1. Programme Code(s) (recruitment & exit awards)
F29T-COD

2. Programme Titles for all awards (unabbreviated)
Computer Science and Diploma in Industrial Training

3. Main Award(s) (to be recruited to)
BSc Honours

4. Exit Awards (graduation only)
BSc Honours, BSc Ordinary

5. Date of Production
17 March 2016

6. MANDATORY COURSES

<table>
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<tr>
<th>Edinburgh/Orkney/SBC</th>
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<th>Collaborative Partner</th>
<th>Stage</th>
<th>Semester</th>
<th>Phase (Part-time only)</th>
<th>Courses: (Please highlight any new courses and include the course descriptors)</th>
<th>Credit Value</th>
<th>Notes</th>
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**STAGE 1**

<table>
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<th>Course Title</th>
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<th>MQA</th>
<th>SCQF Level</th>
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<tr>
<td>F27SA</td>
<td>Software Development 1</td>
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<td>F27IS</td>
<td>Interactive Systems</td>
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<td>F27PX</td>
<td>Praxis</td>
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<td>F17LP</td>
<td>Logic &amp; Proof</td>
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<tr>
<td>F27SB</td>
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<td>F27CS</td>
<td>Introduction to Computer Systems</td>
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<td>F27WD</td>
<td>Web Design &amp; Databases</td>
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**STAGE 2**

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<td>F28IN</td>
<td>Interaction Design</td>
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<tr>
<td>F28WP</td>
<td>Web Programming</td>
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<tr>
<td>F28DA</td>
<td>Data Structures &amp; Algorithms</td>
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<td>F28PL</td>
<td>Programming Languages</td>
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<td>F28SD</td>
<td>Software Design</td>
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<td>F28DM</td>
<td>Database Management Systems</td>
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<td>F28HS</td>
<td>Hardware-Software Interface</td>
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<td>F17SC</td>
<td>Discrete Mathematics</td>
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**STAGE 3**

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<tr>
<td>F29SO</td>
<td>Software Engineering</td>
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<td>F29DC</td>
<td>Data Communications &amp; Networking</td>
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<td>F29AI</td>
<td>Artificial Intelligence &amp; Intelligent Agents</td>
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<td>F29FA</td>
<td>Foundations 1</td>
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<td>F29PD</td>
<td>Professional Development</td>
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<td>F29OC</td>
<td>Operating Systems &amp; Concurrency</td>
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<td>F29LP</td>
<td>Language Processors</td>
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<td>F29FB</td>
<td>Foundations 2</td>
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**STAGE 5**

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<td>Project: Research Methods &amp; Requirements Engineering</td>
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<td>F20PB</td>
<td>Project: Design &amp; Implementation</td>
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<td>F20PC</td>
<td>Project: Testing &amp; Presentation</td>
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Form P6 Heriot-Watt University – Undergraduate Programme Structure & Notes Template

1. Programme Code(s) (recruitment & exit awards)
F29T-COD

2. Programme Titles for all awards (unabbreviated)
Computer Science and Diploma in Industrial Training

3. Main Award(s) to be recruited to
BSc Honours

4. Exit Awards (graduation only)
BSc Honours, BSc Ordinary

5. Date of Production
17 March 2016

7. OPTIONAL COURSES

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<th>Phase (Part-time only)</th>
<th>Code</th>
<th>Course Title</th>
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<th>Notes</th>
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<td>√</td>
<td>5 1</td>
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<td></td>
<td>F20CL Computing in the Classroom</td>
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<td>Student choose 3 courses in semester 1 and 2 courses in semester 2</td>
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<tr>
<td>√</td>
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<td>F20BC Biologically Inspired Computation</td>
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<tr>
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<td>F20CN Computer Network Security</td>
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<tr>
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<td>F20DL Data Mining &amp; Machine Learning</td>
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<td>F20DV Data Visualisation and Analytics</td>
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<td>F20IF Information Systems Methodologies</td>
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<td>F20RS Rigorous Methods for Software Eng.</td>
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<td>F20BD Big Data Management</td>
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<tr>
<td>√</td>
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<td>F20CA Conversational Agents &amp; Spoken Language Processing</td>
<td>15 10</td>
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<tr>
<td>√</td>
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<td>F20DP Distributed and Parallel Technologies</td>
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<td>√</td>
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<td>F20NA Network Applications</td>
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<tr>
<td>√</td>
<td>5 2</td>
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<td></td>
<td></td>
<td>F20RO Intelligent Robotics</td>
<td>15 10</td>
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</tbody>
</table>

