Form 20 **Heriot-Watt University - Module Descriptor Template (RAY)** Version 3.0 (2007/2008)

Module Title	Software Development 2	School	Mathematical & Computer Sciences					On or Off-Campus	On-Campus
Module Co-ordinator	Brian Palmer	SCQF Level	7	Module Code	F27SB	Semester	2	Credits	15

1. Pre-requisites			
2. Linked Modules (specify if synoptic)	F72SA Software Development 1		
3. Excluded Modules	None		
4. Replacement Module	**Code:** **Date Of Replacement:**	**5. Availability as an Elective**	**Yes** ☐ **No** ☑
6. Degrees for which this is a core module	Mandatory module for BSc Computer Science & MEng Software Engineering		

7. Aims

To impart further techniques of object orientation
To introduce simple data structures and algorithms

8. Syllabus

- Inheritance: hierarchies, subclasses, polymorphism, static and dynamic type, overriding, dynamic method lookup
- Abstract classes, abstract methods, interfaces
- GUIs: components, layout, event handling
- Error-handling: defensive programming, exceptions, assertions
- Collection classes
- Stacks, queues, lists, priority queues, binary trees
- Basic algorithms such as searching and sorting

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9. Learning Outcomes (HWU Core Skills: Employability and Professional Career Readiness)

Subject Mastery

Understanding, Knowledge and Cognitive Skills ***Scholarship, Enquiry and Research (Research-Informed Learning)***

- Knowledge of the object-oriented paradigm
- Understanding of inheritance
- Knowledge of graphic user interfaces
- Experience of an application programming interface
- Knowledge of simple data structures: stacks, queues, priority queues, lists, binary trees
- Knowledge of basic computing algorithms such as searching and sorting
- Grounding in complexity theory (big O notation)

Personal Abilities

Industrial, Commercial & Professional Practice ***Autonomy, Accountability & Working with Others*** ***Communication, Numeracy & ICT***

- Possession of fundamental skills in computer science, applicable throughout the remainder of the degree
- Understanding of the importance of regular working habits (pdp)
- Understanding of the use of chatboards and other devices to learn from and instruct others in the class (pdp)
- Ability to compare and evaluate the applicability of simple data structures to relevant problems (pdp)

10. Assessment Methods

Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?
Exam	2 hours	40%	
Laboratories		60%	

11. Re-assessment Methods

Method	Duration of Exam (if applicable)
Exam	2 hours

12. Date and Version

Date of Proposal	11/9/7	Date of Approval by School Committee	12 December 2007	Date of Implementation	September 2008	Version Number	1