

MODULE SPECIFICATION

Please contact your College Learning and Teaching Team for guidance completing this form:
 Colleges of Arts & Social Sciences and of Business & Law – cass-tandlteam@salford.ac.uk
 College of Health and Social Care – chsc-teaching@salford.ac.uk
 College of Science and Technology – cst-tl@salford.ac.uk

This form is available to download from http://www.governance.salford.ac.uk/page/aqa_forms).

Date of completion of this version of Module Specification: 12/01/2016				
Date of approval by the USP: 26/01/2016				
1. Module Title: (Full title and short title no more than 30 characters) Computing Laboratory			2.CRN: 39734 (S4)	
3.University module code: F300 20039		4.HESA/JACS subject area code ¹ : F300		
5.Level: Level 5	6.Credit Value: 20	7.ECTS Value ⁱⁱ : 10	8.Length of module in semesters: 2	9.Month(s) in which to be offered ⁱⁱⁱ : September
10.Module Status ^{iv} Existing	11.Title of Module being replaced (if any): Computing for Physics		12.With effect from ^v (academic year): September 2016	
13.Originating School: School of Computing, Science & Engineering		14.Module Leader(s) Professor Ian Morrison		
15.Programme(s) in which to be offered ^{vi} : BSc (Hons) Physics BSc (Hons) Physics with Professional Experience BSc (Hons) Pure & Applied Physics BSc (Hons) Pure & Applied Physics Professional Studies MPhys (Hons) Physics MPhys (Hons) Physics with Professional Experience MPhys (Hons) Physics with Studies in North America BEng (Hons) Electronic Engineering BEng (Hons) Electronic Engineering with Professional Experience				
16.Pre-requisites (between levels): None		17.Co-requisites (within a level): None		
18.Indicative learning hours (breakdown of hours required) ^{vii} 200				
Lecture		Fieldwork		
Seminar		External visits		
Tutorial		Work based learning		
Project supervision		Guided independent study		134
Demonstration Practical classes and workshops	66	Placement		
Supervised time in studio/workshop		Year abroad		
Other – please specify ^{viii}				
19.Percentage of module taught by School(s) other than originating School: 0%				
20.Aims of Module ^{ix} : (maximum of 5)				

- To build on the training in computer programming at L4, and apply this to the solution of physical and engineering problems.
- To introduce students to simple numerical techniques of the kind frequently encountered in physical and engineering problems, and the way in which to implement these techniques on the computer.
- To enable students to tackle simple non-analytic physical and engineering problems using the numerical methods previously introduced.
- To introduce students to methods of interfacing sensors to computers and computer control of experiments.

21. Intended Learning Outcomes^x

Knowledge and Understanding (maximum of 5)^{xi}

On successful completion the student will be able to:

1. Write well-structured programs.
2. Understand numerical techniques.
3. Solve simple physical problems requiring numerical techniques.
4. Interface computers to experiments to take data and control simple experiments.

Transferable/Key Skills and other attributes (maximum of 5)

On completion the student will have had the opportunity to:

5. Demonstrate communication through written material.
6. Demonstrate problem solving skills.

22. Module mark calculation: Method A

23. Assessment components (in chronological order of submission/examination date)

Denote final assessment component in box marked **final assessment component (99)**

Type of assessment	Identify which ILO is met by number ^{xii}	Weighting %	Duration	Word count	Component pass required ^{xiii}	E Submission	Assessment organised by
Set Exercises 1 (Computer Interfacing)	1,4,6	50			No	Yes	School
					Choose an item.	Choose an item.	Choose an item.
Final assessment component (99) Set Exercises 2 (Numerical Methods and Simulation)	1,2,3,5,6	50			No	Yes	School
24. Is ethical approval for the module required?	No		25. Is ethical approval for an assessment component required? ^{xiv}		No		

26. Learning, teaching and assessment strategies:

The module is taught in the computer laboratory, following instruction students perform a series of set exercises.

Semester 1 – Students perform set exercises concerned with computer interfacing and computer control.

Semester 2 – Students perform set exercises concerned with the implementation of numerical methods to solve problems in physics.

In both semesters verbal feedback is given in the computer laboratory for both formative and summative assessment.

27. Syllabus outline:

Semester 1 - Computer Interfacing

Techniques of interfacing computers to external equipment

Sensors

Data collection

Computer control of experiments

Semester 2 – Numerical Methods and Simulation

Computer Programming

Programming and numerical methods

Numerical methods to solve ODEs

Integration

Stochastic Simulations

28. Indicative texts and/or other learning materials/resources^{xv}:

After initial approval, up to date reading lists can be accessed at <https://salford.rl.talis.com/index.html>

Note: This replaces the LaSU reading lists from September 2015 onwards.

For Office Use only:

Teaching and Learning Team Comments:	
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- i See UoS guidance notes on selecting JACS codes (http://www.planning.salford.ac.uk/jacs_codes/)
see HESA JACS Codes webpage <http://www.hesa.ac.uk/index.php/content/view/356/233/>
- ii The ECTS value is half of the module credit value
- iii Please indicate the month (s) in which delivery of the module will commence.
- iv Amendments to the title or credit value constitute a new module.
- v If the delivery month of the module is to be available for different intakes of a programme, please indicate this here. E.g. Module effective from Sept 2014 – to state the module is to be available for Sept 2014 intake & Feb 2014 intake.
- vi The module will only be attached to programmes specified in this section. Any approved module can be available as a stand-alone module.
- vii These categories are used for the Key Information Set which currently applies only to full time undergraduate students only but please include for all students – for more information including definitions see http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/contact_hours.pdf and http://www.hesa.ac.uk/component/option.com_studrec/task.show_file/Itemid,233/mnl,13061/href.Calculations_methods.html/#LearningandTeaching
- viii The 'other' category should not be used for learning undertaken by full undergraduate students as 'other' is not used in KIS categories
- ix The aims should express the purpose of the module.
- x The intended learning outcomes should detail the knowledge, understanding and skills that students will be able to demonstrate on successful completion.
- xi In some circumstances it may be necessary to have more than 5 intended learning outcomes. You will be asked to provide your rationale for this in discussion at the CPPARC.
- xii For example, if the assessment is an essay and the essay meets ILOs number 1-4 and 6-7, state 1-4,6-7
- xiii If Method B is used for module mark calculation, indicate Yes to specify the assessment component(s) to be passed in order to pass the module
- xiv Please specify component(s) for which ethical approval is required.
- xv The "Indicative texts and/or learning materials/resources" box should include a maximum of 5 items for new modules; for existing modules the box should just include a link for CPPARC reviewers and readers to the comprehensive reading list at <http://lasu.salford.ac.uk>