UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Scientific Entrepreneurship in Materials Science and Nanotechnology

2526-116R-M09

Title

Scientific Entrepreneurship in Materials Science and Nanotechnology

Teacher(s)

Leonida Miglio

Language

English

Short description

1. Scientific discovery vs invention and the need to have an inventive step. Two examples: a nanocomposite polymer for lightning and one heteroepitaxial germanium film on silicon for detectors.
2. Definition and connection among Markets, Innovation and Technology. Technology Readiness Levels (TRL) to Market of one invention with examples in Pharma Chemistry and Materials Science.
3. Why, how and when to protect your invention: strategies of Intellectual Property Rights in products and processes. In-depth analysis of the patenting procedures with two examples: one for Eupope and one for

US.

4. Different paths to the market for a young inventor: still remaining a scientist by licensing your patents, be an innovator by co-development with an industrial partner, or becoming one entrepreneur by a start-up company.
5. From the invention to the innovation: the iterative process among technology, implementation and market, with several examples in Materials Science and Nanotechnology.
6. The start-up: competences, human and financial resources you will progressively need. In-dept analysis of the goals and the roles of financial investors, industrial investors and the scientific institution where you work.
7. The Start-up II Business-Plan: how to organize, plan and present to investors and coworkers the results of the iterative process toward the market of your innovation.
8. Negotiations, agreements and legal documents in establishing a Start-up, beyond the Business-Plan: the Investment Memorandum, the Shareholders agreement. and the new company By-law, with example in semiconductor science.

CFU / Hours

1 CFU/ 8 hours

Teaching period

February 10th, 2026: 2 hours, 2,30-4,30 pm
February 11th, 2026: 2 hours, 2,30-4,30 pm
February 12th, 2026: 2 hours, 2,30-4,30 pm
February 13th, 2026: 2 hours, 2,30-4,30 pm

Sustainable Development Goals

QUALITY EDUCATION | DECENT WORK AND ECONOMIC GROWTH | INDUSTRY, INNOVATION AND INFRASTRUCTURE