm. Final room location TBD  
Location: Jacobs Institute 2630 Ridge Road.

**Textbook:** There is no required reading for this course

**Grading:**
- 70% - Projects and Assignments  
- 30% - Attendance and participation

**Materials:**
Sketchbook 8.5 x 11 inches - hardbound. 100 pages. 65 lb. paper (preferably)  
Pens- Ballpoint preferably (for sketching in sketchbook).  
Other sketching materials - pencils, markers, etc.  
Various materials for prototyping concepts and producing projects.
Key Dates: Ford participation weeks
+ Kick-off (Week 1- 8.29)
+ Research/ conceptual review (Week 4- 9.19)
+ Midterm projects review (Week 7- 10.10)
+ Interim review (? 11.7...)
+ Final presentations (Week 14- 11.28)

Detail - design process/ content:
“Customer-focused innovation (CFI)” - Weeks 1-4 (Broad - "Discover/ Define")
“Sprint” - Weeks 5-14 (Focused - "Develop/ Deliver")

Schedule:
Week 1: Introduction and Project Kick-off (FORD attending)
+ Ford Presentation and project introduction/ overview
+ Discussion and overview of the course and overall sponsored project goals, content, guidelines, learning outcomes and the value of learning the process of designing with a human, or customer-centered, approach. Design as the experience synthesis driver.
+ Conversation regarding the the importance and approach of designing for “users”, and the mindsets that we will apply to the course projects.
+ Mobility - Define…What is it, does it mean?
  - Historical context
  - Why?
+ Mobility - Objects (products), services exploration (objects that are physical but brought to life by software and services, experience(s) exploration.
+ Develop “HMW” questions to drive initial research and project(s) exploration.
Assignment: Develop a “mobility” map - what do you think mobility means to you, your friends, your family, etc? (Let’s see what you come up with)
Assignment: Get course supplies/ materials.
Assignment: Note early observations and thoughts relative to the project in your sketchbook (5-10 pages).

Week 2: Research, conceptual development part A. (individual project work)
Discovery/ Empathy
Learn approaches regarding how to identify opportunity areas for design exploration through learning about the user audience and gaining a deep understanding of user needs -their feelings, thoughts and attitudes. Learn the process of empathy mapping. Identify and focus on the explicit and implicit needs to solve for.
Discuss:
+ Changing habits of younger people and how that opens new opportunities regarding
consumption patterns. On-demand,
+ What does it mean when people are driving less? (Less interested?).
+ What does mobility mean to different populations? (age, handicapped, etc.)
+ How brands are viewed...

Assignment: Working individually, conduct base user-research. Identify sources of friction through conversations with at least 5-10 different “users” of mobility. What does mobility mean in the future? Make notes on what they “do, say, think, feel” regarding the topic and develop initial empathy from your conversations.

Assignment: Sketch at least 5 initial findings/ potential solutions that you uncover through your research. Be prepared to post and share these sketches with all (explain).

Assignment: Continue using your sketchbook for capturing thoughts, ideas, explorations, possible initial solution concepts. (5-10 pages)

**Week 3: Research, conceptual development part B (refinement). (individual project work)**

**Interpret and Define**
Learn to unpack and synthesize findings into compelling needs and insights through interpretation, identification and definition. Each person will create refined empathy maps of their findings from their user interviews, following which they will then identify needs and (surprising) insights.

+ Discuss problems and challenges and how to know if you are working on the “correct” problem. Problem framing/ reframing into a design challenge with a POV statement and “How Might We…” questions.
+ Project pitching discussion and coaching.

Assignment: Thoroughly unpack and synthesize your findings creating an empathy map, compelling POV statement, and a selection of “How Might We” questions that could possibly drive additional conceptual exploration.

**Week 4: Research/ concepts review (individual presentations) (FORD attending)**
Presentations and discussion of research completed from week 3.
+ Project “filtering” and selection (voting) based on presentations of empathy maps, POV statements and “HMW” questions.
+ Teams discussion and formation - Project “Producers” - discuss team dynamics, selection, diversity, (a “creative collective”) etc.

