University of Sheffield

Programme Specification

This specification provides a summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided.

The content of our courses is reviewed annually to make sure it's up-to-date and relevant. Individual modules are occasionally updated or withdrawn. This is in response to discoveries through our world-leading research; funding changes; professional accreditation requirements; student or employer feedback; outcomes of reviews; and variations in staff or student numbers. In the event of any change we will inform students and take reasonable steps to minimise disruption.

Programme Details

1. Programme title	Physics		
2. Award type	Master of Physics		
3. Programme details	**FHEQ Level:** 7	**Mode of Study:** Full time Full time	**Duration:** 4 years 5 years (Foundation)
4. Faculty	Faculty of Science		
5. School	**Owning:** School of Mathematical and Physical Sciences		
6. Accrediting Professional or Statutory Body	Institute of Physics (IOP)		
7. HECoS code *Select between one and three codes from the HECoS vocabulary.*	**Code:** 100425 **Percentage:** 100	**Code:** **Percentage:**	**Code:** **Percentage:**
Programme code (internal use)	MPSU023 (Full time) MPSU042(Foundation)		

9. Programme aims

The programme aims to:	
A1	Provide teaching that is informed and invigorated by the research and scholarship of the staff and is stimulating, useful and enjoyable to students from a wide variety of educational backgrounds.
A2	Produce graduates with well-developed practical, analytical, communication, IT and problem-solving skills who are prepared to undertake a research degree or research-based career in physics or in a related discipline.
A3	Encourage and develop students' interest in physics and to support them to become independent learners with the aid of appropriate sources.
A4	Produce graduates with an understanding of most fundamental laws and principles of physics, along with their application to a variety of fields to a level at (or informed by) the forefront of the discipline.
A5	Develop students' ability to plan and execute an experimental or theoretical investigation, using ideas and techniques appropriate to research work in the relevant discipline, and including critical and quantitative assessment of their own work and the work of others.
A6	Ensure that students can investigate a topic independently with the aid of research articles and other primary sources, and report their findings clearly, concisely and accurately.

10. Programme learning outcomes

Knowledge and understanding (K) On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:	
K1	Fundamental laws and principles of physics to interpret the behaviour of natural phenomena and/or technology.
K2	Laws and principles along with experimental, mathematical and/or computational techniques to solve simple and open ended physics problems.
K3	The empirical nature of physical science, the interplay between theory and experiment and the ethics of science in society.
K4	Experimental and/or computational investigations and interpret conclusions appropriately together with these error analyses.
K5	The basic areas of physics i.e. classical and quantum mechanics, thermal physics, wave phenomena, properties of matter, electromagnetism and statistical physics.
K6	Advanced topics in physics to a level appropriate for a foundation for postgraduate research. (MPhys only)
K7	Experimental, computational or analytical techniques (dependent on programme) and background literature to studies both in the subject area of their level 4 research project and more broadly. (MPhys only)
Skills and other attributes (S) *When considering the skills and attributes developed in this programme, please refer to the Sheffield*	

Graduate attributes (SGAs). SGAs can be found here On successful completion of the programme, students will be able to:	
S1	Analyse and solve problems in physics by identifying the appropriate physical principles, developing a mathematical model of the system and using appropriate mathematical techniques to obtain a solution.
S2	Use mathematics to analyse a physical system so as to deduce its behaviour and properties.
S3	Create, plan and execute an authentic open ended research investigation, including quantitative analysis of the results in order to draw conclusions and compare with expected outcomes.
S4	Communicate scientific ideas and the results of investigations clearly and concisely, both orally and in writing, with consideration for the needs of the audience.
S5	Apply scientific computing (using languages such as Python or Labview) to analyse data, control experiments, undertake numerical simulation or analyse physical or mathematical systems.
S6	Apply word processing, graphing and presentation software to communicate the results of an investigation through scientific written reports and oral presentations.
S7	Plan and manage personal learning, including time management skills, adapt to change, and demonstrate the ability to learn effectively using a wide variety of sources (lectures, textbooks, websites, etc.).
S8	Work effectively as a member of a group by taking due consideration of others in order to communicate, plan tasks and encourage and support the group.
S9	Safely use laboratory equipment to make experimental observations and measurements in order to explore physics concepts and execute experimental investigations.
S10	Analyse, summarise and synthesise primary or review papers in scientific journals, as well as other appropriate sources as part of an investigation. (MPhys only)
S11	Plan and execute independent project work to create new scientific knowledge in a research environment. (MPhys only)
S12	Summarise and present the results of research-level investigations both orally and in written reports. (MPhys only)
S13	Use advanced, specialised laboratory equipment and/or apply computational techniques relevant to research areas at the forefront of the discipline and gain the ability to master, with training, new techniques. (MPhys only)

11. Learning and teaching methods *(this should include a summary of methods used throughout the programme, including any unique features and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

To make sure you get the skills and knowledge that every physicist needs, you'll learn through lectures, small group tutorials, programming classes, practical sessions in the lab and research projects.

We invest to create the right environment for you. That means outstanding facilities, study spaces and support, including 24/7 access to our online library service.

Study spaces and computers are available to offer you choice and flexibility for your study. Our five library sites give you access to over 1.3 million books and periodicals. You can access your library account and our rich digital collections from anywhere on or off campus. Other library services include study skills training to improve your grades, and tailored advice from experts in your subject.

Learning support facilities and library opening hours

12. Assessment and feedback methods *(this should include the range of types of methods used and should be written with a student focus as this information will display to current students and applicants i.e. prospectus)*

You'll be assessed in a variety of ways, including a portfolio of problem sets and lab work, as well as exams, essays, lab reports and presentations.

Feedback will be provided during the semester through marked assessments as well as through discussion time in tutorials and problems classes.

Version Number:	**Purpose / Change:**	**Cohort affected: (academic year and level)**	**Date change approved:**
1			June 2022
2	Programme Simplification	25/26 - Foundation 26/27 - Year 1	June 2025

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