Keele UNIVERSITY

Programme Specification: Undergraduate

For students starting in Academic Year 2023/24

1. Course Summary

Names of programme and award title(s)	BSc (Hons) Physics BSc (Hons) Physics with International Year (see Annex for details) BSc (Hons) Physics with Work Placement Year (see Annex for details)
Award type	Single Honours
Mode of study	Full-time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 6
Normal length of the programme	3 years; 4 years with either the International Year or Placement Year between years 2 and 3
Maximum period of registration	The normal length as specified above plus 3 years
Location of study	Keele Campus
Accreditation (if applicable)	The UK Institute of Physics (IoP) has accredited this programme until 30th March 2027. For further details see the section on Accreditation below.
Regulator	Office for Students (OfS)
Tuition Fees	**UK students:** Fee for 2023/24 is £9,250* **International students:** Fee for 2023/24 is £18,800** The fee for the international year abroad is calculated at 15% of the standard year fee The fee for the work placement year is calculated at 20% of the standard year fee

How this information might change: *Please read the important information at http://www.keele.ac.uk/student-agreement/. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.*

** These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/*

*** We reserve the right to increase fees in subsequent years of study by an inflationary amount. Please refer to the accompanying Student Terms & Conditions for full details. Further information on fees can be found at http://www.keele.ac.uk/studentfunding/tuitionfees/*

2. What is a Single Honours programme?

The Single Honours programme described in this document allows you to focus more or less exclusively on this subject. In keeping with Keele's commitment to breadth in the curriculum, the programme also gives you the opportunity to take some modules in other disciplines and in modern foreign languages as part of a 360-credit Honours degree. Thus it enables you to gain, and be able to demonstrate, a distinctive range of graduate attributes.

3. Overview of the Programme

Physics is one of the fundamental curiosity-driven science subjects that has applications and makes an enormous contribution to other areas of sciences and a range of industries such as power, nuclear, electronics, IT, data-mining, telecommunications, medical, pharmaceutical and food technology.

The broad educational aims of this programme are informed by the QAA Benchmark Statement for Physics. The programme aims to provide a thorough education in the core areas of physics (as defined by the Institute of Physics [IoP] accreditation standards), to extend this subject knowledge to more advanced topics, informed by the research interests of staff, together with providing a theoretical and practical understanding of the analytical, experimental and computational techniques that are of particular importance to physics graduates. Successful graduates will have achieved a demonstrable understanding of the fundamentals of physics and be able to apply this knowledge to solve problems, plan investigations, analyse results and to report and present their work in ways described in more detail below.

On successful completion of the Physics programme at Keele, students will be equally qualified and well prepared for postgraduate studies or for graduate level employment in a wide variety of industrial sectors. Tuition will be based on a modular system with varied modes of delivery, ranging from traditional lectures through to laboratory work, problem-solving classes and tutorials in smaller groups. Mathematics and computing form important parts of the programme and are taught both within dedicated modules and synoptically throughout the programme by staff in the Physics department. A mixed set of assessment modalities include examination, report-writing, presentations, problem sheets, laboratory work, essays, dissertations and vivas, with an overall balance of approximately 50% examination and 50% continually assessed, dependent on the exact module diet.

Whilst the combined honours Physics programme focuses almost exclusively on the IoP "core curriculum" in years 1 and 2, the Single Honours Physics programme goes beyond this in terms of breadth and depth. There is an additional emphasis on Mathematics, Statistics and Computing and the application of Physics to solving problems; further opportunities for both individual and team practical work and an individual dissertation in year 3.

4. Aims of the programme

The broad aims of the programme are to enable you to:

- achieve a knowledge and understanding of the fundamentals of Physics and be able to apply this knowledge and understanding to solving problems;
- develop competence in mathematical, statistical and numerical techniques and employ these to solvephysical problems;
- develop competence in laboratory activities and computer programming by the end of year 2 and undertake project work both individually and within a team by the end of year 3;
- acquire the skills required to assimilate new knowledge and to communicate your work and ideas in a variety of formats;
- acquire a range of subject-specific skills including how to formulate and tackle problems in Physics; how to plan, manage, execute and report the results of an investigation; how to use mathematics to describe the physical world; and how to deploy these skills to tackle issues within the subject;
- acquire a range of cognitive, generic and transferable skills including problem-solving skills, investigative skills, analytic skills, communication skills, IT skills, time management skills and interpersonal skills.

Employability

The programme will enable you to:

- engage in independent learning, and make use of textbooks, research papers and other learning resources;
- critically analyse data, understand statistical information and to use information responsibly and ethically;
- plan projects and investigations, and perform an evaluation of the possible costs and benefits of a course of action;
- develop a range of technical and transferable skills which would enable entry to employment across a

range of professions that place high value on the analytical, computational, statistical and experimental skills gained within a Physics degree programme and value the ability to communicate complex ideas and information to a variety of audiences.

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding
- Subject specific skills
- Intellectual skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

The subject knowledge in the Single Honours Physics programme is underpinned by a core curriculum as set out by the Institute of Physics and includes the fundamentals of classical and quantum mechanics, electromagnetism, optics, thermodynamics, solid state, atomic and nuclear physics, together with the mathematics that is used to describe them. The programme goes beyond this to explore broader areas of physics and mathematics, computational and statistical techniques and the applications of these in addressing physical problems. Successful students will be able to demonstrate:

- knowledge of the fundamental principles of Physics and competence in applying these principles to diverse areas of the subject;
- the ability to solve problems in Physics using appropriate mathematical and computational tools including the ability to make sensible approximations;
- the ability to design, execute, and analyse critically, an experiment or investigation and draw valid conclusions;
- the ability to estimate levels of uncertainty in their results, compare their results with expected outcomes, theoretical predictions or published data, and evaluate the significance of their results in this context;
- the development of a wider knowledge and understanding of advanced topics and their applications, and the acquisition of skills in the critical reading and understanding of published work in Physics.

Subject specific skills

Successful students will have:

- the ability to work safely in a laboratory and a knowledge and awareness of standard safety procedures;
- a sound familiarity with laboratory apparatus and techniques;
- competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information;
- an ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically;
- an ability to use mathematical analysis and computational techniques to model physical behaviour;
- an ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation;
- an ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge;
- an ability to contribute through research to the development of knowledge in Physics;
- an ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.

