Department of Computer Science

Overview of Degree Programmes

presented by

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Director of Learning and Teaching

www.surrey.ac.uk
Summary

Department Of Computer Science

Degrees

Recognition

Facilities
Our Degrees

Preparing you for a range of careers:
- Exploiting computation and computer technology
- Fluency in development and programming
- Solving real-world technical and business problems
- Applying innovative and emerging technologies

Two degrees: common core, different focus
- **Computer Science**: Advanced principles and technologies
- **Computing and Information Technology**: IT as an integral part of business
Computing at the core

**Year 1:** 8 compulsory modules + **Year 2:** 8 compulsory modules + Optional placement year + **Year 3:** 5 modules plus project

- Foundations of Computing I & II
- Programming
- Software Engineering
- Data Structures and Algorithms
- Web Development and Databases
- Information Retrieval
- Further Programming Paradigms
- Software Engineering Project
- Information Security Management

**Final Year Project**

*Professionalism*
BSc Computer Science

G400 (3 years) / G401 (3 years plus placement)

- Entry requirements: **ABB**, A-Level Mathematics required, GCSE Mathematics and English
BSc Computing and Information Technology

G560 (3 years) / G561 (3 years plus placement)

- Entry requirements: **ABB**, A-Level in Mathematics, *Computing or Physics* required, GCSE Mathematics and English
- 2 modules different to CS in Year 1

Financial Accounting
Marketing Principles
Business Finance
Business Law

**Core**

Project Management
Marketing in the Digital Environment
International Business Strategy

++Options
## Programme comparison – Semester 1

<table>
<thead>
<tr>
<th>Semester 1 module</th>
<th>Computer Science</th>
<th>Computing and IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOUNDATIONS OF COMPUTING</td>
<td>Compulsory (C)</td>
<td>C</td>
</tr>
<tr>
<td>PROGRAMMING FUNDAMENTALS</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>WEB AND DATABASE SYSTEMS</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>COMPUTER LOGIC</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>FINANCIAL ACCOUNTING</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>FURTHER PROGRAMMING PARADIGMS</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>INFORMATION RETRIEVAL</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>WEB APPLICATIONS DEVELOPMENT</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>ADVANCED ALGORITHMS</td>
<td>C</td>
<td></td>
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<tr>
<td>BUSINESS FINANCE</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>PROFESSIONAL PROJECT</td>
<td>C*</td>
<td>C*</td>
</tr>
<tr>
<td>INFORMATION SECURITY MANAGEMENT</td>
<td>C</td>
<td>C</td>
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<tr>
<td>ADVANCED CHALLENGES IN WEB TECHNOLOGIES</td>
<td>Optional (O)</td>
<td>O</td>
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<tr>
<td>COMPUTATIONAL INTELLIGENCE</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>COMPUTER SECURITY</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>COMPUTER VISION</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>ENTREPRENEURSHIP AND INNOVATION</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>INTERNATIONAL BUSINESS STRATEGY</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>INTERNET OF THINGS</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>PRACTICAL BUSINESS ANALYTICS</td>
<td>O</td>
<td>O</td>
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</table>
Programme comparison – Semester 2

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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</thead>
<tbody>
<tr>
<td><strong>Semester 2 module</strong></td>
<td><strong>CS</strong></td>
<td><strong>CIT</strong></td>
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<tr>
<td>DATA STRUCTURES AND ALGORITHMS</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>FOUNDATIONS OF COMPUTING II</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>SOFTWARE ENGINEERING</td>
<td>C*</td>
<td>C*</td>
</tr>
<tr>
<td>MOBILE COMPUTING</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>MARKETING PRINCIPLES</td>
<td></td>
<td>C</td>
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<tr>
<td>ARTIFICIAL INTELLIGENCE</td>
<td>C</td>
<td>C</td>
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<tr>
<td>COMPUTER NETWORKING</td>
<td>C</td>
<td>C</td>
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<tr>
<td>SOFTWARE ENGINEERING PROJECT</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>PARALLEL COMPUTING</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>BUSINESS LAW</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>PROFESSIONAL PROJECT</td>
<td>C*</td>
<td>C*</td>
</tr>
<tr>
<td>COMPUTER SCIENCE EDUCATION</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>DEEP LEARNING AND ADVANCED AI</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>DISTRIBUTED SYSTEMS</td>
<td>O</td>
<td>O</td>
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<tr>
<td>MAINFRAME COMPUTING</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>PROJECT MANAGEMENT</td>
<td>O</td>
<td>O</td>
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<tr>
<td>SYSTEMS VERIFICATION</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>MARKETING IN THE DIGITAL ENVIRONMENT</td>
<td>O</td>
<td></td>
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</table>
Timetable – a rough guide

