

## 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](mailto:cass-tandlteam@salford.ac.uk)  
 College of Health and Social Care – [chsc-teaching@salford.ac.uk](mailto:chsc-teaching@salford.ac.uk)  
 College of Science and Technology – [cst-tl@salford.ac.uk](mailto:cst-tl@salford.ac.uk)

This form is available to download from [http://www.governance.salford.ac.uk/page/aqa\\_forms](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) Frontiers of Physics and Entrepreneurial Skills			2.CRN: 31146 (S4)	
3.University module code: F300 10031		4.HESA/JACS subject area code <sup>1</sup> : F300		
5.Level: Level 4	6.Credit Value: 20	7.ECTS Value <sup>ii</sup> : 10	8.Length of module in semesters: 2	9.Month(s) in which to be offered <sup>iii</sup> : September
10.Module Status <sup>iv</sup> Existing	11.Title of Module being replaced ( <i>if any</i> ):		12.With effect from <sup>v</sup> (academic year): September 2016	
13.Originating School: School of Computing, Science & Engineering		14.Module Leader(s) Dr Richard Pilkington		
15.Programme(s) in which to be offered <sup>vi</sup> : BSc (Hons) Physics BSc (Hons) Physics with Professional Experience BSc (Hons) Physics with Acoustics BSc (Hons) Physics with Acoustics with Professional Experience BSc (Hons) Pure & Applied Physics BSc (Hons) Pure & Applied Physics with Professional Experience MPhys (Hons) Physics MPhys (Hons) Physics with Professional Experience MPhys (Hons) Physics with Acoustics MPhys (Hons) Physics with Acoustics with Professional Experience MPhys (Hons) Physics with Studies in North America				
16.Pre-requisites ( <i>between levels</i> ): None		17.Co-requisites ( <i>within a level</i> ): None		
18.Indicative learning hours (breakdown of hours required) <sup>vii</sup> 200				
Lecture		Fieldwork		
Seminar	24	External visits		
Tutorial		Work based learning		
Project supervision		Guided independent study		104
Demonstration Practical classes and workshops	72	Placement		
Supervised time in studio/workshop		Year abroad		
Other – please specify <sup>viii</sup>				
19.Percentage of module taught by School(s) other than originating School: 0%				

20. Aims of Module<sup>ix</sup>: (maximum of 5)

1. To communicate to students some of the exciting areas in which physics plays a key role.
2. To communicate to students the range of employment opportunities for physicists.
3. To develop core skills in research, team working, presentation, scientific and report writing skills.
4. To introduce the entrepreneurial and competitive environments in which high technology organisations operate.

21. Intended Learning Outcomes<sup>x</sup>

Knowledge and Understanding (maximum of 5)<sup>xi</sup>

On successful completion the student will be able to:

1. To have an appreciation of the current frontiers of physics knowledge and the role of the physicist in industry.

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

On completion the student will have had the opportunity to:

2. Use IT for presentation of written material and to support oral presentation.
3. Demonstrate an ability to contribute effectively to group activities and organise their own time in working towards identified targets.
4. Apply problem-solving skills within the context of a group activity/project.

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 <sup>xii</sup>	Weighting %	Duration	Word count	Component pass required <sup>xiii</sup>	E Submission	Assessment organised by
Set Exercises - Problem Based Learning Exercises	1, 4	75			No	No	School
					Choose an item.	Choose an item.	Choose an item.
<b>Final assessment component (99)</b> Portfolio – Project output, report and oral assessment	2, 3	25		4000 approx 1000 /student	No	No	School

24. Is ethical approval for the module required?

No

25. Is ethical approval for an assessment component required?<sup>xiv</sup>

No

26. Learning, teaching and assessment strategies:

The Entrepreneurial Skills element will be delivered through a series of formal lectures and group tutorials. Lectures will be used to introduce broad-level theoretical concepts relating to entrepreneurial organisations. The group tutorials will, in part, be used to provide input in relation to developing group cohesion, presentation skills, report writing skills and will be supervised by a tutor with responsibility for a specific group of students. The tutor will act as advisor but will also closely monitor student progress. Much of the student learning will however, occur through students' involvement in a research-based project focused towards a particular industrial sector and a specific company. The Communication Skills element will be taught as a practical subject, at the computer, with each student working individually at his/her own pace from the student workbook.

There is a strong emphasis on formative assessment and feedback in this module. 'Live' verbal feedback is given during problem-based learning exercises and after group presentations. Feedback on CVs and interview skills, through mock interviews is provided. Feedback on drafts of the project report is also offered.

The Frontiers of Physics will be taught by a series of presentations or seminars.

27.Syllabus outline:

**Frontiers of Physics :**

A series of short thematic keynote lecture courses including seminars by external speakers demonstrating the role of the physicist in the workplace and the role of physics in addressing real world problems:

Themes include: Energy (Nuclear Fission and Fusion, renewable, Storage), Medical Physics (diagnostics and treatment), Nanotechnology (including Vacuum Physics), Space Technology. Students will undertake problem based learning exercises related to the themes.

**Entrepreneurial Skills:** based on an Action Learning model that requires students to undertake a group investigation into a company of their choice from within an industry sector.

Tutor input and activities cover the following areas:

**Skills Elements:** team building; research skills; presentation skills; report writing and graphical presentation skills; word-processing; spread sheets; information sources; e-mail; internet.

Groups are supported by tutors throughout the investigation, and reflective sessions are built into the process. Specific content would include:

**Computer based skills:**

Use of a PC. The computer-user interface, Windows operating system. Email.

Principles of word processors. Practical use of a scientific word processor. Use of a word processor to produce laboratory reports.

28.Indicative texts and/or other learning materials/resources<sup>xv</sup>:

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:	
--------------------------------------	--

- i See UoS guidance notes on selecting JACS codes ([http://www.planning.salford.ac.uk/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](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](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 USP.
- 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 five items for new modules. These should be formatted using the University's agreed referencing style for the subject area (usually APA Harvard System 6<sup>th</sup>). See [http://www.salford.ac.uk/library/infolit/tool#referencing\\_tab](http://www.salford.ac.uk/library/infolit/tool#referencing_tab) for more information. The texts should normally be recent texts (i.e. within the last six years) unless they are a particularly "classic" text. For existing modules, the "Indicative texts and/or learning materials/resources" box should include a link for USP reviewers and readers to the comprehensive reading list at <http://lasu.salford.ac.uk>