MGT-555

# Innovation & entrepreneurship in engineering

Profs divers *, Weber Thomas

| Cursus | Sem. | Type |
|---|---|---|
| Management, Technology and Entrepreneurship minor | H | Opt. |
| Managmt, tech et entr. | MA1, MA3 | Opt. |

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|---|---|
| Language of teaching | English |
| Credits | 10 |
| Withdrawal | Unauthorized |
| Session | Winter |
| Semester | Fall |
| Exam | During the semester |
| Workload | 300h |
| Weeks | 14 |
| **Hours** | **10 weekly** |
| Courses | 2 weekly |
| Project | 8 weekly |
| **Number of positions** | **50** |

**It is not allowed to withdraw from this subject after the registration deadline.**

## Summary

This course is a joint initiative between the School of Engineering and the College of Management to encourage and promote entrepreneurship and management skills, engineering design, hands-on experience, teamwork, and awareness of social and ethical implications in engineering and management.

## Content

The material is taught in four modules, including Systems Engineering, Product Design Principles, Business Economics, and Prototyping Practice. A key component of the course consists of a team project, usually conducted in collaboration with an industry partner, addressing a significant commercial need and/or societal issue. Lectures will be given by domain experts. The first part of the course focuses on product design. Students will be working in multidisciplinary teams to define a product concept, draft a prototype and propose a plan for product commercialization. At the conclusion of the course, the projects will be entered in a prize competition, judged by a panel of industry experts and faculty.
Topics include: Design Criteria * Modularity * Project Planning * Lifecycle Analysis * Investment Criteria * Real Options * Electric Circuits * Reliability Engineering * Materials * Robotics * Software Development * Intellectual Property * Machining, 3D printing and Assembling a Prototype * Environmental Sustainability * Ergonomics

## Keywords

Business economics, product design, systems engineering, technology commercialization, hands-on practice

## Learning Outcomes

By the end of the course, the student must be able to:

- Translate specifications into product design
- Assess / Evaluate the economic viability of product at different development phases
- Manage the production of a prototype
- Develop a plan for the commercialisation of the product

## Transversal skills

- Communicate effectively, being understood, including across different languages and cultures.
- Evaluate one's own performance in the team, receive and respond appropriately to feedback.

- Set objectives and design an action plan to reach those objectives.

## Assessment methods

- 40% Presentation
- 50% Report/prototype
- 10% Collaboration

## Supervision

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|---|---|
| Office hours | No |
| Assistants | Yes |
| Forum | Yes |