Module Title	Systems Programming and Scripting		School	Mathematical & Computer Sciences					On or Off-Campus	On
Module Co-ordinator	Greg Michaelson		SCQF Level	11	Module Code	F21SC	Semester	1	Credits	15

1. **Pre-requisites**	Programming skills in a language such as C or Java.	
2. **Linked Modules (specify if synoptic)**	None	
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**	MSc Computer Systems Management

7. Aims

- ♦ **To develop proficiency in common system programming languages;**
- ♦ **To develop proficiency in common shell command languages;**
- ♦ **To develop proficiency in common scripting languages;**
- ♦ **To gain familiarity with common system/shell level software tools;**
- ♦ **To enable the elaboration and combination of system components in such different languages.**

8. Syllabus

- ♦ Programming in a modern systems language e.g. C, C++, C#
- ♦ Programming for concurrency e.g. processes, threads, libraries
- ♦ Programming in common system shell languages e.g. DOS commands, ksh
- ♦ Programming in a major scripting language e.g. Perl, Javascript
- ♦ Standard libraries (e.g. I/O, GUI) and tools (e.g. compilers, debuggers, filters) for 1-3 under Unix & Windows
- ♦ Architectures for component combination e.g. pipes, sockets, foreign function calls

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)*
	♦ Appreciation of role of different programming paradigms in configuring/managing systems ♦ Technical proficiency in advanced techniques in different programming paradigms ♦ Ability to choose/deploy/combine appropriate languages, architectures and tools to configure/manage systems

Form 20   Heriot-Watt University - Module Descriptor Template (RAY)

Module Title	Systems Programming and Scripting		School	Mathematical & Computer Sciences					On or Off-Campus	On
Module Co-ordinator	Greg Michaelson		SCQF Level	11	Module Code	F21SC	Semester	1	Credits	15

Personal Abilities	*Industrial, Commercial & Professional Practice* *Autonomy, Accountability & Working with Others* *Communication, Numeracy & ICT*
	♦ Autonomous problem analysis/solution
	♦ Understanding of core characteristics of contemporary operating systems
	♦ Appreciation of role of "language as gluewear" in configuring/maintaining systems
	♦ Knowledge of key abstractions across programming languages

10. Assessment Methods   11. Re-assessment Methods

Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?	Method	Duration of Exam (if applicable)
Assessed coursework		100%		Assessed coursework	

12. Date and Version

Date of Proposal	8/2/2008	Date of Approval by School Committee		Date of Implementation	September 2008	Version Number	1.0