

## **Competency oriented curricula for Mechanical Engineering program at EPFL**

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From the experience through several curricula changes, it appears necessary to define clearly the objectives of the mechanical engineering program in terms of competencies within a document that would be common to all the stakeholders. The teaching is given by a large number of persons that make their best to provide an efficient and instructive experience targeting the competencies expected from an EPFL Mechanical Engineer.

Nevertheless, even if this mission is generically described in several documents and directives, there is no document specifying clearly the common targeted objective. Nowadays it is the teaching commission that guaranties the frame of the program by its successive decisions.

The modus operandi inherited from the academic culture was sufficient till now. But the development of the concepts of quality insurance in the educational space, as well as the competition that is developing between institutions, require now an approach more objective and rigorous of the frame of the engineering education provided at EPFL.

In this perspective, the Mechanical engineering section at EPFL has started in 2008 a project to set up a methodology based on up to date educational concepts aiming to determine the generic and specific expected competences. The integration and overall the distinction between the concepts of cognitive, know-how and emotional competencies as well as the one of learning outcomes must converge towards a better definition of the program.

At a specific level, the objective is to define coherently the competencies targeted by our program at 3 levels of granularity:

1. The level of macro competences expected from the young engineer on his working place for different activity sectors
2. The level of competencies by thematic (mathematics, physics, solid mechanics, ...) at the end of the Bachelor and master program
3. The level of the learning outcomes of the main courses of the program

The seminar will present the main concepts of our competence approach, the steps of the methodology and the questionnaire we have prepared to our Delphi study.