

## Foundation Scholarship for ICS

In the second year (the Senior Fresh year) of all primary degree programmes Trinity College tries to identify exceptional students and rewards them with a Foundation Scholarship. This award has significant benefits (free fees, rooms, Commons (food!), a small salary) and is quite prestigious.

If you want to try to obtain a Scholarship, you must sit a set of scholarship examinations, typically in your Senior Fresh year, which are normally held just before Hilary term (i.e. in January) although YOU need to check the dates. To be eligible you must apply online to the Academic Registry in Michaelmas semester during the period specified at <https://www.tcd.ie/academicregistry/exams/scholarship/>. (Normally this period is around the beginning of November but again YOU need to check the dates).

Computer Science, as a discipline, combines the application of theoretical concepts with engineering design. The examinations for Foundation Scholarship in Integrated Computer Science will identify exceptional students with this combination of abilities at a level appropriate to one and a half years of study of Computer Science. There are three examination to sit:

| <b>Subject</b>                      | <b>Duration</b> | <b>Weighting</b> |
|-------------------------------------|-----------------|------------------|
| CS: Mathematics (XSCH3071)          | 2 hours         | 25%              |
| CS: Computer Programming (XSCH3307) | 3 hours         | 37.5%            |
| CS: Computer Systems (XSCH3087)     | 3 hours         | 37.5%            |

Past papers are available at <https://www.tcd.ie/academicregistry/exams/past-papers/scholarship/>

**CS: Mathematics (XSCH3071)** – in particular topics such as logic, linear algebra, set theory, number theory, formal language theory and graph theory – is fundamental to the study of Computer Science. Furthermore, in addition to being theoretical, the study of Mathematics involves the development of practical skills relevant to Computer Science, such as formal proof techniques. In the Mathematics examination, candidates will be required to answer three out of five questions on this two-hour examination, with three of the questions based on the study of Mathematics in the first half of the Senior Fresh year and two question based on the study of Mathematics in the Junior Fresh year. Successful candidates must be able to demonstrate a deep understanding of

theoretical concepts and exceptional ability in the application of practical mathematical skills.

**CS: Computer Programming (XSCH3307)** - The ability to analyse a problem, design an efficient solution and implement that solution in the form of a computer program is assessed in the Computer Programming examination. Candidates will be required to answer any THREE questions from the four questions on this three-hour examination. By allowing students one hour to answer each question, the expectation is that successful candidates will be able to provide considered answers that demonstrate deep insight, rather than merely providing working solutions. While a number of the questions will be based on module-specific knowledge in areas such as algorithms, data structures and information management, other questions will be set by anonymous examiners.

**CS: Computer Systems (XSCH3087)** - The Computer Systems examination will also assess candidates' problem solving skills but will do so in applied areas such as microprocessor systems and telecommunications. Candidates will be required to answer question 1 and any other TWO questions from the other five questions on this three-hour examination. Again the expectation is that successful candidates will be able to provide considered answers that demonstrate a deep knowledge and understanding of the technologies that they have studied as well as an ability to extend this knowledge to previously unseen technologies or propose alternative approaches to solving problem