Assignment: Identify and recruit team and develop a work plan for next steps. What further research needs to be conducted? Come prepared to the next class with ideas in mind as to how you plan to proceed as a team (roles? variety? duties?).

Assignment: Each team member is to produce 3-5 initial (rough) conceptual sketches of potential design directions for their project.
Week 5: Prototype development week 1 - initial design explorations and further research as needed. (Involvement of SME’s based on project needs)
Overview of various prototyping approaches that may be employed to create a minimum viable (testable) product for user-testing. Lecture on introduction to sketching for prototyping module one, covering primary topics for product, interface, and experience prototyping through sketching and mockups. Discussion of appropriate prototype fidelity, various prototyping tools and solutions.
Assignment: Develop initial rough prototype which is designed to answer the most important questions regarding your initial project concept(s) and test on at least 5-10 different people with very diverse backgrounds. Gather and document any and all insights and “Ah ha” moments that might be used for further prototype iteration.
Assignment: Create an Empathy map of the results from your initial prototype testing.

Week 6: Prototype development week 2 - refinement, preparation for review. (Involvement of SME’s)
Presentation and review empathy maps developed from the first prototype testing session and discuss next steps. Lecture on sketching for prototyping module two for the class, covering additional prototyping techniques for interfaces and experiences, creating higher resolution prototyping to gain greater insights from a more refined solution.
Assignment: Develop and test the second iteration of your project with (empathy) on at least 5 to 10 different users (variety of users is key). Prepare to report to class on the users that were tested and what their input/feedback was. Present results through imagery, video, sketches, etc.
Assignment: Prepare presentation to share with FORD on the result of your project work to date for next week.

Week 7: Midterm review (FORD attending)
Present and review prototypes showing iterations one and two and supporting documentation of process. Note learnings gained from prototype v.1 and how you used them to evolve the second version of your project prototype.
Assignment: Thoroughly document and consider all feedback given from your presentations with the representatives from FORD. Prepare for next steps.

Week 8: Reset, Details, Refinement.
Project “reset”. Teams. Re-alignment? Discuss the importance of strong teams and how they may evolve throughout the process of any project. Address the various critical roles for each team to have with the intent of allowing teams to look inward and identify current team gaps and/ or excess roles.
+ Learn the “Sprint” process as a means of arriving at key questions that need answering (part 1).
Assignment: If necessary, re-define the team and add people who bring missing skills.
Assignment: Identify/ define the critical key questions that remain to be explored and answered in order to take your project to the next level. Come prepared to share those questions and some initial thoughts that you might have regarding how to potentially answer them.

**Week 9: “Yes and…” (dig deeper, iteration)**
Learn the “Sprint” process (part 2)
+ Where are the gaps in thinking, knowledge, etc? Areas may include; usability, social, technical, business, etc. Learn and explore the “Sprint” process and use it to answer key questions that you have about your project which need resolving.
Assignment: Completed project with at least one functional prototype with feedback from user-testing process.

**Week 10: Interim project review.**
Presentation, review, critique, of project direction to date including all key assets and components from all phases showing work and iterations of prototypes.
Assignment: Document and think about how/ if you might integrate all feedback provided from previous input.

**Week 11: Final projects development.**
Working session in class as needed on final projects development.
+ Discuss the process of storyboarding as a design presentation tool. Demonstrate sketching for storyboarding, framing, pacing, sequencing, and more.
+ Define required deliverables for final project including; sketches and renderings, prototypes, digital and physical models, presentations, storyboards, process documentation.
Assignment: Final project work continues.

**Week 12: Final projects development. Final presentations preparation**
Continue work in class as needed on final projects. Discussion and approach of final project presentations to FORD.
Assignment: Final project and presentation work continues.

**Week 13: Final projects refinement and completion.**
Work in class as needed on final projects. Discussion and approach of final project presentations to FORD.
Assignment: Final project and presentation work continues.

**Week 14 Final presentations. (FORD attending)**
Final presentations, course wrap-up.