Intellectual skills

Successful students will be able to:

- analyse and solve problems;
- evaluate evidence and make critical judgements;
- interpret and critique text;
- interpret and critique mathematical and numerical information;
- abstract and synthesise information;
- develop a reasoned argument;
- assess contrasting theories, explanations and policies on the basis of evidence;
- take responsibility for their own learning and critique that learning.

Key or transferable skills (including employability skills)

Successful students will be able to:

- manage their own learning and to make appropriate use of textbooks, research-based materials and other learning resources;
- find information and make responsible use of it;
- make effective written and oral presentations;
- work with numerical and statistical data;
- make sensible estimates;
- evaluate the costs and benefits of their actions;
- work effectively with a variety of types of Information Technology;
- formulate a problem and solve it using computational methods;
- plan, manage, execute and report an investigation;
- learn and gain understanding and to pass on that understanding to others;
- work effectively both as an individual and as part of a team;
- sustain motivation for an extended period of time;
- recognise their responsibilities as an individual and as part of a team or an organisation.

Keele Graduate attributes

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: http://www.keele.ac.uk/journey/

6. How is the programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- Lectures;
- Tutorials;
- Laboratory classes;
- Computational laboratory classes;
- Exercise/problem-solving classes;
- Individual progress interviews;
- Problem sheet assignments;
- Group and individual projects;
- Directed reading and independent study;
- Literature research tasks;
- Use of e-learning/the Keele Learning Environment (KLE).

In a typical week, a student would expect to be engaged in the majority of these activities. Students are also provided with regular opportunities to talk through particular areas of difficulty and any special learning needs they may have with their Academic Mentors or module lecturers on a one-to-one basis.

Much of the core knowledge in Physics is described and explained in lectures. These lectures also map out the academic content and are used to provide examples and case studies. The application of this knowledge is developed in tutorials and problem classes, where there is a greater emphasis on co-operative learning in a more informal setting. Laboratory work and computational classes are designed to reinforce material covered in lectures, but more importantly to foster the many transferable skills discussed in section 4. Students will also gain experience of planning and performing investigations and reporting on them both individually and as part of a team.

All students are also expected to engage in independent learning, with regular directed reading, literature research and assessed problem sheets. In this way they will advance their own understanding but also develop their critical abilities and capabilities for discrimination between different sources of information, the merits of different theories and ideas etc.Students will be expected to manage their time against known targets and deadlines, take responsibility for their own learning and acquire a reflective, self-critical attitude to their own work - attributes that will serve them well in their ongoing professional development.

All modules make extensive use of the Keele Learning Environment (KLE) to post learning resources; these include (and vary from module to module) lecture notes, module and laboratory handbooks, exercises, quizzes, assignments, problem sheets, interesting web links, additional reading; screencasts; collaborative pages. The KLE is also used for electronic submission of course work and feedback in some cases.

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Academic Mentors or module lecturers on a one-to-one basis.

7. Teaching Staff

The Physics academic staff exhibit a research profile with two main areas of expertise; astrophysics and condensed matter physics. Keele performs internationally renowned work in the fields of exoplanets, stellar physics (both observational and theoretical), high energy extragalactic astrophysics and in the study of soft condensed matter such as polymers and biological molecules. All research-active staff play a role in teaching and most also undertake administrative roles, either within our teaching or research activities. The teaching and research profiles of the staff that currently deliver the Physics programme can be found at http://www.keele.ac.uk/physics/people/. Timetabled teaching is always lead by academic staff.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from programme to programme, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to the end of April. Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are three types of module delivered as part of your programme. They are:

- Compulsory modules - a module that you are required to study on this course;
- Optional modules - these allow you some limited choice of what to study from a list of modules.

In both years 1 and 2 (Levels 4 and 5) students take eight modules. These modules (plus Electromagnetism in year 3) will cover the entire core IoP curriculum but also include a much broader range of material (see the IoP core of physics specification). In year 3 (Level 6) you will take a further eight modules. Four of these are compulsory modules, the remaining four are options. The majority of modules are taught over one semester, but several are taught over two semesters. In years 1 and 2 the student workload is roughly the same in each semester. In year 3 the work load balance between semesters will depend on which option modules are selected.

Language modules: You are able to take up to 60 credits across your degree programme as Faculty Funded additional Modern Language modules in order to graduate with the Enhanced Degree Title. [Please see link for more information on Enhanced degree titles.]

For further information on the content of modules currently offered please visit: https://www.keele.ac.uk/recordsandexams/modulecatalogue/

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
Level 4	120	0	0	0	0
Level 5	120	0	0	0	0
Level 6	60	45	60	0	15

Module Lists

Level 4

At level 4, Physics students require a common knowledge and skills base. In the Single Honours Physics programme students study eight core Physics modules, all worth 15 credits, over the first two semesters of the programme. These consist of four modules that directly address core material as specified by the IoP, which include distinct mathematics and laboratory components. These four modules are common to the combined honours Physics programme. There are then four other modules that develop much broader physical, mathematical, computational, statistical and laboratory competencies. There is one module and several other components of laboratory and project work that are distinct from the single honours Physics with Astrophysics programme, but transfer between these two programmes is possible at any point before semester 2 of year 1.

These modules are taught through a mixture of traditional lectures, problem class learning, smaller group tutorials and practical and computer-based laboratory work. The module descriptors provide detailed synopses of each module with suggested study reading and are available on the KLE.

Five of the modules are taught within a single semester (two in semester 1 and three in semester 2). Three of the modules have elements of teaching and assessment over both semesters, though they are designed so that there is roughly equal student workload in each semester when considering the programme as a whole.

