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| **Office** | Virtual |  |

**Course #:** IPRO 497-617

**Course Title:** Global Product Development

**Course Description:**

How do the world’s most impactful and agile companies such as Microsoft, Spotify, Hulu, Netflix, Google, Facebook, and Twitter build their software and services?  How do these companies build cohesive offerings with developers distributed across the globe in many time zones?  Do you want to learn their secrets and techniques and add them to your interview talk track and resume?

In this Global Software Development course, we impart the secrets, skills, techniques, and tools while you learn by doing.  We’ll be using Agile methodology and lean techniques in product management, while employing approaches to move from ambiguity to clarity.  You will be using the tools that the fastest startups and largest multi-nationals use such as GitHub, Kanban, source control, and mark down to work effectively in Agile teams.

The focus of this course is on learning to build software, services, or apps.  The best teams have a breadth of experiences, backgrounds, and majors.  Students interested in design, entrepreneurship, prototyping, and web and app development are encouraged to sign up as well as students from all technical and related disciplines

**Course Approach:**

The focus of this course is on learning to build software, services, or apps (e.g., product) as part of a distributed team (located anywhere in the world) using tools like Github, Slack, screen sharing and virtual whiteboards and using scrum and Kanban boards to facilitate and orchestrate your team's efforts. Your team will be picking a project and collaboratively working together in a series of one-week sprints for the duration of the course to build a product.

**Course Outcome:**

An operational and demonstrable product that you build incremental as a team using agile methodology over the semester.

**Course Objectives:**

Use techniques, process, tools and approaches used by global software teams to incrementally build and deliver digital services. Specific objectives will be:

* Using Scrum as the overall process for product development
* Use a Kanban board to make work visible and track your progress
* Collaboratively work with other students in building a integrated product
* Learn how to work effectively as a team and improve process, tools and techniques to iterative improve team satisfaction, performance and effectiveness
* Incrementally deliver a more complete offering week-over-week throughout the quarter

**Evaluation:**

**At a high-level your grade will be based on these major themes**

* Adhering to agile process (Scrum)
* Using the tools defined for the course (Github and especially its Kanban board) and keeping your product backlog items (e.g., stories) updated and demonstrating progress
* Working as a team with roughly equal contributions to the team and exemplifying team working agreement (graded based on peer evaluations)
* What you build together (product and presentations)
* Attendance (mandatory) and contribution to the team
* On the third absence your course grade will drop one letter grade
* On the fifth absence your course grade will drop another letter grade
* On each of sixth and seventh absence your course grade will drop another letter grade
* If you are more than 20 minutes late you will be counted as absent
* If you leave class before 8:35 PM you will be marked absent
* If your team is consistently sharing your lack of contribution to the team your grade will drop one letter grade

**Course Roadmap:**

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| Week | Theme | Topic | Student Presentations |
| 1 | **Problem Framing** | Learn about the course Course Structure and syllabus ()  Weekly Class Structure ()  Exploring Project Themes ()  What is Markdown () |  |
| 2 | Break into selected teams and consider problem statements Selecting ideas  Forming teams  Github ()  Problem Statement () |  |
| 3 | Product Design Document ()  Responsible Teaming ()  Personas () |  |
| 4 | What is a User Story?  Kanban 101 ()  Sprint review agenda () | Present Product Design Document (2/1/2022) |
| 5 | **Think, build, test and demo for mid-term presentation** | What is Scrum ()  What is stand up () |  |
| 6 | What is a retrospective () |  |
| 7 |  |  |
| 8 |  | Mid-term presentations (3/1/2022) |
| 9 | **Think, build, test and demo for final presentation** |  |  |
| Spring Break |  | 3/15/2022 |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  | Dry run final presentation and demo (4/19/22)  Innovation Day Spring 2022 - video and project report due 4/21/2022 |
| 14 |  | Final presentation and demo (4/26/2022)  Innovation Day (Friday 4/29/2022) Mandatory attendance all students (9:00 AM – 1:30 PM) |
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**Requirements:**

