UNIVERSITY OF STIRLING

FACULTY OF NATURAL SCIENCES

COMPUTING SCIENCE

UNDERGRADUATE
STUDENT
HANDBOOK
2016 - 2017

DIVISIONAL OFFICE	
Room	Cottrell Building 4B80
Office Hours	Mon – Fri 9.00 am – 12.30 pm and 1.30 pm – 5.00 pm
Telephone No.	01786 467421, 01786 467436 and 01786 467420
Fax No.	01786 464551
Email Address	secretaries@cs.stir.ac.uk
Website	http://www.cs.stir.ac.uk/

Session Dates 2016/17

Monday	12th September 2016	Autumn Semester begins
Monday	12th September 2016	Teaching begins
Monday-Friday	24th – 28th October 2016 inclusive	Mid-Semester Break
Monday	31st October 2016	Teaching resumes
Friday	25th November 2016	Ceremonies for Conferment of Degrees
Friday	2nd December 2016	Teaching ends
Thursday	8th December 2016	Autumn Examinations begin
Friday	16th December 2016	Autumn Exams end
Monday	19th December 2016	Semester ends
Monday	16th January 2017	Spring Semester begins
Monday	16th January 2017	Teaching begins
Monday - Friday	20th – 24th February 2017 inclusive	Mid-Semester break
Monday	27th February 2017	Teaching resumes
Friday & Monday	14th & 17th April 2017	Easter Break
Friday	7th April 2017	Teaching ends
Monday	24th April 2017	Spring Examinations begin
Friday	12th May 2017	Spring Exams end
Monday	15th May 2017	Autumn Resit/Deferred Exams begin
Friday	19th May 2017	Autumn Resit/Deferred Exams end
Thursday	22nd June 2017	Spring Resit/Deferred Exams begin
Tuesday	27th June 2017	Spring Resit/Deferred Exams end
Wednesday-Thursday	28th & 29th June 2017	Ceremonies for Conferment of Degrees

Note that mid semester break is only a break from scheduled classes. You are expected to use this time to consolidate assignments and to read around the module material.

TABLE OF CONTENTS

1 *Divisional Information*

1.1 Welcome/Introduction from Head of Division

Welcome to the University of Stirling and to the Division of Computing Science and Mathematics. This handbook is intended to help you in your Computing Science studies by giving you information about the Division and the course modules. Although we hope the information in this document is accurate and helpful, it does not give a complete picture of academic life at the University and it is not authoritative: the definitive document is the University *Calendar*. The Calendar, which is available for consultation on the WWW (www.calendar.stir.ac.uk), contains the degree regulations and other useful information such as staff lists, important dates, and disciplinary codes. The Calendar and other University regulations are definitive in the case of any disagreement with the information in these notes. The Registrar's Office issues a *Student Handbook* with practical information about the rest of the University, including useful URLs, campus telephone numbers and email addresses.

The University

The University of Stirling was founded in 1967. It has over 11,000 students, representing over 100 nationalities. The University's main buildings on the Stirling Campus are:

- Cottrell
- Gannochy (sports facilities)
- Andrew Miller (including the MacRobert theatre, library, shops, restaurants, Student Union)
- Pathfoot
- Logie Lecture Theatre (outside Cottrell 'B' block)

The Division uses the Cottrell Building for teaching. Rooms have numbers like '4B76':

- The initial digit indicates the floor ('2' is the ground floor in most areas!).
- The letter indicates the corridor ('A' and 'B' are the two corridors running the length of the building; letters such as 'X' and 'Y' indicate transverse corridors).
- The last digits indicate the room number for that floor and corridor.

Lecture theatres are mainly on the ground floor and are numbered without a floor level (e.g. 'LTA4' or 'A4').

1.2 About The Division

The Division runs two separate sets of academic programmes, one in Computing Science and one in Mathematics. These programmes are taught by two staff groups. This Handbook deals only with the Computing Science programmes.

At an undergraduate level, Computing Science can be taken as part of a General degree or Bachelors degree in Computing Science (both three years), or an Honours degree (four years). Honours degrees in Computing Science are available as 'single' honours (Computing Science, Business Computing and Software Engineering) or as 'combined' degrees, in which modules are partly in Computing Science and partly in other subject(s). Each of these programmes can be taken with one year's industrial placement between the third and fourth years. In addition, an Applied Computing degree is offered as a 2+2 programme with Forth Valley College. The first two years of this programme are spent at Forth Valley, with the honours years being completed at Stirling. See section 2.1, below.

In addition to this wide range of undergraduate degrees, the Division offers taught postgraduate degrees in Information Technology, Computing for Financial Markets, Software Engineering, Computing for Business and Big Data. The Division also supervises MPhil and PhD degrees by research.

Staff responsible for these general areas includes:

Dr David Cairns (Computing Science, Software Engineering, Business Computing)
Dr Savi Maharaj (Combined Honours)
Dr Mario Kolberg (Applied Computing)
Dr Simon Jones, Dr Mario Kolberg & Mr Kevin Swingler (Taught Postgraduate).

1.3 Staff   Academic Staff

Name	Room	Tel. Ex.	Email
Prof Evan Magill **(Head of Division)**	4B84	7425	ehm@cs.stir.ac.uk
Dr Andrea Bracciali	4B86	7446	abb@cs.stir.ac.uk
Dr David Cairns	4B87	7445	dec@cs.stir.ac.uk
Dr Marwan Fayed	4B72	7454	mmf@cs.stir.ac.uk
Prof Bruce Graham	4B76	7432	bpg@cs.stir.ac.uk
Prof Amir Hussain	4X3	7437	ahu@cs.stir.ac.uk
Dr Simon Jones	4B63	7434	sbj@cs.stir.ac.uk
Dr Mario Kolberg	4B60	7440	mko@cs.stir.ac.uk
Dr Jingpeng Li	4B95	7450	jli@cs.stir.ac.uk
Dr Savi Maharaj	4B68	7431	sma@cs.stir.ac.uk
Dr Gabriela Ochoa	4B104	7438	goc@cs.stir.ac.uk
Prof Carron Shankland	4B62	7444	ces@cs.stir.ac.uk
Prof Leslie Smith	4B85	7435	lss@cs.stir.ac.uk
Mr Kevin Swingler	4B97	7676	kms@cs.stir.ac.uk
Dr John Woodward	4B102	7286	jrw@cs.stir.ac.uk

