Innovation & entrepreneurship in engineering

Michaud Véronique, Weber Thomas

**Cursus**

<table>
<thead>
<tr>
<th>Cursus</th>
<th>Sem.</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical and Electronical Engineering</td>
<td>MA1, MA3</td>
<td>Opt.</td>
</tr>
<tr>
<td>Managmt, tech et entr.</td>
<td>MA1, MA3</td>
<td>Opt.</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>MA1, MA3</td>
<td>Opt.</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>MA1, MA3</td>
<td>Opt.</td>
</tr>
</tbody>
</table>

**Language of teaching**  
English

**Credits**  
10

**Withdrawal**  
Unauthorized

**Session**  
Winter

**Semester**  
Fall

**Exam**  
During the semester

**Workload**  
300h

**Weeks**  
14

**Hours**  
10 weekly

**Lecture**  
2 weekly

**Project**  
8 weekly

**Number of positions**  
50

**Remark**  
Inscription nécessitant l'autorisation préalable des enseignants

**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 Prerequisites**

**Required courses**

To be able to register for this course, instructor permission is required. For this, students are asked to prepare a 1-page motivation statement, to be sent per email by September 21 at the very latest to the course coordinator (philipp.schneider@epfl.ch).

**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
• 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

Office hours  No
Assistants  Yes
Forum  Yes

Resources

Virtual desktop infrastructure (VDI)
No

Moodle Link

• https://go.epfl.ch/MGT-555