Per programme, per individual
• Personalised timetable
• Wednesday after 12noon generally reserved for sport
• Grouped for tutorials
• About 20-25 hours timetabled in the first semester of the first year, similar beyond

Assessments
• *Blend* of examinations, class tests, and various kinds of coursework
• Some assessments are practical (includes examination)
Technology and facilities

Extensive PC labs

- Windows 10 and Microsoft Office plus a variety of teaching applications (150 seats)
- Ubuntu for specialist applications (140 seats)
- Java, Eclipse, Visual Studio, NetBeans, Matlab, C++, SQL, Ruby, R, Python, HTML

Specialist equipment depending on programme

- Year 1: Arduino
- Year 2: Android, Linux servers
- Year 3: Mainframe, IoT devices, Nvidia GPU cards

Free software

- Microsoft
- IBM Academic Initiative software
NEW Teaching Facilities
Teaching and Learning Support

Support for each subject
- Lectures, labs, office hours, tutorials, discussion surgeries
- Online resources and e-learning
- Online discussions, journals, books, dissertations

Study skills and one-to-one help
- Regular workshops: academic writing, assignment feedback
- Student learning advisors
- Podcasts, study guides
- Additional learning support

Careers events and industry networking
Graduate-level employment: 84.6%

- 16/17 graduates, last data point
- (93.3% in the previous year)
- defined as students in graduate-level activities (largely employed, some studying) 6 months after graduation
- Significantly higher than the national average of 74% for Computer Science (HESA 2013)
Each year around **50-60%** of our students go on placement

- Experience = a real boost in a tough economic environment
- Helps with developing professional skills
- Usually many more jobs than students, though still competitive
- This year, companies with 1 or more students *include*:

<table>
<thead>
<tr>
<th>Ansys</th>
<th>Avco Systems</th>
<th>Cisco</th>
<th>Consult Hyperion</th>
<th>Expedia</th>
<th>Fivium</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSK</td>
<td>Hindsight Software</td>
<td>Hitachi</td>
<td>IBM (4)</td>
<td>IDBS</td>
<td>Intel Security McAfee</td>
</tr>
<tr>
<td>ITM</td>
<td>Lilly UK (4)</td>
<td>Mapp Digital (2)</td>
<td>Metricell</td>
<td>Minted Box</td>
<td>Nintendo (Frankfurt)</td>
</tr>
<tr>
<td>Note Machine Technologies</td>
<td>Royal Surrey County Hospital</td>
<td>SONY</td>
<td>Sophos</td>
<td>Xceptor</td>
<td>Yell</td>
</tr>
</tbody>
</table>
## Graduate positions, companies & salaries

**Companies**
- Accenture UK limited
- Alemba
- Aloit Consulting
- Avco Systems
- Bank of England
- Blippar Ltd
- BT
- Capgemini UK
- Close Brothers Group
- Cobalt Telephone Technologies
- Crowd Connected
- Curo Compensation
- Damarel Systems International
- EAMS Group
- Fivium Ltd
- ID Business Solution
- ITM Ltd
- LEGO System
- LogRhythm
- Metapack
- Morgan Stanley
- NCT Security
- Peak Lab Limited
- Playtech
- PwC
- SDM
- Shanghai INZEN Web Technologies
- Softcat
- Stanhope-seta
- Thales UK
- University of Surrey
- Urban Science
- VB NET
- Virgin Media
- Voofoo Studios
- Xceptor

**Roles including**
- Enterprise Advisor
- Web Developer
- Analyst Programmer
- Software Developer
- Graduate software developer
- Junior Application Developer
- Software Developer
- Software Engineer
- Computer scientist
- Software Developer
- Software Delivery Consultant
- Business Analyst
- Digital Strategist
- Web Analyst
- Project Engineer
- Technical Consultant

**Average salary:** £29,000
Recognition

CS and CIT accredited by BCS, to 2021
• Fully meeting requirements for Chartered IT Professional (CS, CIT)
• Partially meeting requirements for Chartered Engineer (CS, CIT)
• Partially meeting requirements for Chartered Scientist (CS)

In the 2014 Research Excellence Framework (REF), 60% of our research output was rated as world-leading or internationally excellent.
Thank you for visiting

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