8. ELECTIVES (please provide a detailed description and course lists where possible)

Stage 1:
Stage 2:
Stage 3:
Stage 4:
Stage 5:

PROGRAMME NOTES

9. COMPOSITION & STAGE NOTES e.g. xx taught Courses (xx mandatory & xx optional)

Stage 1:
8 taught courses, all mandatory

Stage 2:
8 taught courses, all mandatory. Direct entrants to Stage 2 and internal transfers from other degrees will be expected have an appropriate background in programming and database technology

Stage 3:
8 taught courses, all mandatory
Direct entrants to Stage 3 will be expected have appropriate programming experience and background knowledge. Candidates shall pursue a group project throughout the year, which shall be synoptically assessed in conjunction with material from the associated courses (F29SO and F29PD).

Stage 4:
Industrial placement (at least 9 months duration)

Stage 5:
8 taught courses, 3 mandatory and 5 optional
In any one year not all optional courses may be offered. Guidance in course choice will be given by academic mentors.
Candidates are required to undertake an individual dissertation project (F20PA, F20PB, and F20PC) which shall run throughout the year.
Form P6: Heriot-Watt University – Undergraduate Programme Structure & Notes Template

1. Programme Code(s) (recruitment & exit awards):
   F29T-COD

2. Programme Titles for all awards (unabbreviated):
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3. Main Award(s) (to be recruited to):
   BSc Honours

4. Exit Awards (graduation only):
   BSc Honours, BSc Ordinary

5. Date of Production:
   17 March 2016

10. NOMINAL PASS MARK/GRADE
   (Highlight any changes)

<table>
<thead>
<tr>
<th>Coursework:</th>
<th>Examination:</th>
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</thead>
<tbody>
<tr>
<td>Varies in courses from 100% to 20%</td>
<td>Varies in courses from 0% to 80%</td>
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</tbody>
</table>

11. SUMMARY OF ASSESSMENT METHODS (Expressed as a percentage)

- **Integrated Masters**
  - Honours: 40% D
  - Ordinary: 40% D
  - Diploma: 40% D
  - Certificate: 40% D

12. PROGRESSION REQUIREMENTS

   Part A. Minimum number of credits required to progress through each stage are as follows:
   - Stage 1 to 2: 120 credits (8 courses)
   - Stage 2 to 3: 240 credits (16 courses)
   - Stage 3 to 4: 360 credits (24 Courses) and an overall average of 60% or above at the first attempt
   - Stage 4 to 5: Students who meet the criteria to progress to Stage 4 will automatically be allowed to progress to the final year.

   Part B. Minimum grade D required in the following courses: (progression requirements exceeding a grade D must be qualified)
   - Stage 1:
     - Software Development (F27SA), Interactive Systems (F27IS), Logic & Proof (F17LP), Web Design & Databases (F27WD), Introduction to Computer Systems (F27CS), Software Development 2 (F27SB) and Software Development 3 (F27SG)
   - Stage 2:
     - Interaction Design (F28IN), Web Programming (F28WP), Data Structures & Algorithms (F28DA), Database Management Systems (F28DM), Software Design (F28SD), Programming Languages (F28PL), Discrete Maths (F17SC), Hardware-Software Interface (F28HS)
   - Stage 3:
     - 6 courses including Software Engineering (F29SO) & Professional Development (F29PD). Re-assessment in Stage 3 is available for credit only and not to improve overall average
   - Stage 4:
     - Industrial Training Placement A (F28IA) and Industrial Training Placement B (F28IB) must be passed for the award of Diploma in Industrial Training
   - Stage 5:
     - Dissertation Project

13. RE-ASSESSMENT OPPORTUNITIES

   The re-assessment policy for this programme is in line with University Regulations as set out below (please tick)
   - Yes
   - No

   If you have selected “No” please amend the statement below and highlight changes.

   1. A student who has been awarded a Grade E or a Grade F in a course may be re-assessed in that course.
   2. A student shall be permitted only one re-assessment opportunity to be taken at the Resit diet of examinations following the first assessment of the course.
   3. A student shall not be re-assessed in any qualifying course taken in the final stage of a course of study.
   4. The Progression Board may permit a student to be re-assessed in any qualifying course not taken in the final stage in order to gain credits for the course, provided that the mark or grade obtained in the first assessment of any such course is used in determining the classification of the degree to be awarded.

