

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) Fundamentals of Physics C			2.CRN: 40708 (S4)	
3.University module code: F300 10035		4.HESA/JACS subject area code ¹ : F300		
5.Level: Level 4	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} New	11.Title of Module being replaced (<i>if any</i>): Electricity, Electronics and Optoelectronics (33095 SG F300 10033)		12.With effect from ^v (academic year): September 2016	
13.Originating School: School of Computing, Science & Engineering		14.Module Leader(s) Dr Mark Hughes		
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 with Professional Experience BSc (Hons) Physics with Acoustics BSc (Hons) Physics with Acoustics 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) ^{vii} 200				
Lecture	44	Fieldwork		
Seminar		External visits		
Tutorial		Work based learning		
Project supervision		Guided independent study		135
Demonstration Practical classes and workshops	21	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)

1. To develop a knowledge and understanding in the area of Electricity, Electronics, Optics and Electromagnetism including the origin and limitations of the associated laws.
2. To develop analytical, numerical and computer based problem solving skills in the area of Electricity, Electronics, Optics and Electromagnetism.
3. To develop practical laboratory skills.

21. Intended Learning Outcomes^x

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

On successful completion the student will be able to:

- (1) Demonstrate an understanding of the laws and their origins in the areas of electricity, electronics, optics and electromagnetism.
- (2) Demonstrate competence in the specification of problems using the laws of electricity, electronics, optics and electromagnetism and their analytical and numerical solution.
- (3) Demonstrate laboratory skills, including the application of electronics in the practical laboratory and report writing.

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

On completion the student will have had the opportunity to:

- (4) Demonstrate Communication through written material
- (5) Demonstrate problem solving skills
- (6) Demonstrate key analytical and numerical 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
Portfolio (Set exercises, class tests, practical skills assessment and reports)	2, 3, 4	60			No	No	School
					Choose an item.	Choose an item.	Choose an item.
Final assessment component (99) Examination	1, 5, 6	40	2 hours		No	No	SID

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 comprises:

46 hours of class time, which are a blend of teacher-centred delivery of important concepts, flipped-classroom and learner-centred delivery for application of concepts in problem solving.

21 hours of laboratory classes which cover the fundamentals of the use of computers in the practical laboratory in the first semester followed, in the second semester, by a series of experiments designed to reinforce ideas put forward in

the semester 1 class time.

The portfolio element is a combination of set exercises, class tests, practical skills assessment and reports.

A set of problem solving exercises is provided for guided independent learning, which forms the basis of formative assessment and feedback associated with the class room-based sessions.

In the laboratory session, formative assessment is provided in the laboratory sessions via verbal and written feedback of exercises in semester one, of practical experiments in semester two and with draft versions of the final formal report.

27.Syllabus outline:

Electricity, Resistors and Capacitors
Direct Current Circuits
Analogue Electronics
Digital Electronics

Electrostatics, Electric Charge and Electric Fields
Gauss's Law
Electric Potential
Magnetic Fields and Magnetic Forces

The Nature and Propagation of Light
Geometrical Optics
Interference, Diffraction

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

University Physics with Modern Physics, by Young and Freedman 14th Edition (2015), Pearson - ISBN: 1292100311

Horowitz and Hill, 'The Art of Electronics', Cambridge University Press. 1989 - ISBN 0521370957

R K Dueck, 'Fundamentals of Digital Electronics', West Publishing Company, 1994, ISBN 0314024247

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 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 6th). See

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>