Summary
This course concerns students with a background in materials science and it provides a detailed analysis into the physicochemical concepts that prevail when the materials are reduced to nanometer scale. An overview of advanced nanomaterials on the synthesis, properties, characterization will be given.

Content
1. Introduction: Emergence, Definitions, Challenges
2. Synthesis methods
3. Properties: Optics, Magnetism, Thermal, Electrical, Mechanical
4. Further Advances and Applications
5. Characterization

Keywords
nanomaterials, nanosize effects, nanotechnology

Learning Prerequisites
Required courses
material science (Introduction, bachelor level)

Learning Outcomes
By the end of the course, the student must be able to:
• Assess / Evaluate the different nanoeffects
• Elaborate the difference between bulk and nanosized materials
• Identify potential application of nanomaterials
• Discuss potential danger in handling nanomaterials

Transversal skills
• Demonstrate the capacity for critical thinking
• Make an oral presentation.
• Summarize an article or a technical report.

Teaching methods
Ex cathedra and seminars
Expected student activities
oral presentation and written assignment

Assessment methods
50% in-class oral presentation
40% written assignment
10% in-class participation

Supervision
Office hours No
Assistants No
Forum No

Resources
Virtual desktop infrastructure (VDI)
No

Ressources en bibliothèque
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