

## **APPLIED MATERIALS CHEMISTRY**

Complete list of competences

### ***Basic competences***

Knowledge forming the basis of original thinking in the development and/or application of ideas, typically in a research context.

Capacity to apply the acquired knowledge to problem-solving in new or relatively unknown environments within broader (or multidisciplinary) contexts related to the field of applied materials chemistry.

Capacity to integrate knowledge and tackle the complexity of formulating judgments based on incomplete or limited information, taking due consideration of the social and ethical responsibilities involved in applying knowledge and making judgments.

Capacity to communicate conclusions, judgments and the grounds on which they have been reached to specialist and non-specialist audiences in a clear and unambiguous manner.

Skills to enable lifelong self-directed and independent learning.

### ***General competences***

Ability to work through practical examples and obtain results.

Capacity to apply the specific experimental techniques of applied materials chemistry.

Capacity to consult the scientific literature, databases, patents and current legislation.

Ability to write scientific reports and papers and prepare presentations of scientific material.

Ability to plan and design a research project.

### ***Generic competences***

Ability to be independent, dynamic and organized and a capacity for analysis and synthesis, critical thinking and forward thinking.

Capacity for self-assessment and constructive self-criticism.

Capacity for independent learning. Recognition of the need for lifelong learning and a proactive attitude for achieving it.

Knowledge of the latest innovations in the field and how to analyse future trends.

Capacity to innovate in response to new circumstances or new organizational systems and in order to optimize production processes.

Capacity for effective, clear and concise oral and written communication, including presentations with the pertinent material support and the appropriate content and style of language needed to address an interlocutor or audience.

Capacity for teamwork and the ability to adapt to international and multidisciplinary teams at various scales.

Experience in the use of appropriate generic and specific software in applied materials chemistry.

Capacity to analyse scientific documents written in English.

***Specific competences***

Understanding of methods for the synthesis and characterization of different types of materials.

Ability to identify the correlation between the structure, composition and properties of materials.

Knowledge of the applications of different materials in different areas of industry.

Ability to design specific materials for energy and environmental applications.

Capacity to apply instrumental techniques for the study and characterization of materials.

Capacity to conduct experimental research independently.

Ability to conduct chemical laboratory work in compliance with regulations on safety, hygiene and waste management.

Ability to conduct laboratory work in compliance with quality management criteria.