



## Computer Science and Information Technology Professional Experience Programme (PEP)

### BSc (Hons) Degree in Computer Science & Information Technology

The degree in Computer Science and Information Technology is a four-year programme. During the first two years, students study the scientific aspects of computing. In their third and fourth years, they develop advanced technical skills in computer applications, software engineering and problem-specific domains.

### Primary areas of undergraduate training

The programme provides a theoretical and applied background in Computer Science and Information Technology complemented with problem-based learning in application domain areas such as Digital Media & Game Development, Medical Informatics, Energy Informatics, and theoretical computer science and computational mathematics.

### Core studies which all students must take:

Computer Science	Algorithms, Formal Methods, Database Theory, Information Management, Artificial Intelligence
Software Engineering	Structured Methodologies, Object-Oriented Methodologies, Software Testing, Software Project Management
Computer Systems	Computer Organisation and Architecture, Networks and Communications, Computer Security
Programming	C, Object-Oriented, GUI based, Database Development
Scientific Foundation	Mathematics, Physics, Statistics, Numerical Analysis

### Students are available to work on:

- Technical Support
- Software Development
- Programming
- Graphic Design
- Software Research
- Documentation
- Database Validation
- Customising Software
- Reporting
- Debug and Error Reporting
- Business Analytics
- Software Testing
- Work on the Intranet
- Web Servers
- Game Development
- Write Test Scripts
- Energy Informatics
- Digital Media
- Real-Time Systems
- System Integration
- Website Development and Update Networks





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Year	Scientific Foundations	Computer Science & Programming	Engineering & Technology	Problem-Based Learning
<b>Year 1</b>	Maths Foundations Physics Foundations	Algorithms / Problem Solving Programming	Electronic Foundations Comp. Systems Foundations	Next Generation Technologies & Problem-Based Learning Professional Skills
	25%	35%	20%	20%
<b>Year 2</b>	Discrete Maths Statistics Algebra	Algorithms Programming	Comp. Systems Software Eng. Databases	Next Generation Technologies & Problem-Based Learning
	25%	25%	40%	10%
<b>Year 3</b>	Applied Math Methods Applied Probability	Programming Human Computer Interaction	Software Eng. Networking & Communications Databases	Next Generation Technologies & Problem-Based Learning Professional Skills
	33% (optional)	35%	25%	40%
January - August	Undergraduate Internship - Work Placement / Project			
	<b>Core Studies</b>	<b>Final Year Project</b>	<b>Problem-Based Learning Studies</b>	
<b>Year 4</b>	Software Eng. - Distributed Systems Real-Time Systems Professional Skills Artificial Intelligence Machine Learning and Data Mining	Applied / Interdisciplinary / Research Focus	<b>Choose to study in any one of the following areas:</b> Graphics and Image Processing Modern Information Management Computer Security and Forensic Computing Systems Theory Advanced Maths options Professional Skills	
	50%	25%	25%	



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