14. AWARDS, CREDITS & LEVEL

   The awards, credits and level for this programme is in line with University Regulations as set out below (please tick)
   - Yes
   - No

   If you have selected “No” please amend the statement below and highlight changes.

   Part A. Credit Requirements

   | Integrated Masters | N/A |
   | Honours Degree (inc MA) | 480 SCQF credits including a minimum of 180 credits at Level 9 and 10 of which at least 90 credits at Level 10 |
   | Ordinary or General Degree | 360 SCQF credits including a minimum of 60 credits at Level 9 |
   | Diploma of Higher Education | 240 SCQF credits including a minimum of 90 credits at Level 8 |
   | Certificate of Higher Education | 120 SCQF credits including a minimum of 90 credits at Level 7 |

   Part B. Mark/Grade Requirements

   | Integrated Masters | N/A |
   | Honours Degree (inc MA) | 1st: Weighted Average >=70% over all qualifying courses at grades A-D
   | | 2.1: Weighted Average >=60% over all qualifying courses at grades A-D
   | | 2.2: Weighted Average >=50% over all qualifying courses at grades A-D
   | | 3rd: Weighted Average >=40% over all qualifying courses at grades A-D |
## Programme Code(s) (recruitment & exit awards)
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## Programme Titles for all awards (unabbreviated)
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## Main Award(s) (to be recruited to)
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## Exit Awards (graduation only)
BSc Honours, BSc Ordinary

## Date of Production
17 March 2016

### Ordinary or General Degree
Minimum of grade D in all pre-requisite courses

### Diploma of Higher Education
Minimum of grade D in all pre-requisite courses

### Certificate of Higher Education
Minimum of grade D in all pre-requisite courses

These are default marks/grades. The Board of Examiners may exercise some discretion in accordance to University Regulations

### Part C. Additional Award Requirements
Honours degree classification is determined by performance in:
- Stage 3 averaged over all 8 courses (20%) at the first attempt
- The 5 assessed courses in Stage 5 (50%)
- The individual dissertation project in Stage 5 (30%)

### ADDITIONAL PROGRAMME INFORMATION
The industrial employer must sign a Memorandum of Understanding (MOU) before the work placement can be approved.

## Accredited by

## QAA Subject Benchmarking Group(s)
Computing

## UCAS Code(s)
<table>
<thead>
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<th>1. Programme Code(s) (recruitment &amp; exit awards)</th>
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<th>3. Main Award(s) (to be recruited to)</th>
<th>4. Exit Awards (for graduation only)</th>
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<td>BSc ((Hons) Computer Science and Diploma In Industrial Training</td>
<td>Honours, Ordinary, Diploma HE, Certificate HE</td>
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<td>10. Date of Production/Revision</td>
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<td>11 February 2016</td>
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**11. Educational Aims of the Programme**

The educational aim is to provide students with a theoretical foundation and applied skills in Computer Science in addition to other professional skills which will enable graduates to communicate clearly, work independently and co-operate effectively. The balance of skills will enable graduates to work effectively and efficiently in industry and commerce and prepare them for postgraduate study. The industrial placement will encourage students to apply learning gained through their academic studies at the University to the workplace and enable students to gain work experience which will increase their employability and professional career readiness.

**12. The Programme provides opportunities for learners to achieve the following outcomes:**

**Subject Mastery**

- To develop knowledge and skills in the elicitation and analysis of user requirements, design and evaluation of solutions, and the implementation and quality assurance of the chosen solution.
- To be able to develop well-structured, efficient, usable and well-documented programs.
- To know what general classes of problems are amenable to computer solution and be able to select the appropriate tools required for particular problems.
- To be able to develop an abstract model for a given problem and devise appropriate mechanized techniques to solve the problem.
- To develop the knowledge and skills required to meet the challenges of emerging technologies and methodologies.
- To relate theory to practice and practical application.
- To show a knowledge and understanding of some major current issues in the industry in which the student is working during their work placement.
- To show knowledge and understanding of the business environment of the industry in which the student worked during their work placement.
- To undertake critical analysis, evaluation and/or synthesis of ideas, concepts, information and issues.
- To use a range of approaches to formulate evidence-based solutions/responses to defined and/or routine problems/issues.
- To critically evaluate evidence-based solutions/responses to defined and/or routine problems/issues.

