

3.4.3.11 Minor in Nanoscience

Host Department: Chemistry and Physics

Nanoscience and nanotechnology encompass the ability to understand and manipulate matter at the molecular level, to create artificial structures at the nanoscale with potentially novel functions

Structures behave differently when their dimensions are reduced to the range of between one and one hundred nanometers (nm). Such structures exhibit novel and very much improved physical, chemical and biological properties, due entirely to their nanoscopic size. Once we can control feature sizes on the nanometer scale, it is possible to enhance material properties and device functions beyond those that we presently know or even consider possible. Nanotechnology is defined as the ability to work at the molecular level, atom by atom, to create large structures with fundamentally new molecular organisation. Nanoscience is an exciting new multidisciplinary realm that brings together the traditional disciplines of Physics, Chemistry and Biology.

The objective of the Nanoscience minor programme is to provide a comprehensive introduction to the field of nanoscience, and would be suitable not only for students in the sciences and engineering, but also for students from any discipline who show a keen interest in the latest developments in science.

This Nanoscience minor programme covers the latest research and technology trends which may soon revolutionise the world's economy. .

This Minor would be particularly attractive to Physics, Chemistry and Engineering majors.

To qualify for a Minor in Nanoscience, a student should pass six modules as follows:

1. Two compulsory Level-1000 modules:
 - a. CM1131 Physical Chemistry or
CM1502/CM1502X General and Physical Chemistry for Engineers and
 - b. PC1144 Introduction to Modern Physics or
PC1432/PC1432X Physics IIE
2. Two Level-2000 modules:
 - a. SP2251 Science at the Nanoscale and
 - b. CM2101 Physical Chemistry 2 or
PC2130 Quantum Mechanics 1
3. Two Level-3000 modules:
 - a. CM3251 Nanochemistry; or
 - b. PC3251 Nanophysics; or
 - c. CM/LSM/ [Advanced UROPS]*
PC3288
 - d. SP3277 Nano: from Research Bench to Industrial Applications**

* Must be a Nanoscience-related project.

** SP3277 involves a compulsory nanotechnology study tour to Japan

Note:

Chemistry and Physics majors are only allowed to read at most three CM- and three PC- coded modules respectively; out of which only two modules (at most) are allowed to overlap with a student's major requirements.