Compulsory modules	Module Code	Credits	Period
Mechanics, Gravity and Relativity	PHY-10022	15	Semester 1
Nature of matter	PHY-10024	15	Semester 1
Scientific Programming	PHY-10028	15	Semester 1-2
Scientific Practice	PHY-10030	15	Semester 1-2
Applied Mathematics and Statistics	PHY-10032	15	Semester 1-2
Oscillations and Waves	PHY-10020	15	Semester 2
Electricity and Magnetism	PHY-10021	15	Semester 2
Instrumentation Physics	PHY-10031	15	Semester 2

Level 5

At level 5 students continue to be taught the fundamentals of Physics, with four core modules that directly address the IoP core curriculum and which are common to the combined honours programme. The additional core modules that are specific to the single honours programme further develop the skills of mathematical and computational analysis in semester 1. In the second semester the focus switches to the application of Physics, with modules looking at the uses of Physics in modern society and technology and a specific module dealing with the interactions of radiation with matter in the context of power generation, health applications and safety.

All of these modules are worth 15 credits and all modules are taught and assessed within a single semester.

Compulsory modules	Module Code	Credits	Period
Quantum Mechanics	PHY-20006	15	Semester 1
Optics and Thermodynamics	PHY-20027	15	Semester 1
Numerical Methods	PHY-20030	15	Semester 1
Mathematical Physics	PHY-20032	15	Semester 1
Nuclear and Particle Physics	PHY-20009	15	Semester 2
Statistical Mechanics and Solid State Physics	PHY-20026	15	Semester 2
Radiation Physics	PHY-20029	15	Semester 2
Applied Physics and Emerging Technologies	PHY-20033	15	Semester 2

Level 6

At level 6 there are four core modules: Electromagnetism, Quantum Mechanics II and students will complete a dissertation and an independent research project. In addition, students will choose four option modules from a list of available modules. Note that not all option modules may run in any given year, dependent on student preferences and staff availability.

Compulsory modules	Module Code	Credits	Period
Electromagnetism	PHY-30012	15	Semester 1
Physics Project - ISP	PHY-30007	15	Semester 1-2
Dissertation and Communication Skills	PHY-30015	15	Semester 1-2
Quantum Mechanics II	PHY-30029	15	Semester 2

Optional modules	Module Code	Credits	Period
Polymer Physics	PHY-30010	15	Semester 1
Binary Stars and Extrasolar Planets	PHY-30024	15	Semester 1
Data Analysis and Model Testing	PHY-30027	15	Semester 1
Particle Physics and Accelerators	PHY-30033	15	Semester 1
Two-Dimensional (2D) Materials	PHY-30037	15	Semester 1
Cosmology	PHY-30001	15	Semester 2
The Physics of Interstellar Medium	PHY-30002	15	Semester 2
The Physics of Compact Objects	PHY-30003	15	Semester 2
Life in the Universe	PHY-30025	15	Semester 2
Physics of Fluids	PHY-30030	15	Semester 2
Atmospheric Physics	PHY-30031	15	Semester 2
Plasma Physics	PHY-30032	15	Semester 2
General Relativity, Black Holes and Gravitational Waves	PHY-30035	15	Semester 2

Students may also take a 15 credit elective module instead of one of the option modules above, subject to timetabling constraints.

Our teaching puts an emphasis on problem solving. This occurs in problem classes where practice problems are solved with staff and teaching assistants available to help; in laboratory teaching where practical and computational problems are addressed; and in directed work for assessment. Students are encouraged to call upon module leaders and year tutors for guidance. The staff will be willing to see students at almost any time (we operate an "open-door" policy) and there will be one-to-one progress interviews each semester. The teaching team will monitor progress and attendance, and will contact students if they are not achieving and advise on improvement strategies.

Students benefit from a flexible approach to learning the mathematical and computational skills that are essential to the learning and application of Physics. In years 1 and 2 there are dedicated Mathematics modules but Mathematics is also embedded as part of several other modules in each year. Similarly, although programming and computational skills are taught in specific modules, there is an expectation that these skills will increasingly be put into practice in later modules.

Learning Outcomes

The table below sets out what students learn in the programme and the modules in which that learning takes place. Details of how learning outcomes are assessed through these modules can be found in module specifications.

Level 4

In Year 1 (Level 4) and Year 2 (Level 5) these learning outcomes are achieved in the compulsory modules which all students are required to take. Some of these outcomes may also be achieved or reinforced in elective modules together with other outcomes not stated here. In Year 3 (Level 6) the stated outcomes are achieved by taking any of the modules offered in each semester.

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Understand basic concepts in mechanics, nature of matter, oscillation and waves, electricity and magnetism, mathematics and statistics, instrumentation physics, and scientific programming.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Demonstration of this understanding by solving physical problems.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Understanding of mathematical techniques necessary for application to physics.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Understand how to search for information and to disseminate scientific knowledge in various formats including reports and oral presentations.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Understand the principles of scientific programming and to apply computational and mathematical methods to solving physics problems.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Perform practical work and keep accurate accounts of it, including professionally maintained records of purpose, methodology, and results.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Communicate the process and results of practical work in formal, written presentations. Enter, manipulate, and present data with the aid of computer tools.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
The ability to work safely in a laboratory and a knowledge and awareness of standard safety procedures.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
A sound familiarity with laboratory apparatus and techniques.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
Competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
An ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
An ability to use mathematical analysis and computational techniques to model physical behaviour.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
An ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
An ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
An ability to contribute through research to the development of knowledge in Physics.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
An ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Manage their own learning and to make appropriate use of textbooks, research-based materials and other learning resources.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Find information and make responsible use of it.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Make effective written and oral presentations.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Work with numerical and statistical data.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Make sensible estimates.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Evaluate the costs and benefits of their actions.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Work effectively with a variety of types of Information Technology.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Formulate a problem and solve it using computational methods.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Plan, manage, execute and report an investigation.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Learn and gain understanding and to pass on that understanding to others.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Work effectively both as an individual and as part of a team.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Sustain motivation for an extended period.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming
Recognise their responsibilities as an individual and as part of a team or an organisation.	All modules: Mechanics, Gravity and Relativity Nature of Matter Oscillations and Waves Electricity and Magnetism Applied Mathematics and Statistics Scientific Practice Instrumentation Physics Scientific Programming