Administration Staff

	Room	Internal Tel:	email
Mrs Grace McArthur	4B80	7421	grace@cs.stir.ac.uk
Mrs Linda Bradley	4B80	7436	linda@cs.stir.ac.uk
Miss Gemma Gardiner	4B80	7420	gemma@cs.stir.ac.uk
Mrs Lynn Reilly	4B80	7429	lynn.reilly@cs.stir.ac.uk

The Computing Science Technical Staff consists of:

	Room	Internal Tel:	email
Sam Nelson Senior Computer Officer	4B81	7443	sam@cs.stir.ac.uk
Graham Cochrane Computer Officer	4B81	7442	gco@cs.stir.ac.uk
Chris Grigson Technician	4V8	6469	chris.grigson@stir.ac.uk

1.4 Divisional Advising Team

The Division has a Computing Science Advising team led by Ms Kate Howie.

The team is:

First Year: Dr Simon Jones
Second Year: Prof Leslie Smith
Third Year: Dr David Cairns
Fourth Year: Prof Bruce Graham
MSc: Dr Simon Jones

Further details may be found on the University web pages, at http://www.stir.ac.uk/tse/advisers/

Dealing with Problems
For problems involving your degree structure, such as changes of course, you should first go to see a member of the Division's Student Advisory Team. Academic problems involving Computing Science are probably best assisted by the Division's staff. The Head of Division is available to help with problems that cannot be solved more directly. If you need help with a particular module you should approach your tutor or the module co-ordinator.

If you have a problem that is affecting your studies, please let us know as soon as possible. If you wait to tell us, it may be too late for us to compensate you for your difficulties. If you have a good reason, we can consider extending deadlines for assignments, etc. If you fall ill, it is important to get a medical certificate or other evidence. You must promptly notify the Registrar's Office and your module co-ordinator of any reasons for absence or for failure to undertake assignments or examinations. If you are unable to sit an examination you *must* inform the Chief Examiner (Dr Savi Maharaj) about the problem and apply for a deferred exam (See section 3.5 below.) We can make allowances for problems at our examiners' meetings - but only if you tell us in advance!

Each team within Student Administration has a generic email box and contact number to which queries can be sent to:

Enrolment and Records Team:	records.office@stir.ac.uk,	ext 6654
Student Programmes Team:	studentprogrammes@stir.ac.uk,	ext 6685
Tuition fees and Graduation Team:	smro.tuitionfees@stir.ac.uk,	ext 6686
	SMRO.graduation@stir.ac.uk,	ext 7054
Student Information and Systems:	studentinformationandsystems@stir.ac.uk,	ext 6809
Student Administration Research:	StudentAdministrationResearch@stir.ac.uk,	ext 7032
Examinations Office: examsoffice@stir.ac.uk or pamela.kerr@stir.ac.uk ext 7023.		

1.5 Attendance Requirements/Compulsory Classes/Notification of Absence

On each module you will have lectures (usually 3 per week). Lectures start at nominally 5 minutes past the hour and finish at nominally 5 minutes to the hour. In addition, you will have tutorials (usually one per week); on some course modules there are laboratory sessions or seminars as well as, or instead of, tutorials.

In Computing modules, outline lecture notes will be handed out to students, or put up on the WWW; **however this is not a substitute for attending lectures.** In all modules, the handed out material needs to be supplemented by students taking their own individual notes.

Divisions can designate classes in modules as *Compulsory* or *Prescribed*. Quoting from the Undergraduate regulations:

Class Attendance

54. Each module's descriptor specifies any compulsory or prescribed attendance required at classes.

55. A student who fails to attend a compulsory class will be deemed to have failed the module, due to failure to comply with published requirements.

56. A student who is absent for more than a third of prescribed classes will have their mark capped at a maximum of 40 for that module.

Engagement

57. Other points of required engagement for students will be specified in each module's descriptor.

You are required to inform the Academic Registrar if you are absent through illness. If the absence is short (less than seven days) self-certification is sufficient (via the Student Portal). For longer absences, and in all cases of absence from prescribed tests and examinations, a medical certificate is required. Further details on the attendance policy may be found on the University web pages, at http://www.stir.ac.uk/regulations/undergrad/modulescreditloadandattendance/

1.6 Divisional Access

The Divisional Office is room 4B80 in the Cottrell Building at the 'B' end of the X corridor. You are welcome to stop in at any time and the administrative staff will be happy to assist you.

Equipment and Facilities

Tutorial sheets, assignments, etc., will normally be issued by the module co-ordinator, and will be available via a website for the module. They may also be placed for collection outside room 4B89 on the shelves above the assignment boxes, which will be marked with the module code if they are being used.

The University provides centrally-administered computing facilities that are open more or less permanently, but may be booked for practical classes. A page showing the current status of these facilities can be accessed via the 'Computer Lab Status' link on the University Portal website.

In addition the Division offers three PC laboratories for student access: 4X5, for third and fourth year undergraduates and taught postgraduates; 4B89, for second, third, and fourth year undergraduates; and 4B91, for taught-postgraduates only. These labs are equipped

with PCs running Microsoft Windows 7 and coursework-oriented applications software. Each lab is also equipped with a printer and a scanner.

Divisional computing facilities are run by the Computing Support Group, Sam Nelson and Graham Cochrane, whose office is 4B81.

Divisional and University computing facilities are provided for students to pursue university-related work. Use of this equipment for other purposes is strongly discouraged, and disciplinary action may be taken if appropriate. In particular, you should note that your computer user account is provided for your use only: under no circumstances should anyone else be allowed access to any of the University's computing facilities through your account.

