# **Course #:** IPRO 497-628 - 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.

**IPRO Program Learning Objectives**

1. **Open Ended Problem Solving** - what do I know, others know or what can I find to help me solve this problem?
2. **Teamwork** - When WE win - I win, so how can I help my teammates
3. **Communication** - In business and life the best ideas and results often come from multi-disciplinary teams, but they need to work together by finding a common language that take experimentation and patience with ourselves and others.
4. **Ethics** – bring the ethics from your academic field and meld that with treating others how you want to treated

**Course Objectives:**

* All of the IPro objectives – plus using the agile methodology to plan and execute our work.

**Course Outcome:**

* An operational and demonstrable product demo that you build incremental as a team using agile methodology over the semester in the language/framework/tools of the team’s choice.
* Students will effectively work as a remote team
* Students will learn and use an agile methodology to plan, track and complete work
* Students will use a Kanban board to allow transparency, coordination and visibility into work
* Students will compellingly present their work
* Students will develop a working applications in the language/framework/tools of their choice

**Grading Policy:**

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| **Category** | **Percentage of grade** | **Activities** |
| **Attendance** | **10% (up to 40%)** | * If you are more than 20 minutes late you will be counted as absent * If you are not online in **Collaborate Ultra** for 80%+ of the class time you will be counted as absent * 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 |
| Value adding participation | 50% | * Working as a team with roughly equal contributions to the team and exemplifying team working agreement (graded based on peer evaluations- If your team is consistently sharing your lack of contribution to the team your grade will drop 10%) * 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 * Keeps Kanban board updated and owns at least one (or more) significant stories each week * makes sure deliverables, presentation and reports are done well and completed on time. * Active in discussion during class and team time, takes leadership roles inside and outside of class when needed, deliverables, presentation and reports are done well and completed on time. |
| Midterm/Demo Day Review | 10% | * Participates in putting together code, demo, slides, graphs, etc., active in presentation and answering judges questions. |
| Final Presentation | 20% | * Participates in putting together slides, graphs, etc., active in presentation and answering judges questions |

**Course Roadmap:**

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| Week | Theme | Topic | Student Presentations |
| 1 | **Problem Framing** | Learn about the course Weel 1 Run of show ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Week%201%20Run%20of%20show.pptx))  [Process for week 1](#_Class_period_#1)  Course Structure and syllabus ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/IPRO%20497%20Global%20Software%20Dev%20Syllabus%20Spring%202022.docx))  Weekly Class Structure ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Weekly%20Course%20Schedule.docx))  Exploring Project Themes (See syllabus section)  What is Markdown ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Markdown%20How-To.pptx))  Each individual complete the following form ([link](https://docs.google.com/forms/d/e/1FAIpQLSdWYylrk4lRXvHa8v59Cmmwa-EyOXEyWZ8SGsY82dVVha_Bjg/viewform?usp=sf_link)) |  |
| 2 | Break into selected teams and consider problem statements Week 2 Run of show.pptx  [Process for week 2](#_Class_period_#2)  Selecting ideas (students vote via Google form [link](https://docs.google.com/forms/d/e/1FAIpQLSdVPfurvkOBg_iWDX7VZfvK8d2PLidMkrqEMf4_w0YxeSYIVQ/viewform?usp=sf_link))  Forming teams (faculty sort/validate teams – enough people and such)  Github ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Github.docx))  Problem Statement ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Problem%20Statements.md)) |  |
| 3 | Labor day no class 9/4 |  |
| 4 | Fist of five   * Teaching ([link](https://github.com/mschray/IPro497Sample/blob/main/External%20Course%20Aids/Fist%20of%20Five%20teaching%20feedback.jpg)) * Team ([link](https://github.com/mschray/IPro497Sample/blob/main/External%20Course%20Aids/Fist%20of%20five%20team%20feedback.jpg))   Product Design Document   * Product Design Doc template ([link](https://github.com/mschray/IPro497Sample/blob/main/Examples/ProductDesignDoc.md) * Product Design Doc example ([link](https://github.com/mschray/IPro497Sample/blob/main/Examples/SampleProductDesignDoc.md))   Responsible Teaming ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Responsible%20Teaming.pptx))  Personas () |  |
| 5 | Modes of collaboration ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Modes%20of%20collaboration.pptx))  What is a User Story? ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20a%20user%20story.pptx))  Story acceptance Criterion ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/AcceptanceCriterion.md))  What is Kanban (101) ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20Kanban%20(101).pptx))  Sprint review agenda ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Sprint%20Review%20Agenda.docx)) | Present COMPLETE Product Design Document (01/31/2023) |
| 6 | **Think, build, test and demo for mid-term presentation** | What is Scrum ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20Scrum.pptx))  Review mid-term presentation template ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Mid%20course%20presentation%20template.pptx))  Reminder - Fist of five   * Teaching ([link](https://github.com/mschray/IPro497Sample/blob/main/External%20Course%20Aids/Fist%20of%20Five%20teaching%20feedback.jpg)) * Team ([link](https://github.com/mschray/IPro497Sample/blob/main/External%20Course%20Aids/Fist%20of%20five%20team%20feedback.jpg))   Get ready for sprint review:   * 1. Each team look at your PDD. Who is the sprint review lead today? * 2. When I arrive sprint review lead be ready to share your screen with your Github Kanban board. * 3. Each team member be ready to answer the following questions for your story or stories: * a. What did I work on since last sprint review (class) * b. What am I planning to work on for the next sprint review (class) * c. Any blockers, questions or areas you need help in. |  |
| 7 | What is stand up ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20the%20Standup.pptx))  What is a retrospective ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20a%20retrospective.pptx)) |  |
| 8 | NO CLASS FALL BREAK DAY 10/9 |  |
| 9 |  |  |
| 10 | **Think, build, test and demo for final presentation** |  | Mid-term presentations (3/7/2023) |
| 10 | Kanban (201) ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/What%20is%20Kanban%20(201).pptx))  Scrum vs. Kanban ([link](https://github.com/mschray/IPro497Sample/blob/main/Course%20Content/Scrum%20vs%20Kanban.pptx)) |  |
| 11 |  | 3/28/2023 |
| 12 |  | 4/4/2023 |
| 13 |  | 4/11/2023 |
| 14 |  | Dry run final presentation and demo (4/18/23) |
| 15 |  | Final presentation and demo (4/25/2022)  Innovation Day (Friday 4/28/2023) Mandatory attendance all students (9:00 AM – 1:30 PM) |
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**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 GitHub 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? | Amy Webb’s Disruption Wheel 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? | Idea starters 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 Faculty introduce the idea creation process made up of the steps below:   1. Each student reviews [Amy Webb’s sources of disruption wheel](#_Amy_Webb’s_Disruption) and [Idea Starters](#_Idea_starters) to trigger ideas 2. Each student brainstorms at least 10 ideas on your own 3. Faculty randomly assign **temporary (only for tonight)** teams 4. Students in these random **temporary** teams each pitch their **top two ideas** to other team members (in two minutes per student – **use a timer**) 5. Teams discuss and vote on this week’s top **two ideas** to further discuss 6. Each student picks ONE IDEA their team two ideas and researches it generating questions and finds articles about their top idea 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://docs.google.com/forms/d/e/1FAIpQLSdVPfurvkOBg_iWDX7VZfvK8d2PLidMkrqEMf4_w0YxeSYIVQ/viewform?usp=sf_link> 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 |