Level 5

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Comprehensive understanding of the relevant theoretical and experimental background of quantum mechanics, optics, thermodynamics, nuclear physics, particle physics, statistical mechanics and solid state physics and the interactions of radiation with matter.	All modules: Quantum Mechanics Optics and Thermodynamics Mathematical Physics Numerical Methods Statistical mechanics and Solid State Physics Nuclear and Particle Physics Applied Physics and Emerging Technologies Radiation Physics
Use a range of established techniques for critical analysis of numerical calculations in connection with problems in quantum mechanics, optics, thermodynamics, nuclear physics, particle physics, statistical mechanics and solid state physics.	All modules: Quantum Mechanics Optics and Thermodynamics Mathematical Physics Numerical Methods Statistical mechanics and Solid State Physics Nuclear and Particle Physics Applied Physics and Emerging Technologies Radiation Physics
Extended abilities in the execution and reporting of laboratory work within the context of physics; work safely in a laboratory and have a knowledge and awareness of standard safety procedures; gain a sound familiarity with laboratory apparatus and techniques	Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029
Work effectively both as an individual and as part of a team.	Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029
Recognise their responsibilities as an individual and as part of a team or an organisation.	Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029
The ability to select and deploy appropriate mathematical, computational or statistical analysis techniques to solve problems.	Quantum Mechanics - PHY-20006 Numerical Methods - PHY-20030 Statistical Mechanics and Solid State Physics - PHY-20026 Mathematical Physics - PHY-20032

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
The ability to work safely in a laboratory and a knowledge and awareness of standard safety procedures.	Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029 Optics and Thermodynamics - PHY-20027
A sound familiarity with laboratory apparatus and techniques.	Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029 Optics and Thermodynamics - PHY-20027
Competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information.	Radiation Physics - PHY-20029 Nuclear and Particle Physics - PHY-20009 Optics and Thermodynamics - PHY-20027
An ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically.	Radiation Physics - PHY-20029 Optics and Thermodynamics - PHY-20027 Nuclear and Particle Physics - PHY-20009
An ability to use mathematical analysis and computational techniques to model physical behaviour.	Nuclear and Particle Physics - PHY-20009 Optics and Thermodynamics - PHY-20027 Radiation Physics - PHY-20029
An ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation.	Optics and Thermodynamics - PHY-20027 Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
An ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge.	Radiation Physics - PHY-20029 Nuclear and Particle Physics - PHY-20009 Optics and Thermodynamics - PHY-20027
An ability to contribute through research to the development of knowledge in Physics.	Radiation Physics - PHY-20029 Nuclear and Particle Physics - PHY-20009 Optics and Thermodynamics - PHY-20027
An ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.	Nuclear and Particle Physics - PHY-20009 Radiation Physics - PHY-20029 Optics and Thermodynamics - PHY-20027
Competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information.	Applied Physics and Emerging Technologies - PHY-20033 Radiation Physics - PHY-20029 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027
An ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically.	Radiation Physics - PHY-20029 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Quantum Mechanics - PHY-20006 Applied Physics and Emerging Technologies - PHY-20033
An ability to use mathematical analysis and computational techniques to model physical behaviour.	Applied Physics and Emerging Technologies - PHY-20033 Radiation Physics - PHY-20029 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027
An ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Mathematical Physics - PHY-20032 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Applied Physics and Emerging Technologies - PHY-20033
An ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge.	Applied Physics and Emerging Technologies - PHY-20033 Radiation Physics - PHY-20029 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Quantum Mechanics - PHY-20006

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
An ability to contribute through research to the development of knowledge in Physics.	Radiation Physics - PHY-20029 Applied Physics and Emerging Technologies - PHY-20033 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Quantum Mechanics - PHY-20006
An ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.	Applied Physics and Emerging Technologies - PHY-20033 Radiation Physics - PHY-20029 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Quantum Mechanics - PHY-20006

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Manage their own learning and to make appropriate use of textbooks, research-based materials and other learning resources.	Radiation Physics - PHY-20029 Applied Physics and Emerging Technologies - PHY-20033 Statistical Mechanics and Solid State Physics - PHY-20026 Nuclear and Particle Physics - PHY-20009 Mathematical Physics - PHY-20032 Numerical Methods - PHY-20030 Optics and Thermodynamics - PHY-20027 Quantum Mechanics - PHY-20006
Find information and make responsible use of it.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Mathematical Physics - PHY-20032 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Applied Physics and Emerging Technologies - PHY-20033

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Make effective written and oral presentations.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Mathematical Physics - PHY-20032 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Applied Physics and Emerging Technologies - PHY-20033
Work with numerical and statistical data.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Make sensible estimates.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Evaluate the costs and benefits of their actions.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Work effectively with a variety of types of Information Technology.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Formulate a problem and solve it using computational methods.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Plan, manage, execute and report an investigation.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Learn and gain understanding and to pass on that understanding to others.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Work effectively both as an individual and as part of a team.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Sustain motivation for an extended period.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032
Recognise their responsibilities as an individual and as part of a team or an organisation.	Quantum Mechanics - PHY-20006 Optics and Thermodynamics - PHY-20027 Numerical Methods - PHY-20030 Applied Physics and Emerging Technologies - PHY-20033 Nuclear and Particle Physics - PHY-20009 Statistical Mechanics and Solid State Physics - PHY-20026 Radiation Physics - PHY-20029 Mathematical Physics - PHY-20032