Computing facilities and their use are covered by relevant UK legislation such as the Computer Misuse Act and the Data Protection Act. The provisions of these Acts are covered in first-semester modules.

1.7 Health & Safety

The Division of Computing Science and Mathematics recognises that, while overall responsibility for Health and Safety is held by the University Court, part of this responsibility is devolved to the Head of this Division. The Head of Division is therefore committed to do all that is reasonably practicable to provide a safe and healthy environment for employees, and for others who may be affected by its activities such as students, contractors and visitors to the University. Details may be found on the University web pages, at http://www.she.stir.ac.uk/uni-safe-pol/index.php

1.8 Divisional Module Registration & Enrolment

Academic Registration is the process of choosing your modules for the following semester or academic year (as opposed to Administrative Enrolment, which relates to confirming information, acknowledging regulations and paying fees).

For undergraduate students academic registration is an online process which is opened at the beginning of May and November each year in preparation for the following semester, and remains available until 2 weeks after the start of teaching. Students will be expected to choose modules a semester ahead during their first two years of study, and then for a year ahead in the third and fourth year. Students are encouraged to register as soon as possible after registration opens, and will not be able to complete enrolment until they are registered for modules.

For postgraduate students, academic registration will be available as an online process at the start of each semester. Postgraduate students will be expected to complete enrolment first before they can register for modules.

The online registration system enables students to choose modules, based on the academic regulations for their programme of study. It will direct you as to the amount of credit you have to register for, and the modules from which you can choose. If you wish to change to a different degree programme, it is important that you ask to change before you register for modules, as you will be offered modules appropriate only to the programme for which you are currently registered.

2   *Programme & Module Information*

2.1 Programme Structure(s) and Aims (see also www.cs.stir.ac.uk/entrants)

Teaching takes place during an Autumn semester and a Spring semester. In each semester you will usually take three modules, with each having its own assessment (usually coursework and examination). Computing Science modules are coded as CSCU9AN (where 'U' indicates Undergraduate, 'A' indicates the stream of the modules, and 'N' indicates the semester in which the modules is normally taken, e.g. 'CSCU9Q5'). Brief information on the available course modules is given below in section 2.2.

All undergraduate degrees at Stirling contain modules from more than one subject. In the normal pattern, in each of your first three semesters you take modules in three *different* subjects. If you are taking a degree in Computing Science, Business Computing, or Software Engineering, in your first three semesters you will take one Computing Science module per semester: in later semesters possibly all three of your modules will be in Computing Science, depending on the degree you are following.

By passing modules you acquire 'credits': usually a module is worth 20 SCQF credits. The exceptions in Computing Science are the honours project module CSCU9Z7, which is worth 60 SCQF credits, and the Honours options which are each worth 10 SCQF credits.

By the end of your degree you will have achieved 360 SCQF (18 Full modules) for a General degree or the (non Honours) BSc in Computing Science, or 480 SCQF credits (24 Full Modules) for an Honours degree. Some course modules are core to your degree programme, and some you can choose within the options available.

Computing Science modules can be taken as part of:

*   An Honours Degree in Computing Science. There are four such degrees, Computing Science, Business Computing, Software Engineering and Applied Computing. Their programmes are set out in the Calendar. Note that for the Computing Science and Software Engineering degrees you must include the introductory Maths module MATU9D1 in your programme. (Module MATU9D1 does not require Higher or A-level Maths.) For the degree in Business Computing, you must include the Business Studies Modules MGTU9S1, MGTU9S2 and MGTU9S3 in your programme.
*   An Honours Degree in Computing Science and another subject. There are currently seven such combinations.
*   An Honours degree in some other subject(s). If you do this then you are unlikely to be able to take more than four modules in Computing Science: such a sequence would typically start with CSCU9A1 or CSCU9B1 and end with a fourth-semester module.
*   A General degree: you can take up to eight Computing Science modules in this way. The Computing Science modules for the General degree are listed in the Calendar.
*   A three-year (non-Honours) BSc in Computing Science. This degree must include at least nine Computing Science Modules.

A typical programme structure for Computing Science is shown in the following table (module codes can be found in the module description table later in this document).

Year	Semester	Module 1	Module 2	Module 3
1	1	Introduction to Computing Science	Subject 2	Mathematics: Discrete Structures
	2	Programming and User Interface Design	Subject 2	Subject 3
2	3	Data Structures, Objects and Algorithms	Subject 2	Subject 3
	4	Systems	Managing Information	Programming Language Paradigms
3	5	Database Principles and Applications	Multimedia and Human Computer Interaction	Software Engineering 1
	6	Communications and Networks	Computer Game Technologies	Software Engineering 2
4	7	Honours Project	Artificial Intelligence (1/2) + Computer Security and Forensics (1/2)	Operating Systems, Concurrency and Distribution
	8	Honours Project (continued)	Honours Project (continued)	Big Optimisation Spaces (1/2) + Telecommunications Systems & Services (1/2)

2.2 Modules

Each module in Computing Science is worth 20 SCQF credits towards a degree (except for PDMU9L6, PDMU9L7) and Honours options which are 10 SCQF credits and CSCU9Z7, which is 60 SCQF credits).

The table below gives summary information about the Computing Science modules which are currently available. For full details see the Undergraduate Degree Programme tables. The Division may vary this list from time to time, and does not guarantee that any particular module will be available in a particular semester.

In the first three semesters the course modules are foundational, and are described as 'Non-advanced' in terms of the University Degree Regulations (SCQF level 8). In semester four, the course modules are at SCQF level 9. In subsequent semesters the modules are 'Advanced' (SCQF level 10).

Each module has a seven-character code. The first three characters indicate the subject (for Computing Science modules these are CSCU). In most cases, the last character indicates the semester in which the module is normally taken. For example, CSCU9V4 is normally taken in a student's fourth semester, and CSCU9P6 is normally taken in the sixth semester. The second last character of the course unit code is indicative of the subject matter: 'A' indicates 'foundational, 'V' indicates 'Systems', 'P' indicates 'Software Engineering', etc.

