



## Section 6 - Programme learning outcomes

In general terms, the programmes provide opportunities for students to develop and demonstrate the following learning outcomes. (*Categories – Knowledge and understanding (K), Skills and other attributes (S), and Transferable skills (\*)*)

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• knowledge and understanding of the essential facts, concepts, principles and theories relating to computing and computer applications (K);</li> <li>• understanding of the implications of recent research in Computer Science, artificial intelligence and related fields, and how such research results can be incorporated into computer-based systems (K);</li> <li>• understanding of the professional, moral and ethical aspects of the use of computer-based systems, and ability to recognise any risks or safety aspects in a given context (K);</li> <li>• knowledge of how computers are programmed and used; advanced programming; software engineering and team work for developing a significant software system; the fundamental technologies used for artificial intelligence; the functioning of the Internet and the World Wide Web; the main concepts of database technology and design; background theory necessary for a deeper understanding of computing and computers (K);</li> <li>• depending on their programme of studies, students may also gain a knowledge of the following key practical application technologies: operating systems; graphics; robotics, bioinformatics, information security, applied artificial intelligence and human-computer interfaces; theoretical foundations of algorithms and programming (K);</li> </ul> | <ul style="list-style-type: none"> <li>• ability to deploy appropriate theory, practices and tools for the modelling, specification, design, implementation and evaluation of computer-based systems (including stand-alone computer systems, information systems, embedded systems, distributed systems and web-based systems) to meet given requirements under practical constraints (S);</li> <li>• employ the research skills needed to investigate a defined topic under supervision, through an extended individual project (S);</li> <li>• interpersonal skills, including the ability to work as a member of a development team, recognising/respecting the viewpoints of others, recognising the different roles within a team and the different ways of organising teams (S);*</li> <li>• problem identification, analysis and solution using critical assessment and reasoned argument (S);*</li> <li>• taking responsibility for own learning and developing habits of reflection on that learning (S);*</li> <li>• skills in written communication, project documentation, verbal presentation; numeracy and computation (S);*</li> <li>• use of information technology (including spreadsheets, databases, word processing, email and WWW) (S); *</li> <li>• information handling and retrieval (including the use of libraries and computer technology) (S);*</li> <li>• ability to work autonomously, and to demonstrate time management and organisational skills (S);*</li> </ul> |
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## Take homes

- Strong emphasis on practical work
  - Large amounts of time in the lab
  - 150 hours for a module is not unrealistic
- Still need significant amounts of theory
- Team work - a skill to be learnt
  - CS2810 Example of best practice nationally
- Ethics and professionalism