Level 6

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Describe the central role played by the theory of electromagnetism and Maxwell's equations in understanding the universe and the world around them; describe electromagnetic waves, their production, their propagation and their interaction with non-conductive and conductive media; appreciate the connection between electricity, magnetism and special relativity.	Electromagnetism - PHY-30012
Demonstrate good comprehension, planning and execution of an individual project; give a short presentation on the progress of the project; produce of a clear, accurate and informative project report; demonstrate a good understanding of the literature associated with the project theme.	Physics Project - ISP - PHY-30007
Describe cosmological observations; be able to apply basic physics principles to the universe as a whole; and will be able to calculate conditions in the universe at different times and use mathematics to relate the theory with the observations.	Cosmology - PHY-30001
Describe the contents of the ISM; understand and appreciate the impact of stars on the ISM; describe how the above is observationally determined; and understand the interaction between different components of this ISM	The Physics of Interstellar Medium - PHY-30002
Describe of the properties of degenerate matter; the differences between normal and compact stars; how microscopic physical laws can be applied to macroscopic systems. Students will appreciate how observations of compact stars can be used to probe physical laws at very high densities and be aware of the most recent research on the subject.	The Physics of Compact Objects - PHY-30003
Describe the structure of polymer molecules and the application of physical characterisation techniques; Describe microstructure and macrostructures in polymer materials and its characterisation using x-ray scattering techniques; Understand the relationship between the structure and mechanical properties of polymers in relation to their industrial applications.	Polymer Physics - PHY-30010
Collect information on physics topics and present to a peer group via an oral presentation and poster; assemble and review information on a specific topic and produce a substantial, detailed dissertation.	Dissertation and Communication Skills - PHY-30015
Detail the ingredients and physical structure of the Standard Model; analyse the relativistic dynamics of particles in interactions and of particle beams in accelerators; compare and contrast the operation, design and relative advantages of different types of particle accelerator; describe and calculate key phenomena in lepton physics; explain and apply the quark model to classify hadrons and account quantitatively for their measured properties; understand and apply some of the key ideas and empirical foundations of quantum field theories for the fundamental forces.	Particle Physics and Accelerators - PHY-30033

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Apply celestial mechanics and stellar astrophysics to the interpretation of observations of binary star and exoplanet systems; demonstrate an understanding of the interactions between stars and planets such as mass transfer, common envelope evolution and tidal interactions; appreciate the physics and practicalities of methods for studying exoplanet atmospheres.	Binary Stars and Extrasolar Planets - PHY-30024
Demonstrate an understanding of the physical processes that govern the formation and evolution of planets, planetary atmospheres and Life; describe the possibilities of searches for extra-solar planets and extra-terrestrial life; critically evaluate the possibilities and limitations of interstellar travel and communication; Exercise initiative in designing and executing an experiment, and communicate ideas related to the experiment's context and objective.	Life in the Universe - PHY-30025
Use Dirac notation and Pauli spin matrices to describe and analyse the behaviour of quantum systems; interpret the rotation-vibration and Raman spectra of diatomic molecules; describe the applications of quantum effects such as entanglement and quantum state teleportation to cryptography, quantum computing and the investigation of the interpretations of quantum mechanics.	Quantum Mechanics II - PHY-30029
Demonstrate an understanding of the basic principles and laws governing the physics of fluids (e.g. momentum/Euler equations); apply the laws of fluid dynamics to specific environments found in nature and space (e.g. tsunamis); use computer programs to solve basic problems in fluid dynamics as well as manipulate the equations of fluid dynamics in an applied context and numerically solve related problems.	Physics of Fluids - PHY-30030
Demonstrate an understanding of the statistical techniques used to analyse physical data; solve data analysis problems and interpret scientific data using computer-based analysis techniques; critically evaluate data from primary sources; communicate judgements by applying established numerical analysis techniques.	Data Analysis and Model Testing - PHY-30027
Describe quantitatively the structure and dynamics of atmospheres; use the principles of thermodynamics to determine the structure of atmospheres; solve the equation of radiative transfer to evaluate the effect of radiation on atmospheric structure; apply the laws of motion to describe atmospheric dynamics and waves.	Atmospheric Physics - PHY-30031
Demonstrate an understanding of the properties of plasmas in both Physics and Astrophysics contexts, including: the properties and production of plasmas; Saha equation; motion of charged particles in electromagnetic fields; the propagation of electromagnetic and magnetohydrodynamic waves in plasmas; plasma diagnostics and plasma confinement.	Plasma Physics - PHY-30032

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Demonstrate their knowledge of the fundamental principles of Physics and competence in applying these principles to diverse areas of the subject; Demonstrate competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information; Demonstrate an ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically; Demonstrate an ability to use mathematical analysis and computational techniques to model physical behaviour; To question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge; To acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team; Develop a wider knowledge and understanding of advanced topics and their applications, and the acquisition of skills in the critical reading and understanding of published work in Physics; To record and communicate scientific information.	All modules
Solve problems in Physics using appropriate mathematical and computational tools including the ability to make sensible approximations.	Electromagnetism Quantum Physics II Physics of the ISM Physics of Compact Objects Polymer Physics Binary Stars and Extrasolar Planets Particle Physics and Accelerators Physics of Fluids Life in the Universe Data Analysis and Model Testing Atmospheric Physics Plasma Physics Physics Project
Design, execute, and analyse critically, an experiment or investigation and draw valid conclusions; Estimate levels of uncertainty in their results, compare their results with expected outcomes, theoretical predictions or published data, and evaluate the significance of their results in this context.	Data Analysis and Model Testing - PHY-30027 Life in the Universe - PHY-30025 Physics Project - ISP - PHY-30007
To contribute through research to the development of knowledge in Physics.	Physics Project - ISP - PHY-30007 Dissertation and Communication Skills - PHY-30015
Apply the theory of General Relativity to solve problems in solar system, stellar and black hole astrophysics, identifying the appropriate analytical or numerical tools; quantitatively assess when a General Relativistic, rather than Newtonian approach is required; Describe and explain the main planks of evidence for General Relativity and for the existence of black holes; Use General Relativity to explain the existence, propagation and generation of gravitational waves and to solve problems relating to gravitational wave sources using appropriate analytical and numerical techniques; Explain the physical nature and purpose of the design and main components of gravitational wave detectors and quantitatively describe the factors that influence detector design and sensitivity; Engage with, and assimilate knowledge from, original research material and the primary literature.	General Relativity, Black Holes and Gravitational Waves - PHY-30035

Subject Knowledge and Understanding	
Learning Outcome	**Module in which this is delivered**
Communicate effectively the key fundamental physical properties and applications of 2D materials and the differences between 2D materials and other classes of materials; Locate, evaluate and extract information from the literature related to 2D materials; Evaluate the properties and characteristics of 2D materials and apply this understanding to rationalise and predict the applications of 2D materials.	Two-Dimensional (2D) Materials - PHY-30037