For a full syllabus of each course see, http://www.cs.stir.ac.uk/courses/. Some module information may also be available via Succeed.

Note: Module codes changed in Autumn 2014. If you started before then, the modules will be CSC9A1, CSC9A2, CSC9A3 or CSC9B1 and CSC9B2. For students starting in Autumn 2014 or later, the sequence will be CSCU9A1, CSCU9A2 and CSCU9A3 (or CSCU9B1 and CSCU9B2).

The following may be helpful in determining your programme of study:

Code	Title	Pre-requisite	Content
CSCU9A1	Introduction to Computing Science	None	Compulsory for those intending a degree in some form of Computing. Computational thinking and computer programming are taught through extensive practical problem solving exercises using the Java programming language.
CSCU9B1	Essential Skills for the Information Age	None	May not be taken by those intending a degree with Computing. A broad range of practical world wide web and information communication technology skills. Taught mainly through practical classes.
CSCU9A2	Programming and User Interface Design	CSCU9A1	Compulsory for those intending a degree in some form of Computing. This module extends knowledge of programming in Java to Graphical User Interfaces, object orientation and data processing algorithms. It introduces syntax diagrams and reasoning about programs as analytical concepts. The module also teaches user accessibility, the basic principles of good design, and the design of effective user interfaces.
CSCU9B2	Making the Most of the World Wide Web	None	The world wide web has brought us great opportunities and some new legal, ethical and security issues. This course studies the basic structure of the world wide web and cloud computing and considers issues such as security, fraud, digital media, e-commerce, social media, HTML and using the web in your studies. Not for CS students.
CSCU9A3	Data Structures, Objects and Algorithms	CSCU9A2	Data structures and algorithms: use, implementation and complexity. Abstract data types. Object-oriented development.
CSCU9T4	Managing Information	CSCU9A3	XML Technologies, advanced object oriented concepts, and information security.
CSCU9Y4	Programming Language Paradigms	CSCU9A3	Comparison of imperative, logic, functional and object-oriented paradigms. Reusable software components.
CSCU9V4	Systems I	CSCU9A3	Introduction to computer organisation, operating systems and software. Concurrency in Java.
CSCU9P5	Software Engineering I	CSCU9V4	Introduction to software engineering. Requirements capture and analysis. Rigorous design, use of teamworking. CASE tools. Testing and validation. Extreme Programming. Legal, ethical and professional issues.
CSCU9Q5	Database Principles and Applications	CSCU9A3	Essentials of database systems. Practical aspects of Database Management Systems. The relational data model, SQL and EAR (Entity Attribute Relationship) modelling.
CSCU9N5	Multimedia and HCI	CSCU9A3	How computers and people communicate. Topics covered include: usability issues, design of user interfaces,

			interaction styles, devices, graphics, sounds, animation, and use of multimedia authoring tools.
CSCU9P6	Software Engineering II	CSCU9P5	Teamwork. Soft project management. Software configuration management. Software quality assurance. Software engineering mathematics. Rigorous specification.
CSCU9N6	Computer Game Technologies	CSC9P5 MATU9D1	Image Rendering, The Animation Loop, Sprites, Collision Detection, Image Transforms, Sound, Java Micro Edition, Networking, 3D Graphics – Modelling, Lighting and Camera position.
CSCU9T6	Information Systems	CSCU9A3	Data storage, retrieval and use. Information as a resource. Types of Information Systems. Tools for IS development.
CSCU9W6	Communications and Networks	CSCU9P5	Data communications overview. Architectural principles. Specifying services/protocols. Communications case studies. Internet Technology.
CSCU9V7	Operating Systems Concurrency and Distribution	CSCU9V4 CSCU9W6	Operating systems: process management, memory management, file systems. Concurrency: synchronisation, mutual exclusion, monitors, deadlock, Distributed Systems: Clients and servers, naming and binding, Corba, Unix and NT Examples.
CSCU9Yn	10 SCQF credit options	Varied	Options includee Artificial Intelligence, Technologies for e-commerce, Computer Security & Forensics, Web Services, Telecommunications Systems and Services, No SQL databases, Big Optimisation Spaces and Modelling for Complex Systems.
CSCU9Z7	Computing Science Project	CSCU9P5	A project in Computing Science over two semesters leading to a dissertation.
PDMU9L6	Information Technology Skills	none	10 SCQF credit introduction to computers and in computer applications. Not available to first semester students or anyone who has passed a module in Computing Science.
PDMU9L7	Advanced Information Technology Skills	PDMU9L6	10 SCQF credit further skills in computer applications (www pages, databases, advanced office). Not available to anyone who has passed a module in Computing Science.

Years 1 and 2

In year 1 there are two alternative streams of computing. The 'A' stream: CSCU9A1 and CSCU9A2, is intended for those students who wish to pursue a degree in Computing (Computing Science, Business Computing, Software Engineering and joint programmes), although those who wish to study computer science seriously while pursuing another programme are welcome.

The 'B' stream: CSCU9B1 and CSCU9B2, is intended for those students who wish to develop their computer usage skills to a high level, as a part of their degree in some other subject. It is not normally possible to switch to a degree involving computing from the B Stream.

In the first semester there are two alternative modules CSCU9A1 and CSCU9B1. Module CSCU9A1 is intended for students who wish to acquire skills in computer programming and an understanding of the principles underlying computer systems and networks. It is *compulsory* for students entering degree programmes involving Computing Science, Software Engineering, or Business Computing. There is no prerequisite, and the module may be taken by all students (regardless of intended programme).

Module CSCU9B1 is intended for students who wish to develop their skills in WWW (World Wide Web) and ICT (Information Communication Technologies), as an adjunct to their main degree subjects. This module leads only to one more computing module (CSCU9B1) and should not be taken by those intending a degree involving computing.

