



**The Interprofessional Projects Program at Illinois Institute of Technology**  
**IPRO 397-100: Digital Service Design**  
**Fall 2015 Syllabus**

**Course overview**

This course fulfills the IPRO course learning objectives through teaching a user-centered, methods driven process for designing digital services. Students will work in small, interdisciplinary teams to conceive and design a simple digital service. Digital service design naturally leverages the skills of computer science and information technology and management students, but the class will be interesting and relevant to all disciplines and students interested in design, entrepreneurship, prototyping, and web and app development.

A service is an intangible product we experience in time through multiple touch-points and channels. According to the US department of commerce services account for 80% of the US GDP. However, most services are not that special or distinctive. This class will focus on improving service experiences through digital technology. An example of a digital service is the seat selector application that allows you to pick your seats when you book a flight online. Previous to this digital service you would need to accept whatever seat was assigned to you or call and wait for an agent to help you change your seat. This digital service allows you to change your seat at the time of booking.

Digital services are delivered through a combination of apps, websites, texts, and social media. Shazam, Amazon.com, Citibank mobile banking, and Hulu are examples of digital services. We expect that your team will conceive, design conceptually, and test a simple digital service (more like an app on your phone than Amazon.com). The final deliverables of the class are a prototype that demonstrates the benefits of the concept and preliminary business model for the idea.

**Class content and schedule**

You will be working on a small team (3 – 6 students, including you) for the entire semester. You will work on a student-developed idea. Teams will be formed based on common interests / passions during the second class. Most classes will start with a very brief lecture (15 minutes or less) followed by group work time. Instructors and TAs will visit the teams during group work time to advise on process and content. The class meets at the Idea Shop, with significant class time spent building prototypes.

Week	Date	Class topic
1	Aug 27	<p><i>Project opportunity identification</i></p> <p>In this class we will present an overview of the service design process. We will then discuss how to find opportunities to improve everyday services by looking at non-users and lead users. For homework, you will propose a project idea (the project that you and a team will work on for the remainder of the semester. Your project idea should be related to a problem in your (future) profession. Your opportunity space must be submitted 48 hours before class so the instructors can prepare the selection process.</p>
2	Sept 3	<p><i>Project selection</i></p> <p>In this class we will review the opportunity spaces identified by the class and then build teams based on mutual interest. We will then work with each team to refine the opportunity area. Your homework over the week will be to draft a team charter (what do we plan to do) and team doctrine (how we plan to work together, including our roles).</p>
3	Sept 10	<p><i>Customer journey</i></p> <p>In this class you will learn about how to research and develop a customer journey map. This map outlines the current customer experience and identifies opportunity spaces for your digital service. Your homework for this week will be to complete your customer journey map.</p>
4	Sept 17	<p><i>Customer needs to specifications</i></p> <p>Once you have developed a customer journey map, you can identify the unmet user needs and then author specifications for your service.</p>
5	Sept 24	<p><i>Conceptual development</i></p> <p>After you have identified the unmet needs, you can begin to develop your solution. You will use a What / How / Why format: what is your idea, how does it work, and why is this worth doing?</p>
6	Oct 1	<p><i>Feature development and testing (1 of 2)</i></p> <p>Your team will develop a set of features and functions that deliver the value proposition of your service. You will run paper prototyping sessions to test the validity of the features.</p>
7	Oct 8	<p><i>Feature development and testing (2 of 2)</i></p> <p>You will complete feature development and testing</p>
8	Oct 15	<p><i>Architecture, hierarchy, and data needs (1 of 2)</i></p> <p>In this class your team will begin to develop information architecture for your concept – a more detailed view,</p>

		based on your feature set, of what pages, interfaces, interactions, and data are needed (and how it is organized). Over the next week you will produce an information structure that outlines the experience, allowing you to “freeze” this part of the work so you can begin to address the technical aspects of the service.
9	Oct 22	<i>Architecture, hierarchy, and data needs (2 of 2)</i> In this class your team will finish your information architecture.
10	Oct 29	<i>Interaction prototype (1 of 2)</i> Now that we have defined the user experience and the data / systems required to deliver it, we can begin to prototype how the user will actually interact with the system. You will create either a clickable or a working prototype of the service.
11	Nov 5	<i>Interaction prototype (2 of 2)</i> In this class your team will complete your interaction prototype.
12	Nov 12	<i>Communication and strategy (1 of 2)</i> Your team will develop a high-level business plan for your concept. You will also create and practice a concept pitch.
13	Nov 19	<i>Communication and strategy (2 of 2)</i> Your team will develop a high-level business plan for your concept. You will also create and practice a concept pitch.
14	Dec 3	Final review / critique

