### 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 5 at the very latest to the course coordinator (ru.zhang@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
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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