In the second semester, module CSCU9A2 is intended to develop programming skills further. Module CSCU9B2 will encourage students to make the most of the World Wide Web as advanced users, but is not intended to be taken by students on CS degrees.

In the third semester, students following the 'A' stream take module CSCU9A3.

The fourth semester is the first opportunity to take only computing modules and to drop other subjects if you have met the degree requirements. All students who intend to pursue Honours programmes involving Computing Science must take CSCU9V4 and CSCU9T4. The third module available is CSCU9Y4. While optional, taking this module will broaden your understanding of programming languages: very important for Honours computing students. Admission to Honours programmes takes place at the end of the fourth semester. This depends on performance in years 1 and 2, but most critically on performance in the fourth semester (details vary according to the intended programme). Note that for entry to Single Honours in Computing Science or Software Engineering, Mathematics MATU9D1 is a prerequisite, while Business Computing requires the Business Studies modules MGTU9S1, MGTU9S2 and MGTU9S3.

General Degrees

Under University regulations, students who wish Computing Science to be their major subject will take at least six and at most eight modules in Computing Science. These will include CSCU9A1, CSCU9A2 and CSCU9A3. The remaining modules may be chosen from the list: CSCU9T4, CSCU9V4, CSCU9Y4, CSCU9P5, CSCU9Q5, CSCU9W6, CSCU9N5, CSCU9N6, CSCU9T6.

2.3 Intended Learning Outcomes

The Computing Science modules and programmes are principally designed to inculcate specific skills in relation to the academic discipline of Computing Science and its applications. However, the following transferable skills are also regarded as important:
* An understanding of the scope and power of modern IT facilities, and their significance for industry and society.
* Ability to use a range of IT tools to manage textual and numeric data in any context.
* Skills in the study of systems so that they can be analysed, their behaviour explained and changes planned in a methodical manner.
* Ability to plan work, to understand how tasks can be specified, to undertake independent creative activity and to bring it to a successful conclusion.
* Ability to write a coherent and informative account of work done.
* An understanding of the issues and responsibilities of being an IT professional.

2.4 Progression & Entry to Honours

Details of the regulations for all Honours degree programmes are given in the University Calendar (http://www.stir.ac.uk/regulations/undergrad/assessmentandawardofcredit/#q-5). What follows is only a brief summary, intended only to clarify those regulations. In no way does it supersede them.

For the award of an Honours degree, a minimum of 480 credits must be achieved, with a minimum of 180 at SCQF levels 9 and 10, including a minimum of 90 credits at SQCF level 10 as defined by the Degree Programme Table. Normally, 240 of these credits will be obtained in years 1 and 2, and these will include the credits required in subjects outside the main subject(s). In years 3 and 4, therefore, students will normally require 240 credits in one subject (for Single Honours) or two subjects (for Combined Honours). Below is a list of the course modules which are normally offered in semesters 5 to 8 to students on Honours programmes. In planning a programme, you should note the prerequisites for each course module (given in the table above).

Semester 5 (Autumn):

      CSCU9P5
      CSCU9Q5
      CSCU9N5

Note: Single Honours students normally take all three of these modules. Combined Honours students normally take at least CSCU9P5, which is required in most programmes. Any of these modules not taken in the fifth semester may be taken in the seventh semester.

Semester 6 (Spring):

      CSCU9P6
      CSCU9N6
      CSCU9T6
      CSCU9W6

      CSCU9T4
      CSCU9Y4

Note: Single Honours students normally take three of these modules including CSCU9W6. Computing Science and Software Engineering Honours students must take CSCU9P6 while Business Computing Honours students must take CSCU9T6. Combined Honours students normally choose one or two. CSCU9T4 and CSCU9Y4 may not be taken together in the sixth semester. Any of CSCU9P6, CSCU9N6, CSCU9T6 and CSCU9W6 which are not taken in the sixth semester may be taken in the eighth semester, but neither CSCU9T4 nor CSCU9Y4 may normally be taken in the eighth semester.

Semester 7 (Autumn):

      CSCU9YD, CSCU9YE, CSCU9YQ, CSCU9YS (half module options)
      CSCU9V7
      CSCU9Z7
      CSCU9Q5
      CSCU9N5

Note: Single Honours students normally take CSCU9Z7 plus two others from those not already passed. Combined Honours students normally must include a project in their programme. Details are in the Calendar.

Semester 8 (Spring):

      CSCU9YH, CSCU9YM, CSCU9YW (half module options)
      CSCU9Z7
      CSCU9P6
      CSCU9N6
      CSCU9T6
      CSCU9W6

Note: Single Honours students normally take CSCU9Z7 plus one other from those not already passed. Note that CSCU9T4, CSCU9Y4, CSCU9P6, CSCU9N6, CSCU9T6 and CSCU9W6 may not normally be taken in the eighth semester by single honours students.

Final Year Project

During your final Honours year you will undertake a project leading to a report. This is an important part of your degree and counts as 60 SCQF credits (three full modules). To qualify for an Honours degree it is mandatory that you pass your project. Towards the end of your third year, you will be given advice on the kinds of project that are possible and the staff you should approach as supervisors for various topics. If you are taking a combined Honours degree, your project may be in Computing Science only or may have aspects of both subjects. The rules vary from degree to degree as to the nature and length of the project, so check what applies to you. The co-ordinator for projects is Dr Simon Jones.

BSc in Computing Science

Students who complete the first three years of the Single Honours in either Computing Science or Software Engineering are normally eligible for the BSc in Computing Science.

Further details on progression and entry to honours may be found on the University web pages, at http://www.stir.ac.uk/regulations/undergrad/assessmentandawardofcredit/

2.5 Divisional Prizes

The Division awarded the following prizes in Spring 2016

- Best CSCU9Z7 project.
- The prize for the best third year student (across semesters 5&6).
- The prize for the best second year student (across semesters 3&4).
- The prize for the best first year student.
- The Faculty prize for Research-Based learning.

We hope to be able to award these prizes again in Spring 2017.

