

The following is an extract from the Employability and Enterprise Policy/Strategy:

The University has accepted the following definition of employability as articulated in 'Future Fit: preparing graduates for the World of Work' published by UUK/CBI (2009).

**“A set of attributes, skills and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy”.**

The University has agreed the following attributes as important in the development of an employable graduate: self management; team-working; business and customer awareness; problem solving; communication and literacy; application of numeracy; application of information technology. Definitions of these are:

**Self management** – readiness to accept responsibility, flexibility, resilience, self-starting, appropriate assertiveness, time management, readiness to improve own performance based on feedback/reflective learning.

**Team-working** – respecting others, co-operating, negotiating/persuading, contributing to discussions, and awareness of interdependence with others.

**Business and customer awareness** – basic understanding of the key drivers for business success – including the importance of innovation and taking calculated risks – and the need to provide customer satisfaction and build customer loyalty.

**Problem solving** – analysing facts and situations and applying creative thinking to develop appropriate solutions.

**Communication and literacy** – application of literacy, ability to produce clear, structured written work and oral literacy – including listening and questioning.

**Application of numeracy** – manipulation of numbers, general mathematical awareness and its application in practical contexts (e.g. measuring, weighing, estimation and applying formulae).

**Application of information technology** – basic IT skills, including familiarity with work processing, spreadsheets, file management and use of internet search engines.

Underpinning all these attributes, the key foundation, must be a **positive attitude**: a 'can-do' approach, a readiness to take part and contribute, openness to new ideas and a drive to make these happen.

**SO**

**HOW WILL THESE SKILLS BE DEVELOPED THROUGHOUT YOUR COMPUTER SCIENCE DEGREE?.....**

## OVERVIEW OF COMPUTER SCIENCE AND INFORMATION SYSTEMS COURSES

The pure **Computer Science** degree is concerned with all aspects, both theoretical and practical, of the nature, specification, realisation and evaluation of computational processes. As would be expected, there is a strong mathematical content to much of this work, as well as considerable time spent developing programming understanding and skills, particularly related to the use of object-oriented languages.

The **Information Systems** programme, whilst sharing an initial foundation with the Computer Science degree, is ultimately focussed on the organisational context within which IT is used. As such, the study of subjects which are directly related to Business (e.g. Marketing, Financial Accounting, change management) form a significant part of the course.

Most students also opt to spend an 8 week placement in Industry or Business, working in an IT context during the vacation between their penultimate and final year studies. They are expected to gain an understanding of how organisations actually work in practice, and also to contribute in some way to the stated business objectives which operate in their workplace. Students are prepared for their placements by taking part in selected workshops from the CMS series, which is run on behalf of the Computer Science Department by the University Careers Service. Whilst on placement, students create a reflective log of their experiences, which is formally assessed on their return to University.

### **So why are employability skills so significant?**

Whatever your chosen specialisation within the suite of IT subjects taught at Cardiff University, a significant proportion, if not all, of the employability attributes will be present in your course of study. These will often appear as an explicit part of particular modules, common to all students in the first year of their course; they may also occur as specific option choices in the latter part of your studies. In addition, and over arching everything, the intellectual rigour which accompanies the study of Computer Science and its related subjects requires the frequent exercise of the whole range of employability skills. Although their overt presence might not always be immediately apparent, employability skills form an implicit and important part of your academic and practical work.

Many students assume that recruiters of graduates, whether for a directly-related IT role or not, will have a clear understanding of their technical knowledge, and also of the associated good practices acquired in the course of their degree (i.e. the employability skills previously listed) without further explanation or elaboration. This is frequently not the case, however, with the unfortunate corollary that some very able graduates are not always initially considered for graduate level jobs.

**Communication and literacy** are continuously developed through report writing during the course, and particularly as part of the Professional Skills module in Year One. Project work and essay material must be expressed in clear, grammatical English, as well as written and referenced in an appropriate style. Verbal presentation techniques and question/answer skills are also practised, particularly in the Systems Design and Group project Report during the Second year of both courses.

