Module Title **Problem Solving And Modelling In Computing** **Keywords** Geometry, Sequences and Series, Statistics, Probability, Class, Object, Use Case, Sequence Diagram, Systems Analysis and Design	Reference CM1014
	SCQF Level SCQF 7
	SCQF Points 30
	ECTS Points 15
	Created March 2007
	Approved July 2007
	Amended
	Version No. 1

This Version is No Longer Current

Prerequisites for Module

None, in addition to course entry requirements.

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide students with the uderstanding of problems which arise in computing situations and the practical skills for the efficient solution of these problems.

Learning Outcomes for Module

Descriptive statistics. Measures of central tendency and dispersion.

Probability rules.

Objects, classes, inheritance, messages, polymorphism, class hierarchy, structural view, user view, interaction view, CASE tool.

Indicative Student Workload

Contact Hours	Full Time
Lectures	48
Tutorials/Seminars	24
Supervised Labs	24
Unsupervised labs	24
Assessment	10
Directed Study	
Directed Study	50
Private Study	
Private Study	120

On completion of this module, students are expected to be able to:

1. Recognise and solve, using appropriate mathematical techniques, a set of computational problems.
2. Apply basic statistical techniques and derive measures of probability for a given set of data.
3. Apply basic object-oriented systems analysis and design techniques to a given problem and to model its solution.
4. Specify the different views of a system using a CASE tool to support systems modelling and produce design deliverables.

Indicative Module Content

Coordinate geometry. Graph drawing, straight lines and other functions, parameterisation, distance metrics.

Sequences and series and relationship to loops. Computational complexity. Financial mathematics.

Sets. Functions. Boolean algebra.

Mode of Delivery

This module is delivered throughout the teaching session using a mixture of lectures, tutorials and computer laboratory sessions (where appropriate).

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,2,3,4

Component 1 - Coursework

Indicative Bibliography

1. ROSEN, K., 2012. Discrete Mathematics and Its Applications. 7th ed. McGraw-Hill.
2. BRITTON, C., and DOAKE, J., 2005. A Student Guide to Object Oriented Development. Elsevier.
3. SOMMERVILLE, I., 2011. Software Engineering. 9th ed. Pearson.