In addition, the Division nominates students for 1 national prize:

- ScotlandIS Young Software Engineer of the Year

3   Assessment

3.1 Submission of Assessment

A module may be taught by several lecturers, but for each module there is a single lecturer who is designated the module's 'co-ordinator' and who is responsible for overall control of the module.

Most modules contain assessed coursework, often programming assignments. Normally there are one or two assignments per course module, and an examination at the end of the course module. Assignments *usually* account for 50% of the final mark, and an examination *usually* accounts for the remaining 50%. This does differ in specific cases. (The formula for each module is published in the module syllabus.) Since you will typically be taking three modules per semester, you might have six assignments to complete per semester. In some semesters assessment deadlines are close together: we do this to encourage you to develop your time management skills. The best you can do is to

start work on assignments as soon as they are handed out, so that you do not have to rush everything at the last minute!

It is much easier for lecturers if assignments are submitted in a standard form. Unless for a particular module you are told otherwise, you should adhere to the following. Use a clear plastic A4 pocket, the sort with a mouth at the top. Label this with the module name and code, and your student number. Write your student number on each separate piece of paper. Do *not* bind the pieces of paper with string, treasury-tags, patent clips or whatever; just slip them loose into the pocket. If you wish you may put a single strip of adhesive tape across the mouth of the plastic pocket. One of the boxes outside room 4B89 will be labelled with the module code in the week before the assignment is due; you should place the assignment in the box on or before the deadline.

In many modules, assignments are automatically collected from pre-designated computer folders. In such cases, full details will be given on the assignment handout. In either case, you must keep a copy of any assignment submitted.

Control of Assignments

The paragraph above describes the process of submission of assignments in general terms. The Computing science section has adopted a procedure for handling assignments, which is as follows:

- Immediately after the submission date for every assignment, the module co-ordinator will check the assignments received against the list of students currently registered for the module provided by Undergraduate Records (Academic Registrar's Office). Where an attempt at the assignment has not been received from such a student, and an extension has not been explicitly given, the co-ordinator will send a letter to the student at his or her registered address during semester or email to the student's university address, warning the student that the assignment has not been received. These letters will be despatched within three working days of the submission date.

- It is important to read your University email regularly.

- The lecturer teaching a module will mark assignments and make the feedback and grade available for collection within three teaching weeks.

The first of these procedures is intended to give students security in cases where submitted assignments have miscarried, for whatever reason. Of course, the procedure will only be effective if the Undergraduate Records office has up-to-date information on your address. It is the student's responsibility to keep Undergraduate Records informed of changes and errors.

3.2 Divisional Assessment/Grade Criteria/Common Grading Scheme

Assessment in all modules is governed by University regulations. The guidelines here aim to provide specific Divisional information about assessment as well as an informal overview of assessment as a whole. In the case of any contradictory advice, the regulations take precedence. Further details may be found on the University web pages, at http://www.stir.ac.uk/academicpolicy/handbook/assessment/

Common Marking Scheme

Your performance in a module is graded using the University's 100-point marking scheme. The marks of the scale are as follows:

Mark	Equivalent Grade	Result	Descriptor of Attainment of Learning Outcomes
90+	1st	Pass	Meets all the requirements to attain 80 – 89 but in addition demonstrates an exceptional degree of originality and exceptional analytical, problem-solving and/or creative skills.
80 -89			Meets all the requirements to attain 70 – 79 but in addition demonstrates outstanding quality evidenced by an ability to engage critically and analytically with source material, exhibits independent lines of argument, is highly original and uses an extremely wide range of relevant sources where appropriate.
70 - 79			Exemplary range and depth of attainment of intended learning outcomes, secured by discriminating command of a comprehensive range of relevant materials and analyses, and by deployment of considered judgement relating to key issues, concepts or procedures
60 - 69	2:1	Pass	Attainment of virtually all intended learning outcomes, clearly grounded on close familiarity with a wide range of supporting evidence, constructively utilised to reveal appreciable depth of understanding.
50 – 59	2:2	Pass	Attainment of most of the intended learning outcomes, some more securely grasped than others, resting on a circumscribed range of evidence and displaying a variable depth of understanding.
40 – 49	3rd	Pass	Acceptable attainment of most intended learning outcomes, displaying a qualified familiarity with a minimally sufficient range of relevant materials, and a grasp of the analytical issues and concepts which is generally reasonable, albeit insecure.
30 - 39	Fail - Marginal	Fail	Appreciable deficiencies in the attainment of intended learning outcomes, perhaps lacking a secure basis in relevant factual or analytical dimensions.
0 - 29	Fail - Clear	Fail	No convincing evidence of attainment of intended learning outcomes, such treatment of the subject as is in evidence being directionless and fragmentary.

X	Fail	Fail	Failure to comply with published module requirements

An 'X' (Fail) is given if a student does not complete the compulsory coursework or examination (either main diet or resit diet): therefore it is really important to let staff know if you have good cause for missing either of these. See Section 1.5 and 3.4.

Getting a grade

To sum up the material of this section: normally, in order to receive a grade for a module you must

- Attend all the Compulsory classes.

- Complete the assessed coursework within the deadlines.

- Attend the examination.

These requirements described what you have to do to get a grade *at all* - even a fail grade. To pass, you must attain an overall mark of 40 or better. For more detail, keep reading!

Marking

Assignments and examinations are all marked within the Division. For each element of assessed work a sample (10% or 5 whichever is greater) is then independently reviewed by another staff member. Comments by the reviewer may lead to adjustments of marks in individual cases or across the whole class.

Marking is anonymous (i.e. your submission is identified only by student number and not by name), or anonymised (i.e. your submission is identified by your computer user ID and not by name). The latter is usually the case for electronically submitted coursework.

If you have reasons to believe that an assignment has not been fairly marked you may ask for a re-assessment by a second marker. However, the re-assessed mark will stand and could be *poorer* than the original assessment.

