

Innovation and Design Thinking

- 1. Course number and name:** 020INDES2 Innovation and Design Thinking
- 2. Credits and contact hours:** 2 ECTS credits, 1x1:15 contact hours per week
- 3. Name(s) of instructor(s) or course coordinator(s):** Ursula El Hage
- 4. Instructional materials:** Course handouts, slides

References:

- Where good ideas come from, Steven Johnson
- Design Thinking, Tim Brown, Harvard Business Review, June 2008
- Don't Let the Minimum Win over the Viable, David Aycan, Harvard Business Review, May 2012
- Human Centered Design Toolkit, IDEO
- IDEO's Culture of Helping, Teresa Amabile, Colin M. Fisher and Julianna Pilemenr, Harvard Business Review, January 2014
- IDEO's Tim Brown on Using Design to Change Behavior, Reena Jana, Harvard Business Review, March 2010
- Playing Around with Brainstorming, Michael Schrage, Harvard Business Review, March 2001
- Where good ideas come from, Steven Johnson
- The ten faces of innovation, Tom Kelley
- Future Agenda, the world in 2025

5. Specific course information

a. Catalog description:

The aim of this course is to learn about the creative mindset and particular practices that enable innovation. Throughout this course, students will be brought to explore creativity and the sources of innovative ideas. Because believing that one can be creative is the first step to becoming an innovative thinker and leader, the course discusses the strategies for enhancing creative confidence and instilling it in others. It also introduces the design thinking process, which is a time-tested approach for practicing innovation. Students will also explore the various aspects of the design thinking process, from need finding and empathy to generating insights to prototyping and experimenting. Finally, the course deals with how to create and implement an innovative mindset in a work environment and how to influence and inspire others.

b. Prerequisite: None.

c. Required for CCE, EE and ME students.

6. Educational objectives for the course

a. Specific outcomes of instruction:

- Understand user needs.
- See different perspectives of a problem.
- Define and reframe problems effectively.
- Generate alternative, more effective solutions.
- Use multiple techniques for ideation to inspire a complete range of ideas out of a well-chosen opportunity area.
- Understand the latest trends and use them to innovate.
- Develop innovation and creative thinking skills through practical experience.
- Explore methods for creative problem-solving and innovation.
- Acquire a toolbox of techniques to think more creatively in future projects through repeated use.

b. PI addressed by this course:

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|-----------------|-----|-----|
| PI | 1.1 | 4.2 |
| Covered | x | x |
| Assessed | x | x |

7. Brief list of topics to be covered

- Introduction to Innovation: Process Overview (1 lecture)
- Discover user need (1 lecture)
- How to develop empathy and uncover needs to fuel innovation (1 lecture)
- Insight articulation and reframing (1 lecture)
- How to reframe a problem and consider the implications for innovating new processes, services, and products (1 lecture)
- Idea generation (1 lecture)
- How to identify numerous solutions to a given problem in a short time frame (1 lecture)
- Systematic Inventive Thinking (1 lecture)
- Concept Development (1 lecture)
- Prototyping (1 lecture)
- Business Modeling (2 lectures)