

Graduate Studies Form for Modules attached to Structured PhD and/or Research Masters Programmes

Title	Scientific Programming Concepts		
Credits (ECTS)	5		
Module Places	20		
Module Code:	PH502		
Elective Places	20		
Indicative Module Descriptor:			
<p>This module is an introduction to programming concepts aimed at scientists who have had minimal or no formal training in the subject. The focus is on C and Fortran yet the general concepts should be applicable to other programming languages.</p> <ul style="list-style-type: none"> • Overview of computer architecture • The UNIX/Linux shell • The imperative programming paradigm • Data types & arithmetic operations • Loops & conditional statements • Object-oriented programming • Standard libraries • Compilation • C pointers & memory management • Modern Fortran • Scripting languages • Introduction to HPC <p>Indicative Learning Outcomes: On successful completion of this module, students should be able to:</p> <ul style="list-style-type: none"> • Gain an understanding of what constitutes a computer program and how it is constructed. • Comprehend written source code. • Write and compile basic programs in C/Fortran. • Make use of standard libraries in own code. 			
Workload: (specify or delete as appropriate) : Semester 2 (2011-2012);			
Class Contact (via e-learning)	12 lectures, available via VC Polycom Classes; Thursdays 11.00 - 13.00 Week 1 is Jan 30 th for 9 weeks		
Workshop / tutorial	4 (x 2-3 hour) practical sessions Labs Thursdays 14.00-1700 weeks 3,5,7& 9		
Specified Assignment(s)	4 practical assignments		
Autonomous Student Learning	Supplementary lecture material and reading list will be given.		
Assessment(s)			
Test 1	Type	% of marks	Timing
Test 2	MCQ	0%	Start
Test 3	MCQ	10%	Middle
Total MCQ	MCQ	10%	End
4 x assignments (20% each)	80%		
Result	Pass / Fail		