## Projects

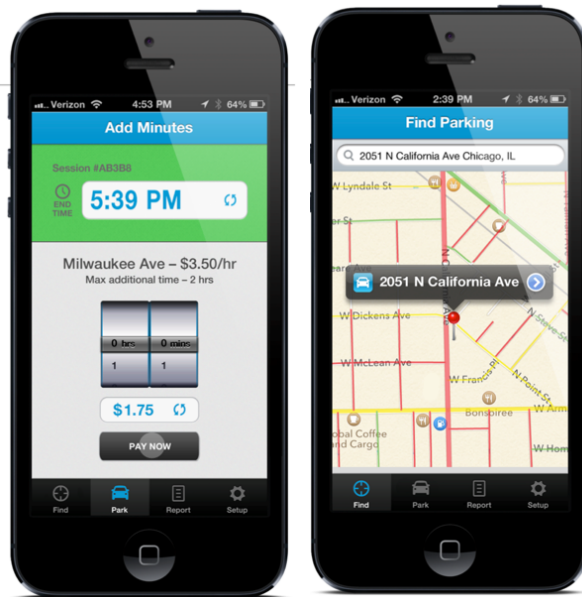
The projects in this class will be student driven: it will up to you and your team to identify a need and then develop a service that addresses that need. The final deliverable will be a prototype of your concept that demonstrates the benefits of your solution. You will also be responsible for developing a preliminary business plan for the concept. We will provide the guidance and tools for identifying and developing your service, but we have found that these projects are more successful when they are based on student interest.

We believe that good services will:

- Solve for a real user need / address a real market (should be attractive to an existing company, venture fund, or NGO)
- Uses existing, accessible data.
- Are intuitive for the user, you do not need to read a long manual to understand how to use it.

- Solves a discreet problem (confirming I have an appointment with my doctor) not a high level problem (helps me with all aspects of my health).
- Does not require a major advance in coding or computer science in order to be viable.

An example of an award winning student digital service design is depicted and described below and on the following page:



**312 Park:** This project concept is a service, using existing, available government data, which makes parking in Chicago more transparent and resident friendly. It allows residents and visitors to Chicago to quickly learn the parking rules for a specific block, pay for parking, and find parking. Students: Jorge Angarita, Lauren Braun, Russel Flench, and Janice Wong.

## Prototyping Tools

There are prototyping tools that are available for your use. They are meant to help you in your prototyping and feedback gathering activities. Even for non-technical users these tools are easy to use, and you can get productive on them quickly. Please feel free to use other tools as appropriate.

Pop UI (stands for Prototyping on Paper)

- Install from: <https://popapp.in/>
- Platforms: iOS, Google Play, Windows Store can all be used to mock up your application
- Description: Draw your User Interface ideas with pen and pencil on paper, take a photo from your phone and add animations and behaviors to mock up you app
- Cost: free

## Fluid UI

- Install from: <https://www.fluidui.com/>
- Platforms: design in browser and run your prototype on iOS, Android and Windows devices
- Description: Design in a browser using images you create or taking a photo of your hand-drawn user interface mock-up.
- Cost: IIT has a site license, please see your Teaching Assistant (TA) to secure a license

## Advanced Prototyping Tools

If you are in the Computer Science, Electrical, Mechanical, Nuclear or other engineering departments you have access to DreamSpark premium that gives Windows, Windows Server as well Visual Studio providing you the ability to create sophisticated apps using programming tools.

