LM121 - Bachelor of Science in Computer Science (Common Entry)

Contact Course Director:
Mr. J.J Collins

Tel 353 (0) 61 202409

Email: j.j.collins@ul.ie

This programme may suit if you are enjoy using computers and are interested and curious about how they work. If you are the sort of person that likes problem solving, even if it takes time, and appreciates creativity, and gets a "buzz" from making “things” then this is a degree program for you that can lead to a wide variety of career paths and opportunities.

On entry into the Computing Technologies programme, three different Bachelor degree course options will be open to you as follows:

- B.Sc. Computer Games Development
- B.Sc. Computer Systems
- B.Sc. Mobile Communications and Security

These three programmes require three years of study in addition to the one year for LM121.

The Computer Systems degree is a typical computer science degree. Mobile Communications and Security focuses on the construction of safe and secure networks and systems. Computer Games Development concentrates on approaches and technologies for the design and implementation of games. In all of the programmes you will learn to develop mobile applications and web/ cloud systems applicable to a broad set of areas such as health, entertainment, energy, communication and automation.

CSIS
Department of
Computer Science
& Information Systems

Department of Computer Science and Information Systems

University of Limerick
Limerick
Ireland
www.csis.ul.ie

LM121 – Computing Technologies

Year 1 - Semester 1

Module	Description
CS4012: Representation and Modelling	This module aims to provide students with an understanding of how different kinds of phenomena are represented as digital information. Its objectives are to give students an appreciation of the role of software in rendering and manipulating digital representations, and an introduction to the skills and techniques of abstract representation (modelling) of social and economic phenomena.
CS4141 Introduction to Programming	The module introduces the basic principles of designing, implementing and testing programs. Students apply the fundamental aspects of these techniques using one high-level programming language.
CS4221 Foundations of Computer Science 1	This module aims to introduce students to the mathematical basis of many complex computations, to lay the basis for derivation of simple programs from formal specifications and to understand the dependence of program on underlying evaluation mechanisms.
ET4011 Fundamentals of Computer Organisation	Students will gain a familiarity with the architecture, design and organisation of modern machines. Students will become familiar with Boolean algebra and digital logic gates, as the building blocks of a computer. Students will conduct basic arithmetic with binary and hexadecimal numbers, learn how coding systems allow different representations of data as binary numbers, understand the importance of memory organisation and caching on machine performance, and learn how the computer goes about executing programs.
MS4111 Discrete Mathematics	The aim of this module is to introduce students to language of Discrete Mathematics (in particular elementary logic, proof techniques, set theory, functions and recurrence relations), and to show its relevance, particularly in the context of Computer Science.

Year 1 – Semester 2

Module	Description
CS4043 Games Modelling Design	This module will provide students with the knowledge to identify and use an appropriate methodology to develop a digital game. Students will use appropriate tools and techniques to construct a model, design a digital game prototype and document it.
CS4222 Software Development	Starting from the foundations laid out in the modules Introduction to Programming and Introduction to Model Driven Development, students will progress to classical algorithms, data structures, and advanced programming constructs such as recursion. Students will experience modular design and software reuse, and small scale collaborative development.
CS4182 Foundations of Computer Science 2	This module aims to introduce students to formal ways of thinking about programs, in terms of their syntactic structure, their design, and formal assertions about the progress of computations.
ET41621 Computer Systems Organisation	By introducing the concept of connected computing using networking examples, students will appreciate the driving forces affecting computer organisation and architecture. Students will learn about Instruction Set Architecture and its significance in computer design.
MA4402 Computer Maths 2	To develop some of the foundations of mathematics by introducing students to mathematical ideas of crucial importance in Computer Science, in particular linear algebra, numerical analysis methods, sequences and series and graph theory.