**Scholarship, Enquiry and Research**

- To gain an in depth understanding of the theoretical foundations of computation and its relevance to everyday computing.
- To be able to design, implement, document, verify and validate relatively large heterogeneous software systems.
- To be able to assess the quality of software systems, both in terms of their functional and non-functional properties.
### Program Code(s) (recruitment & exit awards)
F29T-COD

### Programme Titles for all awards (unabbreviated)
Computer Science and Diploma In Industrial Training

### Main Award(s) (to be recruited to)
BSc ((Hons) Computer Science and Diploma In Industrial Training

### Exit Awards (for graduation only)
Honours, Ordinary, Diploma HE, Certificate HE

### Type
School specialist degree

### Programme Accredited by
Mathematical & Computer Sciences

### UCAS Code

### School
Mathematical & Computer Sciences

### QAA Subject Benchmarking Group(s)
Computing

### Date of Production/Revision
11 February 2016

#### Personal Abilities

**Industrial, Commercial and Professional Practice**
- To maintain and update technical knowledge; to take responsibility for personal and professional development.
- To appraise the impact of computers on society and the influence of society on the development of the technology and use of computers.
- To assess aspects of the law related to computer-based information or the role of standards in safety, quality and security, of security issues and of the BCS Codes of Practice and Conduct.
- To be able to use a range of routine skills, techniques, practices and/or materials, a few of which are advanced or complex.
- To be able to carry out routine lines of enquiry, development or investigation into professional-level problems and issues.
- To be able to understand the commercial aspect of the company in which the student is working.

**Autonomy, Accountability and Working with Others**
- To undertake self-directed work; to assimilate information from multiple sources; to examine results and generate conclusions; to impart ideas effectively in visual, verbal or written form.
- To work effectively either individually or as part of a team.
- To apply subject-mastery outcomes to monitor, analyse, model, specify, design, communicate, implement, evaluate, control and plan.
- To be aware of, and be able to respond to, the social and legal implications and consequences of the use of computers.
- To be able to analyse problem spaces; develop and work with abstractions; appraise material and ideas; to apply a methodical and innovative approach to problem solving; to integrate theory and practice
- To exercise autonomy and initiative in some activities at a professional-level.
- To manage resources within defined areas of work.
- To take the lead on planning in familiar or defined contexts.
- To take continuing account of own and others’ roles, responsibilities and contributions in carrying out and evaluating tasks.
- To work in support of current professional practice, under guidance.

**Communication, Numeracy and ICT**
- To be able to communicate with peers, more senior colleagues and specialists. In addition, communicate using appropriate methods to a range of audiences, i.e. Specialists and non-specialists.
- To be able to undertake critical evaluation/analysis of a wide range of numerical and graphical data.
- To convey complex information to a range of audiences and for a range of purposes.
- To use a variety of forms of ICT effectively in the workplace.
<table>
<thead>
<tr>
<th>1. Programme Code(s) (recruitment &amp; exit awards)</th>
<th>2. Programme Titles for all awards (unabbreviated)</th>
<th>3. Main Award(s) (to be recruited to)</th>
<th>4. Exit Awards (for graduation only)</th>
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<tr>
<td>F29T-COD</td>
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<td>BSc ((Hons) Computer Science and Diploma In Industrial Training</td>
<td>Honours, Ordinary, Diploma HE, Certificate HE</td>
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<td></td>
<td></td>
<td>Mathematical &amp; Computer Sciences</td>
<td>Computing</td>
<td>11 February 2016</td>
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13. Approaches to Teaching and Learning:

Lectures, Tutorials (practicals, laboratories), Coursework, (assignments, individual projects, group projects, essays, reports, presentations, log/journals, dissertation), Self-study are linked to lecture-based, resource-based and problem-based teaching styles, to relate with motivational, assimilative, consolidative and evaluative phases of learning.

Approaches to teaching and learning are continually reviewed and developed with the aim of matching them to the abilities and experiences of students, with regard also for the subject area. Specific details about teaching and learning methods are provided in the appropriate course descriptors.

14. Assessment Policies:

The following assessment methods are used:

*Understanding, knowledge and subject specific skills* are assessed through the range of methods reflected by written examinations, coursework assignments, software artefacts, group and individual projects, written reports and oral presentations. Diagnostic, formative, continuous and summative types of assessment aim to correlate with methods of assessment.

Approaches to assessment are continually reviewed. Specific details about methods of assessment are provided in the appropriate course descriptors.