

<b>Title</b>	Synthesis and Chemical Modification of Nanomaterials		
<b>Credits</b>	2.5		
<b>Semester</b>	2 (Year 1)		
<b>Level</b>	4		
<b>Coordinator</b>	Prof. Yurii Gun'ko		
<b>Indicative Module Descriptor:</b>			
<p>The module aims to give students an overview of the principles underlying the manipulation and modification of solution-based nanomaterials. Emphasis will be placed on the preparation and purification of metallic, semiconducting, magnetic and dendrimer based nanoparticles and of carbon nanotube systems. The chemical and physical properties of nanomaterials will be considered as a function of modification and preparation parameters.</p>			
<b>Indicative Learning Outcomes</b>			
<p>On successful completion of this module, students should:</p> <ul style="list-style-type: none"> <li>• Understand the basic principals of the bottom-up approach;</li> <li>• Have knowledge and understanding the main approaches in the synthesis of solution based nanomaterials.</li> <li>• be familiar with techniques used to modify and purify nanomaterials;</li> <li>• have knowledge of the techniques used to characterise nanomaterials;</li> <li>• have a knowledge of material dependent properties tuneable through synthetic design and modification.</li> </ul>			
<b>Workload:</b>	50		
Class Contact: Lectures	11		
Specified Assignments	21		
Autonomous Student learning	18		
<b>Assessment</b>	type	%	timing
Examination	Exam (2hr)	50	End Yr 1
Assignments	Project	50	
<p>Students are required to:</p> <ol style="list-style-type: none"> <li>1. Write a sample research proposal outlining the preparation of a new nanomaterial with reference to known literature procedures, emphasis to be placed on the predicted properties and potential application. (21)</li> <li>2. Pass (60%) a written examination.</li> </ol> <p>Students will either pass or fail the module on basis of satisfactory or unsatisfactory completion of the assigned tasks.</p>			