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
The ability to work safely in a laboratory and a knowledge and awareness of standard safety procedures.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
A sound familiarity with laboratory apparatus and techniques.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
Competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information.	Physics Project - ISP - PHY-30007 Dissertation and Communication Skills - PHY-30015
An ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
An ability to use mathematical analysis and computational techniques to model physical behaviour.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
An ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation.	Physics Project - ISP - PHY-30007 Dissertation and Communication Skills - PHY-30015
An ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
An ability to contribute through research to the development of knowledge in Physics.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
An ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.	Dissertation and Communication Skills - PHY-30015 Physics Project - ISP - PHY-30007
Competency in the use of appropriate IT packages/systems for the analysis of data and the retrieval of information.	All lecture modules
An ability in numerical manipulation and estimation, statistical interpretation and the ability to present and interpret information graphically.	All lecture modules
An ability to use mathematical analysis and computational techniques to model physical behaviour.	All lecture modules
An ability to research, record and communicate scientific information, in particular through clear and accurate scientific reports and a dissertation.	All lecture modules

Subject Specific Skills	
Learning Outcome	**Module in which this is delivered**
An ability to question, learn and assimilate knowledge and to evolve their views of the world in response to that new knowledge.	All lecture modules
An ability to contribute through research to the development of knowledge in Physics.	All lecture modules
An ability to acquire knowledge and understanding of science themselves, and to work productively on scientific problems on an individual basis or in a team.	All lecture modules

Key or Transferable Skills (graduate attributes)	
Learning Outcome	**Module in which this is delivered**
Manage their own learning and to make appropriate use of textbooks, research-based materials and other learning resources.	All modules
Find information and make responsible use of it.	All modules
Make effective written and oral presentations.	All modules
Work with numerical and statistical data.	All modules
Make sensible estimates.	All modules
Evaluate the costs and benefits of their actions.	All modules
Work effectively with a variety of types of Information Technology.	All modules
Formulate a problem and solve it using computational methods.	All modules
Plan, manage, execute and report an investigation.	All modules
Learn and gain understanding and to pass on that understanding to others.	All modules
Work effectively both as an individual and as part of a team.	All modules
Sustain motivation for an extended period.	All modules
Recognise their responsibilities as an individual and as part of a team or an organisation.	All modules

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Honours Degree	360 credits	You will require at least 120 credits at levels 4, 5 and 6 You must accumulate at least 270 credits in your main subject (out of 360 credits overall), with at least 90 credits in each of the three years of study*, to graduate with a named single honours degree in this subject. *An exemption applies for students transferring from a Combined Honours programme - see point 3.4 here: https://www.keele.ac.uk/regulations/regulationc3/
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

International Year option: in addition to the above students must pass a module covering the international year in order to graduate with a named degree including the 'international year' wording. Students who do not complete, or fail the international year, will be transferred to the three-year version of the programme.

Work Placement Year option: in addition to the above students must pass a non-credit bearing module covering the work placement year in order to graduate with a named degree including the 'with Work Placement Year' wording. Students who do not complete, or fail the work placement year, will be transferred to the three-year version of the programme

10. How is the Programme Assessed?

The wide variety of assessment methods used on this programme at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance.

Year 1 (Level 4) lecture modules are assessed by a mixture of continuous assessment (mostly in the form of problem classes, problem sheets, laboratory work and laboratory reports, though also including at least one oral presentation and some short essays) and examination. A risk assessment also forms part of the laboratory work. The skills component of these modules is assessed on your work at the bench, your understanding of the experiment as displayed in discussion with the staff in the laboratory and in the laboratory reports you are required to write. Problem classes and tests that occur periodically throughout the year specifically assess the mathematics component, although mathematics is an embedded and inherent part of all other assessments including examinations and problem sheets. The computational strand is assessed by specifically by computer tests and project work. The module marks from FHEQ Level 4 count for progression purposes but do not contribute to any final degree classification.

Year 2 (Level 5) lecture modules are assessed by a mixture of continuous assessment (mostly in the form of problem classes and problem sheets), laboratory work and examination. Laboratory work is assessed on your work at the bench, your understanding of the experiment as displayed in discussion with the staff in the laboratory and in the laboratory reports you are required to write, both individually and as part of a team. A risk assessment also forms part of the assessed laboratory work. The laboratory work is connected to the content of the lecture modules and the marks for the laboratory are therefore convolved with the examination and continuous assessment marks to give a final mark for each module. There are also specific class tests associated with Computing and Mathematics. The module marks from FHEQ Level 5 count towards progression and also make up one third of the aggregate marks for the purposes of final degree classification.

Year 3 (Level 6) modules are self-contained. Lecture modules are assessed using a mixture of continuous assessment (mostly in the form of problem sheets, though some feature essays, mini-projects or computer exercises) and examination. The Physics project module is assessed in terms of the originality and ingenuity you display, the quality and methods of research employed and on the final report. You are given the opportunity to display these qualities in a project plan, an interim report, a one-to-one interview and in your final report. The Dissertation and Communication Skills module is assessed on the scientific content and presentation of the dissertation and also on an oral presentation and a poster presentation that you are required to produce. The module marks for FHEQ Level 6 make up two thirds of the aggregate marks for the purposes of degree classification.

The following list is representative of the variety of assessment methods used within Physics:

