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NANOTECHNOLOGY AND NEW TRENDS IN APPLICATIONS OF NANOMATERIALS

Academic coordinator: M^a Dolores Galindo Riaño, Dean of Faculty of Science

MODULE 1: NANOTECHNOLOGY AND NEW TRENDS IN APPLICATIONS OF NANOMATERIALS	
Professor	José María Palacios Santander (Department of Analytical Chemistry) Laura Cubillana Aguilera (Department of Analytical Chemistry)
Aims	The module is designed to provide the fundamentals of nanomaterials, their synthesis and their main applications in the analytical laboratories, as well as some notions about the different instrumental techniques employed to characterize this kind of materials.
Module Description	<p>Lesson 1.-Nanotechnology and nanomaterials (2h) Lesson 2.-Examples of syntheses of nanomaterials (2h) Lesson 3.- Introduction to the fundamentals of the instrumental techniques to characterize nanomaterials (2h) Lesson 4.- Implementation of nanomaterials in analytical devices (2h) Lesson 5.- Main applications of nanomaterials in the analytical laboratories (3h) Lesson 6.- Discussion of practical cases and exercises (2h)</p> <p>Practical sessions:</p> <p>Lesson 7.- Synthesis and characterization of gold nanoparticles (3 h) Lesson 8.- Synthesis and characterization of silver nanoparticles (3 h)</p> <p>Visit to the labs of the Department of Analytical Chemistry (University of Cádiz): (1 h)</p>



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Bibliography	<ul style="list-style-type: none">✓ Nanoparticles. From theory to application', (Günter Schmid Ed.), Wiley-VCH Verlag GMBH & Co. KgaA: Weinheim, Germany, 2006.✓ 'Nanostructured materials and nanotechnology', Concise ed., (Hari Singh Nalwa. Ed.), Academic Press: California, USA, 2002.✓ John J. Bozzola, Lonnie D. Russell, 'Electron microscopy. Principles and techniques for Biologists', 2nd ed., Jones and Bartlett Publishers, Massachusetts, USA, 1999.✓ 'Encyclopedia of Materials Characterization', (C. Richard Brundle; Charles A. Evans, Jr.; Shaun Wilson, eds), Butterworth-Heinemann, Connecticut, USA, 1992.
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