3.3 Assignment Extensions / Late Submission

If you are late in handing in an assignment (and have no good cause) then your grade will be reduced. University regulations stipulate a penalty of 3 marks per day (e.g. if you are three days late and the assignment was marked as 60, then you will receive a mark of 51 to penalise lateness). After seven days, time runs out and the work is deemed a "non submission" and receives a mark of 0. For most Computing Science modules this means an overall "X" (Fail) grade.

Good cause: Please let your module co-ordinator know immediately of any good cause preventing you from meeting an assignment deadline. Extensions can be given in such cases. Good causes are similar to those for deferred examinations (see section 3.5) but each case is taken on its own merits. Further details may be found on the University web pages, at http://www.stir.ac.uk/academicpolicy/handbook/assessment/. If an extension has been granted, then lateness penalties do not start until after expiry of the extension.

3.4 Examination Regulations

Examinations

Towards the middle of a semester the draft examination timetable will be posted. We check this ourselves carefully to make sure there are no clashes, but occasionally there are conflicts because a student has chosen non-standard options. It is *your* responsibility to check the timetable and to let your course module co-ordinator know of any problems. After this consultation period, the final exam timetable is posted: read it carefully as some times may have changed. If you need to make travel arrangements before the final timetable is published, **you must assume that you may need to be present on the very last day of the examination period.**

Examination Disasters

Your alarm clock didn't go off, you missed the bus, you got the time wrong….There are lots of reasons that may cause you to be late for an examination. The most important thing is that you should turn up to the examination venue if at all possible - even if you are late. The invigilator may be able to let you take the examination. Usually candidates who arrive late are allowed into the examination as long as no other candidate has left. Make sure you talk to the invigilator for your examination as there may be more than one examination in the room. If you can't make it to the venue, contact the Division, specifically the Chief Examiner Dr Savi Maharaj, to let us know. As always, the more information we have, the better we are able to help.

The *rubric* is the text on the front of the exam paper; it tells you if there are compulsory questions, and how many to answer. Always read the rubric carefully. If you fail to comply with the instructions the examiners will take appropriate measures. In the case of too many questions the Division marks them all and discards the lowest mark(s). E.g. if the rubric says answer four questions and you answer six, then the two lowest marks are discarded. In the case of too few questions no adjustment is made. If a compulsory question is omitted (and too many other questions answered), then the lowest marks are discarded but you will be severely disadvantaged by not having answered the compulsory question.

Use of Dictionaries

Use of electronic dictionaries is not allowed. Hard copy dictionaries are subject to inspection by the invigilator.

3.5 Resit/Deferred Exams

All modules except the Honours project have resit/deferred examinations. These examinations are normally in May (for Autumn modules) or late June (for Spring modules). An examination is called 'deferred' if you had good reasons not to take it the first time (e.g. due to illness) as described below. If you simply did not do well enough to pass the first time, the examination is called a 'resit'.

Students who fail a module will be eligible for a resit examination.

In a resit examination, the best you can do is to get a mark of 40 for the module (that is, marks are capped at 40).

University Policy on Deferred Examinations

Procedure

- You are required to apply through the Student Programmes Office on a specified form, for your case to be considered for a deferred exam. Application must be received before a published deadline.
- Independent evidence of good cause for non-attendance at exams is necessary. This generally takes the form of a medical certificate.
- Deferred exams are granted only if all coursework has been completed.
- If rejected, a student may supply further information and ask for a reconsideration of their case.
- In all cases, a final decision is notified to the student as soon as possible.

Acceptable Grounds

- Attendance grounds: Unable to attend because you are either in hospital, in court/detention or you are a sports bursar in an authorised competition.
- Medical grounds: you must be suffering from symptoms that render you incapable of complying with exam requirements. Doctors certifying these will be required to indicate whether you are unable to attend the exam (e.g. confined to bed) or unable to read/write on date of exam. The doctor is expected to notify the symptoms, but is not required to notify what illness is involved. The student must therefore authorise the doctor to disclose the symptoms. Sometimes an alternative exists (taking the exam in a separate room or having a scribe for the exam). These may be offered in place of a deferred exam.
- Compassionate grounds: You are distressed due to the death of a close person during the exam period (family member or someone living at the same address) or the unexpected onset of acute and dangerous illness or serious mental illness of a close person.
- Other exceptional grounds; Exceptional individual circumstances will always be considered on their own merits. Further details may be found on the University web pages, at:

    http://www.stir.ac.uk/registry/studentinformation/exams/

    http://www.stir.ac.uk/registry/studentinformation/exams/deferredexams/

3.6 Academic Misconduct

The University takes a very serious view of academic misconduct. Broadly, academic misconduct means cheating. This may be bringing notes into an examination (unfair means), or it may be the presentation of the work of others as if it were your own in an assignment (plagiarism). When this is done in a submission of assessed coursework, it is the equivalent of cheating in an examination.

There are procedures and penalties explicitly laid down by the University, to be applied by all Divisions when cases of misconduct arise. Details may be found on the University web pages, at http://www.stir.ac.uk/academicpolicy/handbook/assessment/

The penalties for misconduct include reducing the mark for the piece of work involved, the award of a fail grade for the module as a whole, ineligibility for the award of an Honours degree, and termination of studies.

Ignorance of the rules about misconduct or of what constitutes misconduct is <u>not</u> accepted as a defence. The University publishes a guide entitled "The Little Book of Plagiarism", and "The Little Book of Misconduct". These may be found at:
http://www.stir.ac.uk/academicpolicy/handbook/assessment/

Plagiarism: Divisional Guidelines
The Division expects your submitted work to be your own. Two sorts of plagiarism may arise: unattributed use of material available elsewhere (on the www, books etc. or from another student) or excessive collaboration with other students. In the first case, you must always acknowledge any material from other sources, and it should not make a major contribution to your assignment. In the second case, it is normal for students to discuss openly the nature of an assignment and the broad approaches to a solution. It is normal to share experience and to discuss ideas that did not work. However, there comes a point when such activities can turn into collaboration or even copying. Submissions must be your own original work. Examples of unacceptable behaviour are:

- Copying or making use of someone else's file or work
- Providing a copy of your own file or work to someone else
- Sharing detailed descriptions of your approach with someone else (e.g. a structure diagram or pseudo-code)
- Allowing someone else (e.g. a friend or a tutor) to help you so much that the results cease to be your own individual work.

