

Nottingham Trent University Course Specification

Basic Course Information

1 Awarding Institution:	Nottingham Trent University
2 School/Campus:	Science and Technology/Clifton
3 Final Award, Course Title and Modes of Study:	PHYS036 MSc Physics, Full time
4 Normal Duration:	FT 1 calendar year
5 UCAS Code:	F300

6. Overview and general educational aims of the course

This exciting and innovative course will train you, as a physicist, to help improve society now and in the future. Building on your passion for physics and your strong undergraduate qualification, the course offers a range of specialisms from across the spectrum of physics, and the opportunity to develop excellent communication and transferrable skills. You will study various theoretical topics through lectures, seminars and group work activities; and in practical/experimental classes you will have hands-on access to the cutting-edge facilities available within the department. During the summer you will be based in one of our internationally recognised research laboratories where you will undertake a significant research project. You will acquire skills in independent and group working, critical thinking, project planning and professional and public communication, making you highly employable in commercial scientific industries, further academic research, computing, consultancy or teaching.

This course is ideal if you are:

- A recently qualified graduate with the equivalent of an honours degree (2ii minimum) in Physics or a related discipline and are looking to build on your undergraduate knowledge of the subject; OR;
- Working in an industry related to the physical sciences and are seeking a post-graduate qualification to provide you with a competitive edge.

In summary, the course aims to:

- introduce you to a range of topics at the forefront of Physics research;
- provide an intellectually challenging and professionally relevant programme led by academic experts in their fields;
- produce postgraduates who are skilled in employing and adapting investigative techniques which are applicable to a range of situations;
- develop the theoretical and practical skills you needed to plan and execute an in-depth research project;
- provide you with the opportunities to deal with complex issues in a systematic and creative way and show originality in solving problems;
- encourage you to develop intellectual and communication skills necessary to present research findings in various formats to all audiences;
- train you to become proficient using a range of cutting edge scientific instruments;

	<ul style="list-style-type: none"> provide you with the techniques and confidence to tackle scientific problems independently.
7.	<p>Course outcomes Course outcomes describe what you should know and be able to do by the end of your course if you take advantage of the opportunities for learning that we provide.</p>
	<p>Knowledge and understanding By the end of the course you should be able to:</p>
K1	Apply fundamental laws and principles of physics to a variety of areas, some of which are at (or informed by) the forefront of Physics knowledge;
K2	Demonstrate a critical understanding of the research methods required to propose, plan, and perform cutting-edge research which has the potential to contribute to the body of published knowledge in the chosen field.
K3	Understand how to efficiently access and critically appraise specialist literature at the forefront of the subject.
K4	Understand the basics of communication theory and how it can be applied in a variety of settings.
	<p>Skills, qualities and attributes By the end of the course you should be able to:</p>
S1	For a range of cutting-edge scientific instruments, be able to safely and proficiently use the most appropriate techniques to tackle problems in new or unfamiliar environments, and critically evaluate and interpret the results.
S2	Plan, undertake and communicate the findings of a research Project, demonstrating some originality, during an extended investigation.
S3	Work constructively and cooperatively as an individual and as a team member, accepting accountability for performance and exercising a range of interpersonal and professional skills.
S4	Deliver and evaluate the effectiveness of communication, both formal and informal, through a range of media.
8	<p>Teaching and Learning Methods</p> <p>Your knowledge and understanding of advanced physics concepts and experimental techniques are developed in the more theoretical modules (<i>General Relativity</i>, <i>Advanced Quantum Mechanics</i>, the taught aspects of <i>Medical Imaging</i> and <i>Imaging Matter</i> and <i>Current Topics</i>) through a combination of traditional lectures, interactive seminars and directed group work.</p> <p>Experimental skills are honed through scaffolded, open-ended laboratory investigations (in the practical sessions of <i>Medical Imaging</i> and <i>Imaging Matter</i>) and through in-depth research in the <i>Research Project</i>.</p> <p>You will acquire wider research skills in the workshops for <i>The Professional Physicist</i> and <i>Current Topics</i> modules and in meetings with your project supervisor and group discussions during the <i>Research Project</i>.</p> <p>Communication skills are taught in regular workshops and practised through a range of individual and group activities, across all modules.</p> <p>Our research-active staff are involved directly with the course design and delivery, providing a rich research-informed teaching</p>

