

Engineering Innovation

EGN 6642 All On-Campus Sections

Class Meeting Times: M 9:35 AM-11:30PM; M 1:55 PM-3:50PM; T 9:35 AM-11:30PM; T 1:55 PM-3:50PM

Location: Wertheim Building 360

Academic Term: Fall 2025

Instructors:

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Course Website: <http://elearning.ufl.edu/>

Office Hours: By appointment (booking links on canvas)

Innovation Mentors: Grace Peters, Grace Tran, Tommy Duque, Hayden Foster, Kovidh Gandreti

Course Communication

This semester there will be three main modes of communication with the professor and your peers:

1. Canvas- Students with questions can contact the professor through Canvas inbox. The instructor will regularly update the Canvas page and make announcements for students. Please ensure your time zone and push notifications are set to receive alerts regarding announcements.
2. GroupMe- A class GroupMe has been created for this course. Every student is expected to check GroupMe as the professor/TAs will post most announcements or answer questions through this platform. All sections of the course are included in this chat. If you believe a question could benefit every student, then the student should post it into GroupMe.
3. Zoom/Hangouts/Microsoft Teams- The instructors will often utilize zoom to record class lectures, for office hours, or to meet with students. Students are also able to request a video meeting with the professor at any time. While class time will be devoted to group work, there may be times where your group needs to meet outside of the classroom and you should use a video platform for doing so, but it is the choice of the group as to which platform is used.

Note: All messages should be sent through Canvas inbox or GroupMe. You are welcome to set up an appointment to talk with the instructors at any time. If you have an issue or need help, don't wait to ask about it. Problems are generally easier to solve sooner rather than later.

Course Description

Engineering Innovation introduces students to the concepts of innovative thinking and innovation practices. Using lectures, case studies, team exercises and guest speakers, the course teaches life skills in innovative thought and action that students can use in careers ranging from starting companies to executing research and development projects in large companies.

Credit Hours: 3

Course Objectives

Students examine the innovator's mindset and explore the culture of innovation. In a real-work, hands-on way, students learn how to be innovative and understand why innovation is integral today. Innovation strategies and tactics are evaluated from the perspective of ideation; that is, transforming innovative problem-solving ideas into viable solutions that are produced, sold, consumed, and/or implemented in society.

Students develop an understanding of the importance of innovation – and an innovative mindset. A best practices approach is used to demonstrate how innovators conceive and implement impactful solutions for a variety of problems. Students learn how technology can serve as both a pathway and a roadblock in organizations committed to operating with an innovator’s mandate. Students are taught practical and applicable skills that can be applied in various organizations from start-ups through large companies.

Materials and Supply Fees: N/A

Professional Component (ABET): N/A

Relation to Program Outcomes (ABET): N/A

Required Textbooks and Software: GroupMe

Course Schedule

This course will be delivered in a Flipped Classroom modality. Each week, students are responsible for reviewing course content in advance of class sessions. Materials may include prerecorded lectures, TED Talks, podcasts, and/or assigned readings that introduce and expand on the weekly topics.

To reinforce understanding, students will complete a weekly content quiz based on the assigned materials. Additionally, each week includes a creative thinking activity to be completed individually outside of class. These activities are designed to help students exercise and strengthen their creative thinking—an essential skill shown to enhance overall problem-solving ability. Activities will introduce a variety of tools and perspectives to support ideation and innovative thinking.

Scheduled class periods will be used for team collaboration, applied activities, and student presentations. Select sessions may also feature guest speakers who exemplify innovation in action. Students are expected to bring their laptops to each class meeting to participate fully in these hands-on activities.

Engineering Innovation is firmly grounded in experiential, real-world learning. Students will work in multidisciplinary teams, formed based on weekly availability, to develop an Innovation Playbook—a process book documenting their team’s problem-solving journey. Weekly team meetings, both inside and outside class time, are expected to ensure steady progress on this collaborative project.

Upon completion of the course, students will have developed practical, transferable skills they can apply across a wide range of career paths—from entrepreneurs launching startups, to intrapreneurs innovating within established organizations, to future leaders driving change at the highest levels. Engineering Innovation is delivered along the following outline:

- I. Introduction to Innovation – What is innovation; Why is innovation important; Innovation Types; Innovation Methods & Methodologies; Design Thinking
- II. Inspiration– Problem Identification and Discovery; Needs Statement Development; Ethnographic/Market Research; Social Innovation; Biomimicry’ Internet of Things
- III. Ideation– Ideation & Creativity; Idea vs. Opportunity; Pattern Recognition; Creativity Tools; Overcoming Mental Blocks; Developing an Innovator’s Mindset; Brainstorming
- IV. Innovation Strategies and Tactics - Ideas + Execution = Innovation; Innovation outcomes; How to get from the big idea to a prototype with target specifications; Intellectual Property’s Role in Innovation; Commercialization and commercialization strategies; Competitors vs Strategic Partners; Feasibility
- V. Conceive and Create an Innovation Playbook – Developing an execution strategy; Turning innovations into economic and societal impact