Familiarity with a programming language of your choice

**Week 1 – 3 research, understand and orient (entire class meets)**

* Understanding of our software development process
* Working as a team to select a project and set of technologies
* Building a product backlog for what needs to built
* Defining an initial sprint to get tools and platform together

Define the specialized role for Product Owner

**Weeks 4 -15 think, build, test and delivery a product increment (individual teams)**

* Your preparedness for your sprint review
* The progress against your sprint plan and how up-to-date your backlog is
* Your developing ability to scope the work for your coming sprint
* Your collaboration with team members, feedback and ideas in sprint retrospective and incremental progress on your product increment for the week

**Course FAQ**

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| --- | --- |
| Question | **Answer** |
| How do we communicate in class and outside? | In-class   * We use Blackboard collaborate Ultra for our on-line class experience with all student meeting as a single class in Collaborate Ultra instructional portions of class. * Faculty meet with each team individually in breakout room for that team in Blackboard Collaborate Ultra. Teams often use Discord for their own collaboration. * Faculty work to allow as much class time as possible for team collaboration and we expect teams to work interactively and collaboratively during class time   Outside of class   * Faculty can be reach and respond via their IIT email * Student teams can use Zoom, Teams or any other tools (Discord, phones) they prefer to arrange for meeting outside of class (but in-class time and collaboration is the primary approach) |
| How will student teams be mentored? | Faculty are assigned to specific teams for the entire term. Faculty meet with teams each class (usually for around 20 minutes - we call it the sprint review) and use a Kanban board to discuss work, progress and plans. We have a set group of topics we discuss as well as open ended questions. We use Gitbhub for document and code storage. |
| How will you evaluate individual contributions in the context of the team? | Everyone has the opportunity to lead sprint reviews for 2 weeks (sometimes more). Their work product, peer reviews, demonstrated collaboration, teamwork, progress and three team presentations during the term are all opportunities to observe and grade student performance. |
| How can we get ideas for a project? | Look at Amy Webb’s macro sources of disruption diagram.   * Can you think of a product or service in any of these categories? * How could a product or service change the game in any of these areas? * Put yourself or your potential customer in the middle of this wheel. Do any ideas come to mind? * Can you think of a macro source that is missing (e.g., I don’t see entertainment in the wheel)? * Pick a source that means the most to you and think about a pain in this area. For example, perhaps you pick education, and you think how hard it is to know which faculty member is the best for a particular class or how hard it is to find a study space on campus. |
| What if I can’t think of any idea? | Try not to think about a single idea but write down 10 or 20 ideas even if some are bad there is usually some that have potential.  Here are some ideas to help you get started:   * App for pet sitting/renting * Student coaching (mentoring/tutoring underclassman) * Student to student tutoring Service * Campus interview “assistant” * Instructional app video game * Artificial intelligence (AI) in education * Campus safety * Course/faculty reviews or selection * Green lifestyle * E-Government |
| How does team and project creation take place? | Class period #1   1. Faculty introduce the team create process made up of the steps below 2. Each student reviews Amy Webb’s sources of disruption wheel to trigger ideas 3. Each student brainstorms at least 10 ideas on your own 4. We randomly assign **temporary** teams and each student on a team pitches their top two ideas to other team members (in two minutes) 5. Each student researches ideas and find articles and topics their project 6. Teams select top two ideas to further discuss 7. Each student submits them via form <https://forms.gle/LuifNA1hMJN1QXYq6>   Class period #2   1. Faculty share a curated list of student ideas from week #1 form submissions and each student votes for their individual top two ideas via another form <https://forms.gle/SBtpcyidb7rLVYwKA> 2. Taking into consideration student votes, majors and such faculty share initial team selections 3. Students review team selections for fit and discuss any concerns with faculty 4. Students start working in their teams and move from their idea to a product |