- **End of module examinations** test the ability of the student to describe, explain, and critically discuss the principles of the subject and to demonstrate competence in applying these principles to applications and to solve problems from appropriate areas of the discipline.
- **Assessed Problem Sheets** assess the student's skills in solving numerical and other problems within the discipline by drawing on their scientific understanding and knowledge, and experience of experimental techniques. Students may also be assessed on their skills of research and communication and on their ability to deploy appropriate mathematical, computational and numerical techniques.
- **Laboratory and Project Reports** - structured proformas and full lab reports are formal summaries of work carried out in the laboratory and test students' understanding of the practical aspects of the programme and assess the skills necessary to enable students to present and analyse their results.
- **Observation of laboratory skills and laboratory notebooks**: Throughout the extensive laboratory and other practical work in this programme, many types of assessment are utilised to achieve the learning outcomes. Notebooks are used to communicate the results of work accurately and reliably and to encourage good working practice, including managing risk assessments and following safe working practices.
- **Oral and/or Poster presentations** on project work demonstrate the ability of the student to present complex concepts and information in a clear and concise manner, to interact and communicate effectively to a wide range of professional environments, including to both scientific and non-scientific audiences. They also test how effectively students have been able to research and sift information.
- **In-class exercises and tests** taken either conventionally or online via the Keele Learning Environment (KLE) assess students' subject knowledge and their ability to apply it in a more structured and focused way.
- **Group oral presentations and reports** assess individual student's subject knowledge and understanding. They also test their ability to work effectively as members of a team, to communicate what they know orally and visually, and to reflect on these processes as part of their own personal development.
- **Engagement with problem classes** assess the extent to which students are able to work on problems and present their solutions in a logical, structured and coherent way.
- **Dissertation** assesses the student's ability to engage with an advanced area of physics, to research and sift information, and to communicate effectively via an extended piece of writing.
- **Computing Tests** specifically assess a student's computational skills and their ability to design and produce code to solve physics problems.
- **Mini-projects** short projects that form a minor part of module assessments designed to test subject knowledge but also to assess many of the skills components.
- **Risk assessments** are produced by students to test their appreciation of how to design experiments and consider the health and safety aspects of their work.

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and seminar discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity

	Scheduled learning and teaching activities	Guided independent Study	Placements
Year 1 (Level 4)	36%	64%	0%
Year 2 (Level 5)	33%	67%	0%
Year 3 (Level 6)	25%	75%	0%

12. Accreditation

This subject/programme will be put forward for accreditation by The Institute of Physics (IoP). The combined honours Physics and Major honours Physics programmes that form a *subset* of Single Honours Physics have already achieved full accreditation. Please note the following:

- Graduates with accredited BSc degrees are eligible for Associate Membership of the IoP. After a period of relevant post-degree experience and professional development they may apply for full membership of the IoP and for Chartered Physicist status.

13. University Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at: http://www.keele.ac.uk/student-agreement/

A student who has completed a semester abroad will not normally be eligible to transfer onto the International Year option.

A student is not allowed to study both the International Year option and the Placement Year option.

14. What are the typical admission requirements for the Programme?

See the relevant course page on the website for the admission requirements relevant to this programme: https://www.keele.ac.uk/study/

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University's Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

English for Academic Purposes

Please note: All new international students entering the university will sit a diagnostic language assessment. Using this assessment, the Language Centre may allocate you to an English language module which will become compulsory. This will replace any GCP modules. *NB:* students can take an EAP module only with the approval of the English Language Programme Director and are not able to take any other Language modules in the same academic year.

English Language Modules at Level 4:

- Business - ENL-90003 Academic English for Business Students (Part 1); ENL-90004 Academic English for Business Students (2)
- Science - ENL-90013 Academic English for Science Students
- General - ENL-90006 English for Academic Purposes 2; ENL-90001 English for Academic Purposes 3; ENL-90002 English for Academic Purposes 4

Recognition of Prior Learning (RPL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University's guidelines on this can be found here: http://www.keele.ac.uk/qa/accreditationofpriorlearning/

15. How are students supported on the programme?

All the academic staff in Physics operate an open-door policy for students. If they are available then, at any time in the working day, students may seek help and guidance. If staff are not immediately free they will arrange a future meeting for such discussions. Our department is reasonably small; students have many opportunities in labs, problem classes and tutorials to discuss their work and progress with staff. Students should feel free to approach any lecturer or module leader to discuss any academic issues.

In addition to this informal assistance there are many other avenues of help for students:

Keele Learning Environment (KLE)

All the Physics modules are supported by learning materials that are accessible to students via the KLE at https://students.keele.ac.uk/webapps/login/.

Academic Mentor

All students are assigned an Academic Mentor as a part of the University's Academic Mentor system for the duration of their studies at Keele. There is a formal requirement for the Academic Mentors to meet with their first year mentees during the first week of the semester one. Subsequently, Academic Mentors should meet at least four times per year to discuss progress and offer support and advice on academic or any other matter. During the subsequent undergraduate years Academic Mentors and mentees should meet at least three times per year. Students can make arrangement to seek help or advice on any matter that affects their life and work as a student at Keele. More details available at:
https://www.keele.ac.uk/students/academiclife/academicmentoring/

Year Tutor

Each year of study has an associated Year Tutor who monitors the students and the modules to ensure the course is running smoothly and that students are making the progress they should. They will note any problems and bring them to the attention of the Course Management Committee who will decide on an appropriate course of action. Students should regard the year tutor as their first point of contact to discuss any topic related to the courses or their own academic performance.

Students with disabilities

If you have long-term disabilities, you will have the assistance of the Disability Coordinator and the Examinations Office and from academic and support staff who liaise with these services.

Health and Safety

All students are briefed on Health and Safety as part of their induction and this is repeated at the beginning of the first laboratory session. Students are required to sign an agreement that they have read the Safety Handbook, and that they will abide by the rules and regulations governing the safety and welfare of all members within the University. The Safety handbook can be accessed on the KLE (https://students.keele.ac.uk/) under the section "Physics and Astrophysics Information"

Further information

It is essential that students check the KLE (http://students.keele.ac.uk/) for up to date information on course and teaching materials related to their Physics modules.

16. Learning Resources

The Physics and Astrophysics section of the School is housed in the Lennard-Jones Building, which contains well-equipped undergraduate Physics teaching laboratories and a dedicated PC laboratory supporting both Windows and Linux. There are rooms available in the building for students to work and socialise with their peers. There are dedicated boxes located in the building for submission of the problem sheets and laboratory reports. In addition, the School Office is open continuously during the week from 9am to 5pm to answer student questions.

17. Other Learning Opportunities

Study abroad (semester)

Students on the programme have the potential opportunity to spend a semester abroad in their second year studying at one of Keele's international partner universities.

Exactly which countries are available depends on the student's choice of degree subjects. An indicative list of countries is on the website (http://www.keele.ac.uk/studyabroad/partneruniversities/); however this does not guarantee the availability of study in a specific country as this is subject to the University's application process for studying abroad.