**Business and Customer Awareness:** Information Systems students study the application of the principles of IT in a business and industrial context, specifically as part of the (20 Credit) Managing the Modern Organisation module.

The practice of Business management is examined in some depth in a variety of options during Year 3, covering such topics as Consulting skills; Adaptive Organisations; Information Assurance; Management Decision making etc.

Whilst topics of this nature are not directly part of the Computer Systems course, there is nevertheless a pervasive commercial influence arising from the intermixing with students on the IS course, particularly in the arena of project team work.

Throughout both courses, students attend guest lectures given by IT professionals, business leaders as well as participating in recruitment events such as the 3 day Engineering, Physics and Computing Fair organised by the Careers Service.

**Self-Management:** IT courses are intensive by nature, with a heavy and concurrent timetable of lectures, projects, tutorials and laboratory exercises. The careful husbanding of available time is crucial to maintaining progress throughout all the degree schemes, and students become adept at managing their workload to ensure the best overall result. All students are encouraged to make use of the Personal Development Planning application on the Learning Central platform which allows them to maintain an overview of what they are learning in the context of the course as a whole. This takes the form of a reflective log, which is periodically reviewed.

**Team working:** Collaborative working forms an important part of each course, but especially during the Systems Design and Group Project in Year 2, which aims to give practice in tackling a large project with team effort and planning and completing it within a set time frame against an agreed customer requirement. Students are not always able to choose with whom they may work, and this can be a useful rehearsal for projects in the future. Marking schemes are structured to take account of individual contributions to the team, as well as allocating marks for the team as a whole.

**Problem Solving:** The nature of the application of Information Technology is rooted in problem solving, and all Computer Science and Information Systems students are continually exposed to this in a variety of ways throughout their courses. The practice of defining a problem in mathematical terms as a prelude to applying IT techniques is therefore introduced at an early stage for all students. The module Problem Solving with Python is intended to furnish them with fundamental skills in this area, based on a number of case studies. In the later stages of each course, design /problem tasks are much more open-ended, so that systematic skills in problem definition are developed as well.

**Application of IT:** The development of programming skills in JAVA is extremely well-developed. Students on the Computer Science course are exposed to a wide variety of tools and applications, and they are encouraged to use them appropriately for their coding tasks. However, they frequently overlook the need to specify their extensive working knowledge of these when preparing CVs or application forms for graduate level jobs, so need to make good use of the PDP facility to ensure this information is both recorded and available.

Business Information System students are more focussed on the design, development and exploitation of Databases, drawing on a different range of software tools from their Computer Science colleagues. Both student groups are widely practised in the use of Microsoft Office products, as part of their day-to-day work submissions. Similarly, both student groups participate in workshops to enhance their skills in finding, evaluating and using high quality information in their work. Amongst other information resources, online bibliographic databases such as Scopus, Web of Knowledge and Ei Compendex are explored.

**Application of numeracy:** The study of Mathematics at an advanced level is important for a clear understanding of the system design and programming process. A good grounding in statistics forms the basis of much database design work. Computer Science and Information Systems students might therefore be expected to perform well in the basic arithmetic tests often employed during graduate selection exercises. However, this is not universally the case, which can cause some bewilderment. Such tests are completed against strict time limits, so the need to understand how to perform well within time constraints, is crucial for success.

### **CAREER MANAGEMENT SKILLS (CMS)**

CMS sessions delivered in years 2 and 3 will show you how to make sense of the **employability skills** developed throughout your degree and will help you articulate these skills effectively on paper and at interview to an employer. This link between academia and employment is essential, especially for those wanting to enter employment straight after their study. The Careers service is available to help you further with this throughout all stages of your academic degree.

The Careers service has a full programme of fairs, employer presentations and employer-led skills sessions that give undergraduates opportunities to meet employers and start developing their **commercial awareness** skills. Furthermore, this insight will allow you to better prepare for the job search and application process.