DreamSpark Premium Portal by department:

- IIT CS: <http://aka.ms/iitcs>
- IIT ITM: <http://aka.ms/IITITM>
- IIT ECE: <http://aka.ms/IITECE>
- IIT Knapp Center: <http://aka.ms/knapp>

Need help installing Windows 8? Here is some help <http://sdrv.ms/WrNqHG>

If your engineering department is not listed please email [mschray@iit.edu](mailto:mschray@iit.edu)

## Hardware

The idea shop has Microsoft Surface devices, Windows Phones as well as Windows Kinect sensors that you can checkout and use as part of your projects. Please see the Idea Shop administrator to check out one of these devices.

## Intellectual property

Your team owns what you create in class. The instructors will be available to help you understand the rights you have and the value you create. This class will have an open exchange of ideas; if you have some top secret idea that you do not want to share with the world, use the methods you learn in this class to develop it outside of class. All ideas will be up for critique and dialog.

## Learning goals

This class teaches methods and approaches for designing digital services. You will learn how to conceive, advance, and develop simple digital services. You will learn how to design digital services that are:

- **Desirable:** solves a key problem and creates value for a group of stakeholders / customers / users.
- **Viable:** the solution is economically sustainable over time.
- **Feasible:** can be implemented using existing, accessible technology.

This class will fulfill one of your two IPRO project requirements. Successful digital design teams are inter-disciplinary, so while you are learning to design digital services you will also build the following skills:

- **Teamwork:** How to be an effective member of an interdisciplinary team, adding the expertise of your discipline and working on topics broader than your major.
- **Communication:** How to effectively communicate the technical and non-technical aspects of a project to key stakeholders.
- **Logically correct reasoning:** The ability to generate a hypothesis using inductive logic (leveraging design methods), and then prove/disprove it using deductive logic (leveraging prototyping and analytical thinking).
- **Project management:** Deliver a desired, planned outcome with time and resource constraints.
- **Ethics:** How to act ethically when conducting research, working in teams, and creating solutions.

## Grading

Team assignments	Individual assignments
1. Customer journey ~ 10 points 2. Value proposition testing ~ 10 points 3. Feature development ~ 10 points 4. Information structure ~ 10 points 5. Interaction prototype ~ 10 points 6. Strategy ~ 10 points	1. Project proposal 20 points 2. IRB training ~ 5 points 3. Peer reviews ~ 20 points 4. Individual effort ~ 20 points

## Meeting location

Thursday 1:50 – 4:30

The Idea Shop at Technology Business Center (TBC)

## Attendance and workload

Three credit-hours will be granted on successful completion of the IPRO 397 course requirements in fulfillment of one of the IPRO general education requirements. We expect that you will spend a minimum of 6 hours per week on this class (3 hours in class, at least 3 hours outside of class). Most of the class time will be reserved for working in your team. Attendance is critical; you need to be in class so that you have enough time to work with your team. Attendance is taken at the very beginning of each class session. Attendance will affect your grade:

Missed classes	Max individual effort points	Max grade
1	19	A
2	18	A
3	16	B
4	12	C
5 +	6	D

### **Academic honesty**

Cheating, in any form, will not be tolerated in this class. This includes dishonesty on examinations, presenting someone else's ideas or writing as your own without appropriate citations (plagiarism), or knowingly furnishing false information to the university. The full Academic Honesty Code is detailed in the IIT Student Handbook. If you are involved in academic misconduct, you will receive a grade of F on the project for the class, and/or referral to the Director of Judiciaries with the possible sanctions of expulsion or suspension.

### **Disability**

Reasonable accommodation will be made for students with documented disabilities. In order to receive accommodation, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with us as soon as possible. The Center for Disability Resources (CDR) is located in Life Sciences Room 218, and can be reached at 312-567-5744 or [disabilities@iit.edu](mailto:disabilities@iit.edu).

### **Instructor Team Contact Information**

- ❖ Jeremy Alexis, Director, IPRO Academics & Senior Lecturer, Institute of Design ([alexis@id.iit.edu](mailto:alexis@id.iit.edu))
- ❖ Hanna Korel ([hanna.korel@gmail.com](mailto:hanna.korel@gmail.com))
- ❖ Martin Schray ([mschray@iit.edu](mailto:mschray@iit.edu))
- ❖ Ben Spark ([benspark@gmail.com](mailto:benspark@gmail.com))
- ❖ Paula Falco ([pfalco@id.iit.edu](mailto:pfalco@id.iit.edu))