Dates	Topics	Major Assignments Due
Aug 21 – Aug 31	Course Overview: syllabus, course description, innovative mindset	—
Sept 1 – Sept 7	Section 1: Introduction to innovation; invention vs innovation; types of innovation	—
Sept 8 – Sept 14	Section 2: Design Thinking, discovery skills, painstorming, opportunity recognition, need statements	Need Statements; Team Bylaws
Sept 15 – Sept 21	Section 3: Social innovation, team formation, needs filtering, decision matrix	Kill or Pursue
Sept 22 – Sept 28	Section 4: Stakeholder analysis, market research, competitive landscape	Landscape; Get Out and Discover
Sept 29 – Oct 5	Section 5: Cognitive biases, interviews, surveys, design criteria	Get Out and Discover
Oct 6 – Oct 12	Section 6: Divergent thinking, groupthink, brainstorming, ideation	Ideation Portfolio
Oct 13 – Oct 19	Section 7: SCAMPER, systematic inventive thinking, solution selection	Ideation Portfolio
Oct 20 – Oct 26	Section 8: Failures, pitching, value proposition, giving feedback	Feedback Workshop
Oct 27 – Nov 9	Section 9: Reviewing feedback, risky assumption tests, prototyping and testing	RAT Workshop
Nov 10 – Nov 16	Section 10: Feasibility, SWOT, PEST, Safety, Market size, Porter's 5 Forces	—
Nov 17 – Nov 23	Section 11: Intellectual property, implementation, action plans, what's next	Final Pitch
Nov 23 – Dec 5	Section 12: Final playbook, peer evaluations	Innovation Playbook

Attendance Policy, Class Expectations, and Make-Up Policy

In-person sessions are required for content discussions, teamwork, and project work. Attendance at all weekly sessions is mandatory. One unexcused absence is permitted; each additional unexcused absence reduces your final grade by one letter. Two late arrivals count as one unexcused absence.

Excused absences (e.g., interviews, university activities, religious holidays) must be requested through Canvas before class, unless it is an emergency—in which case notify the instructor as soon as possible. If you miss class, you are responsible for coordinating with your team and reviewing course materials to stay on track.

Assignments must be submitted through Canvas by the deadline. Late, partial, or make-up submissions are not accepted except in rare cases at the instructor's discretion and consistent with catalog policies.

Evaluation of Grades

The course is structured around lectures, readings, discussions, individual activities, and a collaborative team project. All students will be assigned to a team responsible for developing an Innovation Playbook and presenting their final innovation to the class.

To ensure accountability and fair contribution, students are required to complete peer evaluations throughout the semester. These evaluations are submitted through Feedback Fruits, a platform that allows you to evaluate your own performance, assess your teammates, receive feedback, and reflect on your team's collaboration.

Failure to submit peer evaluations will result in a deduction as outlined in the grading policy. Additionally, if—in the sole discretion of the instructor—a student is found to be contributing inadequately to their team, the instructor reserves the right to adjust that student's grade on any or all team assignments to reflect their level of participation.

All final course grades are subject to change pending completion and review of the team member evaluations.

Please note that this class is out of 1120 points; however, you are only graded out of 1100 points. There is a built-in extra credit of 20 points.

Assignment	Assignment Type	Total Points
<i>Playbook</i>		
Team Bylaws	Playbook Team	5
Need Statements	Individual	10
Kill or Pursue	Playbook team	40
Current Landscape	Playbook team	100
Get Out and Discover Interviews	Individual	50
Get Out and Discover Survey/Slides	Playbook team	50
Ideation Portfolio	Playbook team	65
Feedback Workshop Pitch	Playbook team	10
Feedback Workshop Evaluations	Individual	10
Feedback Workshop Response Table	Playbook team	20
RAT Workshop	Playbook team	50
Innovation Playbook	Playbook team	200
Final Presentation	Playbook team	50
Peer Evaluations (2x15)	Individual	30
<i>Experiential Assignments</i>		
Personal Biography	Individual	10
Experiential Activity	Individual (3x15)	45
<i>Weekly Activities</i>		
Reflections (7*5 pts)	Individual	35
Creative Activities (12*10pts)	Individual	120
Content Quiz (12*10 pts)	Individual	120
<i>Graduate Assignments</i>		
Innovation Challenge	Individual/Groups of 2 or 3	100
Total Points Possible		1120

Grading Policy For all students, final course grades will be determined by dividing the number of points that the student has earned by the Total Points Possible for all assignments as given above (student total weighted class score) and applying the following Grading Scale:

Percent	Grade	Grade Points
93 - 100	A	4.00
90 - 92.9	A-	3.67
87 - 89.9	B+	3.33
83 - 86.9	B	3.00
80 - 82.9	B-	2.67
77 - 79.9	C+	2.33
73 - 76.9	C	2.00
70 - 72.9	C-	1.67
67 - 69.9	D+	1.33
63 - 66.9	D	1.00
60 - 62.9	D-	0.67
0 - 59.9	E	0.00

AI Use Policy

If you choose to use Generative AI (e.g., ChatGPT, BingAI, Google Bard) in completing any of your work in this class, please note the guidelines below that must be followed.

Be aware of the limits of Generative AI such as ChatGPT and BingAI:

- The results you get are very dependent on the prompts you use and how well you define those prompts. If you want to get good outcomes, you need to work to refine your prompts to achieve the best results.
- Numbers and facts you may get when using Generative AI could be completely wrong. Unless you can independently confirm the results through another source, do not trust that they are correct. You will be responsible for any incorrect numbers or facts you get from the tool.
- AI is a tool and as such you must acknowledge that you used it in completing any work for the class. You must include a paragraph at the end of any assignment in which you used AI explaining how you used it and what prompts you used to get the results. Failure to do so will be considered a violation of the UF Academic Honesty Policy.
- Be thoughtful about how you use this tool and don't use it when it is not appropriate for the case or circumstance.

University Policies and Student Resources

Students are expected to be aware of and adhere to university-wide academic policies and available support services. Please review them here: <https://go.ufl.edu/syllabuspolices>. Instructor-specific guidelines in this course align with these university policies.