IDE 314

School: SES

Owning Academic Unit: SES/ECE

Coordinating Academic Unit (if applicable)**: SES/ECE**

Course Title: **Entrepreneurship Experience Part-I**

Program(s):

Proposed Course # or Level: **314**

Catalog Description: *(This paragraph should succinctly summarize the course objectives and outcomes as described in this proposal, and list pre- or co-requisite courses in the relevant section below. Keep the length to no more than 100 to 150 words. Do not restate the list of topics.)*

This course teaches students the science behind generating great *ideas*, turning ideas into compelling *products*, and using these products to capture *markets*. From technology to sales, patents to legal incorporation, this course delivers everything early engineers and founders need to build something of *massive* importance.

[Part-I] of this course specifically focuses on the science behind great *ideas*, and turning these ideas into *compelling technological products* with a strong potential for intellectual property. In its current offering, our domain of technology will be limited to computer hardware, software, and/or allied technologies.

Course Objectives: *(This section should provide a description of what students will get out of the course beyond the course itself – i.e., how it will prepare them for their profession, or how the course fits in with the overall curriculum of the program(s) that the course belongs to.)*

Professional Preparation: This course develops essential technological and business skills for building products of significant value and the creation of high growth companies. By engaging in such acts, the student is able to *emphatically* advance in their pursuit of a rewarding STEM career; either as (i) founders/entrepreneurs of a full-fledged enterprise, (ii) graduate students in top-notch institutions, or (iii) as employees at major corporations such as Google, Facebook, Apple etc.,

Broader Impact: The broader impact of this course is to create a deeply embedded entrepreneurial thinking experience in the middle years of our educational program at Stevens. By uniquely merging strong technological skills with a business grounding, this course is unlike any, and complementary to, any other entrepreneurial thinking courses here at Stevens. It is a collective mission to empower talented engineers to build meaningful and compelling solutions to the world's problem.

List of Course Outcomes: *A course outcome is an ability or skill that each student is expected to develop by taking the course. Each course must have a list of outcomes developed by the instructor. The course outcome should be worded actively.*[1]

- Student is able to describe the basis of a good "idea": purpose, problem, 10x better solution, and the potential for a scalable/repeatable revenue stream.
- Student is able to propose a Minimally Viable Product (MVP) for an idea of choice.
- Student is able to describe and deploy a full stack solution of an MVP. Such MVP *must be an operational prototype*: either on hardware, App Store, Web or as an installation file on popular platforms.
- Student is able to produce either a wireframe or usable interface for MVP following material design UI/UX principles.
- Student is able use MVP to craft a mission statement, and the associated branding and storytelling. Such a statement is deployed as a website, video or pamphlet.
- Student is able to understand Agile Manufacturing, and is able to incorporate this in the MVP development.
- Student is able to deliver 18-month technological product roadmap, including the possibility of a patent.

Prerequisites:[2] E115 or AP in computer science. Attendance to, and successful completion of, the Launchpad *retreat*. This retreat is normally held in March (semester prior to this course in Fall). *This course already has over **80** enrollment requests, and we want to limit the participants to 25.*

Co-Requisites: Enrollment in this course is strictly by instructor consent. Students must submit a "pitch-deck" to be considered for this course. The Launchpad retreat helps them prepare such a pitch-deck.

Cross-listing:

Number of credits: 3.00

For Undergraduate Credit toward Degree:
[x] Yes ☐ No ☐ Not for Dept. Majors ☐ Other

Is this course repeatable for additional credit? ☐ Yes ☐ No

Mode(s) of Delivery: [x] In-person ☐Online ☐Hybrid ☐Other _____

For instructional format, you may select more than one. If a course includes multiple formats (for example: lecture and lab; lecture, lab and recitation, etc.), please indicate which controls grading.

Lecture/Lab Combo is when both the lecture and lab are scheduled in the same block. For Lecture/Lab Combo, you do not need to indicate which controls grading.

Instructional Format: [x] Lecture ☐Lab ☐Recitation ☐Lecture/Lab Combo

[1] Good examples can be taken from descriptions of Bloom's taxonomy. For example, see the table located at: http://www.nwlink.com/~donclark/hrd/bloom.html.

[2] You may provide a list of courses, competencies or other criteria (e.g., "Students must have taken CS 2XX" or "Students must have taken a course in thermodynamics," or "Students must be part of a certain cohort.")

If multiple instructional formats are selected, please indicate which controls grading:

Typical Period(s) Offered: **[x] Fall** ☐Spring ☐Summer A ☐Summer B

Effective date: Fall 2019 onwards

Contact Person(s) (In the case of joint ownership, please list a contact for each department/school.)
Name: Mukundan Iyengar
Title: Teaching Assistant Professor
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Date approved by individual school and/or department curriculum committee: _____
If your school does not have a curriculum committee, please indicate date of approval by relevant stakeholders and identify them.

Textbook(s) or References (List required and recommended texts including publisher and year in a recognized format such as APA, AIP, Chicago or MLA):

1. "*The Lean Startup*" -- Eric Ries (**required**)
2. *"Disciplined Entrepreneurship"* -- Bill Aulet (**required**)
3. "*Zero to One: Notes on startups, or how to build the future*" -- Peter Thiel (**required**)
4. "*Clean Code: A handbook of Agile software craftsmanship*" -- Robert Martin
5. "*UX for beginners: 100 short lessons*" -- Joel Marsh
6. "*Evil by Design: Interaction techniques that lead us into temptation*" -- Chris Nodder
7. "*Hooked: How to build habit-forming products*" -- Nir Eyal
8. Online tutorials for Node.js, React.js, Swift and Android

Grading Percentages: **HW [x]** Class work ☐ Mid-term ☐ Final ☐ **Projects [x]**

Other ☐ (specify both percent and kind of work)

Sample Syllabus: This syllabus should be sufficiently detailed to allow the Curriculum Committee to understand and discuss the scope of the course, its aims and assignments. The homework and reading sections should provide sufficient detail for the Committee to judge the amount and kind of work required of students. The Committee understands that this syllabus is a sample of how a course might be organized, not a commitment to always offer the course exactly as described every time. Note that a syllabus is not merely a listing of topics or a restatement of the catalog description.

	Topic(s)	**Reading(s)**	**Class exercises** **(Optional)**	**HW**

Week 1	Welcome & scope.	Book (1)		Submit pitch-deck
Week 2	Science behind great ideas	Book (1) and (2)		Refine pitch deck
Week 3	Hypothesis testing: talk before you build	Book (1), (2), (3)		Submit customer interviews
Week 4	MVP: What to build	Book (1), (2), (3)		Propose product definition
Week 5	MVP: The technology Roadmap	Book (3)		Identify what you need before you build
Week 6	[Web] JavaScript Node.js vs Flask	[Online resources]		Show web-demo
Week 7	[Web]: Advanced servlets	[Online resources]		Improve web-demo
Week 8	[Mobile]: Swift and iOS	[Online resources]		Show mobile demo
Week 9	[Mobile]: Java and Android	[Online resources]		Mobile demo
Wee 10	[UI] The front end of MVP	Book (4)		Deliver “landing” page
Week 11	[UX] Mapping the customer experience	Book (4), (5)		Wireframe of the product
Week 12	[Hooked] How to form habit building products	Book (6)		Map the user “experience”
Week 13	Crafting the 18 month plan	[Online Resources]		Deliver 18 month plan
Week 14	Final Presentations			Pitch Deck