No additional tuition fees are payable for a single semester studying abroad but students do have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad to be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Whilst students are studying abroad any Student Finance eligibility will continue, where applicable students may be eligible for specific travel or disability grants. Students who meet external eligibility criteria may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible for income dependent bursaries at Keele. Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided in the Annex for the International Year.

Work Placement Year

A summary of the Work Placement Year, which is a potential option for students after completion of year 2 (Level 5), is provided in the Annex for the Placement Year.

Other opportunities

There are other opportunities such as the Student Ambassador Scheme and e-mentoring scheme for students to enhance their employability skills.

18. Additional Costs

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation. We do not anticipate any further costs for this programme.

19. Quality management and enhancement

The quality and standards of learning in this programme are subject to a continuous process of monitoring, review and enhancement.

- The School Education Committee is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Revalidation process.

Student evaluation of, and feedback on, the quality of learning on every module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of annual programme review.
- Findings related to the programme from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the programme is considered and acted on at regular meetings of the Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here: http://www.keele.ac.uk/qa/externalexaminers/currentexternalexaminers/

20. The principles of programme design

The programme described in this document has been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

a. UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education: http://www.qaa.ac.uk/quality-code
b. QAA Subject Benchmark Statement: Physics, Astronomy and Astrophysics (2019) https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/subject-benchmark-statement-physics-astronomy-and-astrophysics.pdf?sfvrsn=eff3c881_4
c. Keele University Regulations and Guidance for Students and Staff: http://www.keele.ac.uk/regulations
d. The Institute of Physics Accreditation Scheme for First Degree Courses in Physics - Degree accreditation and recognition | Institute of Physics (iop.org)

21. Annex - International Year

Physics with International Year

International Year Programme
Students registered for this Single Honours programme may either be admitted for or apply to transfer during their period of study at Level 5 to the International Year option. Students accepted onto this option will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele. Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the standard programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript. Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the International Year option.
International Year Programme Aims
In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with: 1. Personal development as a student and a researcher with an appreciation of the international dimension of their subject 2. Experience of a different culture, academically, professionally and socially
Entry Requirements for the International Year
Students may apply to the 4-year programme during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff. The criteria to be applied are: • Academic Performance (an average of 55% across all modules in Semester 1 at Level 5 is normally required. Places on the International Year are then conditional on achieving an average mark of 55% across all Level 5 modules. Students with up to 15 credits of re-assessment who meet the 55% requirement may progress to the International Year. Where no Semester 1 marks have been awarded performance in 1st year marks and ongoing 2nd year assessments are taken into account) • General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's Academic Mentor, 1st and 2nd year tutors and programme director)
Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Academic Mentoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

1. Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments;
2. Discuss the benefits and challenges of global citizenship and internationalisation;
3. Explain how their perspective on their academic discipline has been influenced by locating it within an international setting;
4. Communicate effectively in an international setting;
5. Reflect on previous learning within an international context.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Regulations

Students registered for the International Year are subject to the programme-specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise *at least 40%* in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any module with significant overlap to the Level 6 modules they will study on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students who meet external eligibility criteria may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

22. Annex - Work Placement Year

Physics with Work Placement Year

Work Placement Year summary

Students registered for this programme may either be admitted for or apply to transfer during their studies to the 'with Work Placement Year' option (NB: for Combined Honours students the rules relating to the work placement year in the subject where the placement is organised are to be followed). Students accepted onto this programme will have an extra year of study (the Work Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the Work Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Work Placement Year will normally revert to the 3-year programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for the Work Placement Year option.

Work Placement Year Programme Aims

In addition to the programme aims specified in the main body of this document, the Work Placement Year aims to provide students with:

1. Personal development as a student, and a researcher, with an appreciation of the work placement and applied dimension of physics
2. Experience of work in a work placement setting with the associated academic, safety and professional requirements

Entry Requirements for the Work Placement Year

Admission to the Work Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 4-year 'with work placement year' degree programme, or to transfer onto the 4-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 4-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long work placement. Students who fail to pass the work placement year, and those who fail to meet the minimum requirements of the work placement year module (minimum 30 weeks full time (1,050 hours), or equivalent, work placement), will be automatically transferred onto the 3-year degree programme.

The criteria to be applied are:

- A good University attendance record and be in 'good academic standing'.
- Passed all Year-1 and Year-2 Semester 1 modules with an overall module average of > 60%
- General Aptitude (to be demonstrated by application(s) to relevant placement providers with prior agreement from the Programme Lead, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's Academic Mentor, 1st and 2nd year tutors and Programme Lead)
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.
- *(International students only)* Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Work Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the work placement year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the work placement programme.

Students may not register for both an International Year and a Work Placement Year.

Student Support

Students will be supported whilst on the Work Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organisation at around the 5 weeks after the placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete the 'with Work Placement Year' option will be able to:

1. Apply the theories and laboratory skills learnt to real situations in the workplace to design, plan, risk asses, and critically evaluate practical investigations
2. Develop key professional skills in the accurate documentation of information; the analysis of various types of data; and the planning and execution of the tasks safely.
3. Develop employability skills in the presentation and communication of data; the writing of reports; and the ability to work effectively, individually, and as part of a team
4. Explain how their perspective on physics has been influenced by working within the work placement setting

These learning outcomes will be assessed through the non-credit bearing Work Placement Year module (PHY-30043) which involves:

1. An oral presentation on the placement year
2. A placement portfolio containing a reflective diary on the students work and experience, an evaluation of the students' performance by the placement host, and a report on the work done.

Regulations

Students registered for the 'with Work Placement Year' option are subject to programme-specific regulations (if any) and the University regulations. In addition, during the Work Placement Year, the following regulations will apply:

- Students undertaking the Work Placement Year must successfully complete the zero-credit rated 'Work Placement Year' module (PHY-30043)
- In order to ensure a high quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.
- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.

Students will be expected to behave professionally in terms of:

(i) conforming to the work practices of the organisation; and

(ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Work Placement Year

Tuition fees for students on the Work Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Work Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.

Version History

This document

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Previous documents

Version No	Year	Owner	Date Approved	Summary of and rationale for changes
1	2022/23	ARUMUGAM MAHENDRASINGAM	09 June 2022	
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