# Technologies in action Lab

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***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

The aim of the course is to provide students with a first approach to companies that are operating in the field of novel technologies dealing with materials, devices, and processes. For this reason, the course will be mainly based on the development of a case study in close connection with a company tutor, through visits to the company, web-meeting, and periodical assessments of the project with the course instructors.

At the end of the course, students will be able to:

* Develop team working skills to cope with the specific tasks agreed with the company tutor and course instructors;
* Identify the main features of the company and the degree of innovation in its industrial activity. Relate, where possible, the innovation aspects concerning materials, devices, processes to team work topic;
* Apply operational knowledge in the field of innovative and disruptive technologies;
* Propose an original contribution or develop ideas that can reinforce, support, or boost the degree of innovation of the company.

***COURSE CONTENT***

1. Classroom presentation of the host companies.

2. Project/case study assignment to students groups.

3. Visit to the company, to be followed by meetings (3) with the company tutor.

4. Discussion and progress assessment with course lecturers.

5. Classroom presentation of the case study. Final assessment.

***READING LIST***

Depending on the project theme, materials will be posted on Blackboard by the lecturers and by the company tutors.

***TEACHING METHOD***

The course uses a mixture of company speakers’ presentations, on-site visits, meeting with company tutors and course lecturers.

***ASSESSMENT METHODS AND CRITERIA***

For attendees, the final assessment will be based on:

* Preparation of a team document illustrating the case study (up to marks 14/30)
* Team presentation of the case study (up to marks 8/30)
* Individual colloquium (up to marks 8/30)

All the students who didn’t attend the course and didn’t join one of the teams (non-attendees), can take the final exam after having fulfilled the following conditions:

1. The students must autonomously find an external partner (company/industry) and agree upon the project with the teachers. The subject of the project must be related to one of the topics of the MATERIALS PHYSICS AND TECHNOLOGY course. At least one visit to the company should be scheduled. The company must also provide the student with materials and a tutor.
2. The students must finalize a written report to be submitted before the final exam.
3. During the scheduled exam sessions, the students can take the final exam, which will include a detailed evaluation of the report and of the project

For non-attendees, the final assessment will be based on:

* Preparation of a document illustrating the case study (up to marks 14/30)
* Individual colloquium, starting with a slide presentation of the project (up to marks 16/30)

Full marks cum laude will be attributed to the cases in which the student demostrates a clear outstanding persoal contribution to the team work.

The evaluation of the written report of the activities carried out during the project will be based on the achievement of the following goals:

1. to demonstrate a proper understanding of the company business, in particular of the aspects related to the specific application ($) treated in the project
2. to provide an overall view of the market (present status, trends, competitors,…)
3. to capture the technological aspects at the basis of the application considered in the project
4. to highlight the innovation aspects related to the application
5. to be able to work autonomously (both as individual or within a restricted team) in order to prepare a report with a proper information content, aimed to exhaustively present the work carried out during the project

($) Here APPLICATION is meant to be, depending on the project, a material, device, process, product with relevant links to the MATERIALS PHYSICS AND TECHNOLOGY course.

The evaluation of the final presentations of the project will be based on the achievement of the following goals:

1. to demonstrate the capacity of presenting a specific aspect of the work in a clear way
2. to manage questions related to the subject of the presentation
3. to demonstrate the comprehension of the topic and properly communicate specific aspects of the technology driven business of the partner company

The evaluation of the individual oral examinations will be based on the achievement of the following goals:

1. to demonstrate a relevant personal contribution to the specific topic tackled during the work
2. to demonstrate a deep comprehension of the specific topic tackled during the work
3. to demonstrate a general comprehension of other topics tackled by the other group members during the work

***NOTES AND PREREQUISITES***

Considering the introductory nature of the course, no specific pre-requisites are requested.