	<p>environment, supported by your attendance at weekly research seminars both within and outside the School, and the annual School STAR conference.</p> <p>During your studies, you will assemble a Skills Portfolio to help you reflect on the skills and attributes you have acquired. This Portfolio will provide evidence to help you when completing your CV, and when applying for jobs at the end of the course.</p>
9	<p>Assessment Methods</p> <p>The course uses a variety of assessment techniques, providing you ample opportunity to demonstrate that you have achieved the course learning outcomes.</p> <p>Formative feedback and assessment of your knowledge, understanding and presentation skills will be given during allocated teaching slots (e.g. seminars) and informally throughout the course.</p> <p>Summative assessment of your knowledge and understanding of advanced physics concepts and experimental techniques takes place by examination, coursework, oral presentations, written essays, and written critiques of published papers.</p> <p>The <i>Research Project</i> module will involve the design, implementation and reporting of a major research task. You will communicate your findings at an interim stage of the project in peer-reviewed journal format and you will present your findings orally to your peers and to members of the Course Team.</p> <p>Experimental skills are typically assessed through lab books, and other reports based upon your findings.</p> <p>Communication skills are assessed through a range of individual and group activities, across all modules.</p>
10	<p>Course structure and curriculum</p> <p>This MSc course is a one-year full-time course, comprising six 20cp modules plus a 60cp project. The autumn term predominantly introduces physics concepts and the theoretical underpinning of advanced experimental techniques: the theoretical aspects of the two imaging modules (<i>Medical Imaging</i> and <i>Imaging Matter</i>) and the taught sessions of the <i>Professional Physicist</i> module all prepare you for the practical and research activities that follow. Running throughout the first two terms are the two modules <i>21st Century Scientist</i> and either <i>General Relativity</i> or <i>Advanced Quantum Mechanics</i>. In the spring term, the teaching becomes more research focussed, as you investigate the breadth of research within the team in <i>Current Topics in Physics</i> and undertake the laboratory sessions for the two imaging modules. Informed by your studies, at the start of the summer you will choose the topic for your <i>Research Project</i> and spend the summer months embedded in one of our many active research groups</p> <p>Contact hours for a 20cp modules are typically around 50 hours, with a further 150 hours expected from you for directed and independent study.</p>
11	<p>Admission to the course</p> <p>Entry requirements.</p> <p>For current information regarding all entry requirements for this course, please see the 'Applying' tab on the NTU course information web page.</p>
12	<p>Support for Learning</p>

	<p>We will work with you to ensure that you settle into your new academic environment and that your studies go well, and you will find that there are lots of people to support you at Nottingham Trent University.</p> <p>All students at Nottingham Trent University have full access to Student Support Services. In addition, School-based support networks are in place to offer you support, guidance and advice on academic and personal issues. Within the course, students experience the full support of the Physics Academic Team. The Academic Team Leader, with support from the Courses Manager, Course Leader, Module Leaders, and Course Tutors, takes responsibility for student support and guidance. The Module Leader will offer guidance and support to students taking each specific module.</p> <p>Academic staff can be contacted by e-mail, telephone, letter, or in person.</p> <p>As a new student you will experience a week-long induction period at the commencement of the academic year. Induction will inform you about:</p> <ul style="list-style-type: none"> • Student Support Services at University, School and Course level; • International Student Support • University policies and procedures on academic systems; • Personal development planning; • Timetable issues, room allocations and location; • University, School and Course Handbooks; • Enrolment procedures; • Computing, IT and Library services; • Health and Safety procedures. <p>For accommodation matters, University Accommodation Officers will provide you with information, guidance and continuing support, for example hall of residence, private rented accommodation, and the Landlord Approval Scheme. The Accommodation Services can be accessed through www.ntu.ac.uk.</p>
13	<p>Graduate destinations / employability</p> <p>There are a wide range of career opportunities available to MSc Physics graduates. You will work with leading academics on your course, so you will have gained important academic and professional skills necessary to help you obtain employment in your chosen field. At the end of the course, you will also have developed many professional and communication skills that will make you more attractive to potential employers. Your <i>Research Project</i> will give you the skills you need to follow a career in research or development.</p> <p>The University's Careers Service has an enviable reputation for helping our graduates find employment and offers individual consultations. Sessions are available to all students at NTU on CV writing and interview technique, which will build directly on the material you have collated and prepared for the <i>Professional Physicist</i> module.</p>
14	<p>Course standards and quality</p> <p>The Course Committee, with staff and student representatives, operates to discuss matters arising on the course, review module feedback and consider the course report and External Examiners' comments. Overarching responsibility for quality control lies with</p>