Of course, there are some situations where these rules cannot be taken too literally. For example, there are some modules where students are explicitly asked to work together in teams. Again, there may be cases where you wish to use program source (or other material) which you find in a book or which has been given out by a teacher as part of the class. In such cases you should feel free to incorporate the material in your assignment, provided that you follow two essential rules: firstly, you should always make it quite clear that the material is not original and you should indicate the source and acknowledge your indebtedness; secondly, the borrowed material should not so dominate the assignment that a reader cannot identify major elements that are your own unaided work.

Unfortunately, deliberate copying by students happens occasionally. For example, a student might pick up your discarded workings and use it to write a program or an essay; be careful about how you dispose of your drafts! A student might copy your file without you knowing if you are careless about access permissions on your directories and files.

If a lecturer suspects that work submitted for assessment has been copied, he or she will interview the students concerned. The penalties for plagiarism are described above.

3.7 Complaints/Appeals

Very occasionally, students disagree with a progress decision. If you find yourself in this position, ask the Head of Division for details of the appeals procedure. Note that there is no appeal against the professional judgement of the examiners. Further details may be found on the University web pages, at http://www.stir.ac.uk/academicpolicy/handbook/

4   *Student Participation and Feedback*

4.1 Student Staff Consultative Committee

There is a Computing Science Staff-Student Sub-Committee to which your year will be able to elect one representative per course module. This group also elects a representative for the University Student Union. The Staff-Student Committee meets twice per semester and gives students a chance to give feedback to lecturers as to how they feel the course module is being run. The committee ensures that staff are made aware of any problems that may be encountered during the course of a semester. On the other hand, meetings in the past have been just as much about letting the lecturers know that the students are happy with their courses. The meetings generally last under an hour. Dates of the Autumn and Spring Semester meetings will be announced later.   See the committee web pages www.cs.stir.ac.uk/local/ssssc.

5   *Sources of Academic and Technical Information and Support*

5.1 Information Services (Library & IT Services Including Training)

Plan your work, (there is pressure on Library stock) - know in advance:
- what you are going to need
- when you will need it

Use the Advanced Booking facility on the online catalogue. You can book items up to 14 days ahead from -
- Reserve Book Room
-
- Short Loan Collection
- Photocopy Collection

The book you want is on loan?
- Put a hold on it in the on-line catalogue and ask about recall at Reader Services

Not enough copies of the book you want?
- Fill in a blue Student Text Fund suggestion card, available from the Information Desk. You have the power to influence the provision for your course.

Bring   back   what   you   borrow,   especially   from   the   Reserve   Book   Room, ON TIME.
- You want material to be there for you when you need it, so do other people
- Penalties accrue if you don't.

Need help to find material, puzzled about some aspect of using the Library?
- Ask at the Information Desk, the person on duty is there for the sole purpose of helping you to use the Library more effectively

- For further information Consult the Library's Web pages at: http://www.stir.ac.uk/is/

- Ask at the Information Desk if you're still not clear.

5.2 Student Learning Services (SLS)

Student Learning Services are committed to enhancing the student experience by providing guidance on all aspects of effective and efficient learning. We work with students to develop learning strategies and study skills so that you can make a success of your university studies. Student Learning Services provide a variety of courses, workshops and tutorials which offer opportunities to reflect upon approaches to learning, to build confidence and maintain motivation and work towards practical solutions to academic issues. To find out what students say about us, visit the SLS 'Succeed' site.

Student Learning Services provide:

o Drop-in workshops – advertised on the SLS 'Succeed' site and the student portal.
o Workshops within Faculties and Divisions.
o Individual, face-to-face / phone / e-mail tutorials.
o Credit-bearing modules in 'Learning Strategies' - advertised on the SLS 'Succeed' site.
o Electronic resources on the SLS 'Succeed' site.
o All undergraduate and taught postgraduate students are automatically registered on the SLS 'Succeed' site.

     For more information:
o Visit the website www.sls.stir.ac.uk
o Visit the Student Learning Services 'Succeed' site.
o E-mail sls@stir.ac.uk
o Phone 01786 467080

6   Sources of Personal Support and Information

6.1 Student Development and Support Services

Personal problems are probably best assisted by the specialist University staff in the Student Development and Support Service – in room 4Y4 Cottrell. The Service has Student Support Officers to help with any kind of problem. Further details may be found on the University web pages, athttp://www.stir.ac.uk/student-support/.

There is a medical practice on the campus - the Airthrey Park Medical Centre located near the student residences. The Medical Centre has web pages at www.apmc.co.uk.

6.2 Careers Development Centre

The Career Development Centre in Cottrell 3A1 provides careers help to students regardless of the stage of study.

The services available include:

• **Careers Advice**	• **Help with Vacation Work**
• **Preparation of CV or Application forms**	• **Preparation for Employment Interviews**
• **Experience of Selection Tests**	• **On-Campus Interviews**
• **Help with finding job vacancies**	• **Career Seminars**
• **Careers Fair** • **PG study in the UK**	• **CRAC Insight into Management Course**
• **Funding**	• **PG study Overseas**
• **A Range of Reference Publications**	• **Employer Information**
• **General Careers files**	• **Take-away Material**

The Career Development Centre offers academic modules in Career Planning. Please ask at the Career Development Centre (Cottrell Building, room 3A1) for details. Further details may be found on the University web pages, at http://www.stir.ac.uk/careers/

6.3 Useful URLs

Much of the information about studies here is available on the WWW.

Library   www.library.stir.ac.uk
Calendar   www.calendar.stir.ac.uk
The University Rules and Regulations   www.quality.stir.ac.uk
Computing Science & Mathematics   www.cs.stir.ac.uk

NOTES