



Module Definition Form (MDF)

Module code: MOD009729	Version: 1 Date Amended: 27/Feb/2024
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1. Module Title
Nanotechnology

2a. Module Leader
Sheyda Labbaf

2b. School
School of Engineering and the Built Environment

2c. Faculty
Faculty of Science and Engineering

3a. Level
6

3b. Module Type
Standard (fine graded)

4a. Credits
15

4b. Study Hours
150

5. Restrictions			
Type	Module Code	Module Name	Condition
Pre-requisite:	MOD009724	Biomaterials	Compulsory
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:			

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

Nanotechnology is now a growing field of research and has shown a significant impact in the advancements of healthcare industry. Here, the concepts from physics, chemistry and material science are applied to understand nanoscale structures and processes. You will learn about the key areas of nanotechnology and nanomedicine and its utilisation in therapeutic and diagnostic for various diseases.

6b. Outline Content

Topics specific to Nanotechnology:

- Introduction to the basic concepts of nanotechnology
- Understand atomic and molecular structures
- Understand the key characteristics of nanoscale structures
- Synthesising methods for various types of nanomaterials
- Characterisation techniques applied to study nanostructures
- Understanding the structure and applications of nanomaterials in 0, 1, 2 and 3- dimension
- Description of the applications of nanotechnology in biology and medicine

Topics not specific to Nanotechnology:

- Learning how to make efficient use of the Library resources
- Introducing the laboratories, laboratory equipment, and associated health and safety/risk concerns
- Practicing writing group research reports on performed experiments
- Learning how self-reflection can be used to continually improve skills

6c. Key Texts/Literature

The reading list to support this module is available at: <https://readinglists.aru.ac.uk/>

6d. Specialist Learning Resources

Access to articles through different scientific journal publishers (Elsevier, Springer, ACS, RCS ...)

7. Learning Outcomes (threshold standards)		
No.	Type	On successful completion of this module the student will be expected to be able to:
1	Knowledge and Understanding	A basic understanding of the structure of the atom, the periodic table, chemical bonding and the physics of materials, including biological and nanomaterials.
2	Knowledge and Understanding	Understand the various synthesis and characterisation approaches for commonly applied nanostructures.
3	Intellectual, practical, affective and transferrable skills	The study of applications of nanotechnology in healthcare.
4	Intellectual, practical, affective and transferrable skills	Research, report writing and presentation skills.

8a. Module Occurrence to which this MDF Refers				
Year	Occurrence	Period	Location	Mode of Delivery
2025/6	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	Hours	Learning Outcomes	Details of Duration, frequency and other comments
Lectures	18	1-3	Lectures 1.5 hrs x 12 weeks
Other teacher managed learning	18	3-4	1.5 hrs x 12 weeks- Workshops, seminars, or project work
Student managed learning	114	1-4	Students are expected to undertake self-directed study. These hours include time spent on assignments, reading sections from the recommended texts and self-managed learning.
TOTAL:	150		

9. Assessment for the above Module Occurrence					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-4	60 (%)	Fine Grade	30 (%)
Coursework: 2000 words					
Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
011	Practical	3-4	40 (%)	Fine Grade	30 (%)
Group Presentations: 20 min					

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:

- (a) achieve the qualifying mark for each element of fine graded assessment as specified above
- (b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]