Programme Title: MSc Physics (Euromasters)

Programme Specification

Awarding Body/Institution	Queen Mary University of London
Teaching Institution	Queen Mary University of London
Name of Final Award and Programme Title	MSc Physics (Euromasters)
Name of Interim Award(s)	
Duration of Study / Period of Registration	Two Years FT
QM Programme Code / UCAS Code(s)	F3S5
QAA Benchmark Group	
FHEQ Level of Award	Level 7
Programme Accredited by	IoP
Date Programme Specification Approved	
Responsible School / Institute	School of Physics and Astronomy

Schools which will also be involved in teaching part of the programme

Institution(s) other than Queen Mary that will provide some teaching for the programme
Kings College London, Royal Holloway and University College London

Programme Outline

This programme benefits from teaching across the universities of the South East Phsyics Network (SEPnet), with a strong emphasis on research-based learning. Delivered accross two academic years with an extended project in the second year, this programme provides excellent training in higher level academic research.

You will deepen your understanding of a chosen branch of contemporary physics or astrophysics, chosing a speciality from a wide variety of themes at the forefront of both fundamental and applied physics research. The programme consists of taught modules and an in-depth research project, leaving you well prepared for further doctoral-level study and research. There are two pathways in the programme: Physics and Astrophysics.

Aims of the Programme

1. To provide an understanding of a chosen branch of contemporary physics, covering advanced concepts and techniques, leaving students well prepared for further doctoral level study and research.
2. To provide a solid foundation for a successful career as a highly-qualified physicist.
3. To provide opportunities for students to develop skills transferable to a wide range of other careers.

4. To enable students to further develop skills in problem solving and critical and quantitative analysis in physics beyond those acquired in undergraduate study.
5. To provide active participation in contemporary physics research through completion of an extended project under the guidance of a supervisor at the forefront of research in the relative subject area.
6. To help students develop the sense of independence and experience of a scientific researcher.
7. To enable students to develop research skills by working within a dynamic internationally known experimental, observational or theoretical research group.
8. To provide students with a friendly and supportive environment in which to enrich their learning experience through interaction with active research staff and other students.
9. To enable students to prepare and present research-level seminars on advanced physics topics.
10. To provide opportunities to carry out research leading to work of a publishable standard.

What Will You Be Expected to Achieve?

Students successfully completing the programme will:

Academic Content:	
A 1	Know the fundamental laws and physical principles, along with their applications in specific areas of physics
A 2	Manage their own research, making use of journal articles and other primary sources
A 3	Communicate complex scietific ideas, concisely, accurately and informatively
A 4	Use mathematical analysis to model physical behaviour and interpret the mathematical descriptions of physical phenomena.

Disciplinary Skills - able to:	
B 1	To solve advanced problems in physics using appropriate mathematical tools (to order of magnitude or more precisely as appropriate)
B 2	To plan and execute an investigation and to critically analyse the results, drawing valid conclusions.
B 3	To prepare a detailed technical report on their project and compare their results with published data ,expected outcomes or theoretical predictions.
B 4	To identify relevant physical principles and translate problems into mathematical statements.

Attributes:	
C 1	Acquire and apply knowledge in a rigorous way
C 2	Explain and argue clearly and concisely

C 3	Connect ideas and information within their field of study
C 4	Critically evaluate the reliability of different sources of information
C 5	Acquire substantial bodies of new knowledge

How Will You Learn?

The majority of taught modules consist of three hour hours of teaching per week, either as three hours of lectures or two hours of lectures plus a one hour tutorial. Some modules incorporate substantial computer laboratory sessions.

The project is undertaken within Condensed Matter Physics, Particle Physics, Theoretical Physics or Astrophysics and uses computational, theoretical or laboratory methods as appropriate and may well involve additional, technical training. In all cases the project involves weekly one to one meetings with the supervisor.

How Will You Be Assessed?

The majority of taught modules are assessed by a final examination (typically 90% of the final mark) and by coursework (typically 10% of the final mark), although individual module mark schemes may vary from this. The compulsory MSc Physics Euromasters project is assessed by the final written report (80% of the final mark) and a student presentation and oral examination (20% of the final mark).

How is the Programme Structured?

Please specify the full time and part time programme diets (if appropriate).

NOTE: Students choosing to leave the programme after Year One, may be awarded the PGDip Physics (EuroMasters).

Year one:
Eight taught modules to the total of 120 credits, taken from any of the 15 credit modules below:

INK7022P Mathematical Methods for Theoretical Physics
INK7020P Lie Groups and Lie Algebras
INR7007P Statistical Mechanics
SPA7013P Phase Transitions
INU7001P Advanced Quantum Theory
IN7067P Advanced Topics in Statistical Mechanics
SPA7018P Relativistic Waves & Quantum Fields
SPA7001P Advanced Quantum Field Theory
SPA7024P Functional Methods in Quantum Field Theory
SPA7027P Differential Geometry in Theoretical Physics
INU7071P Galaxy Dynamics, Formation and Evolution
INU7056P Advanced Physical Cosmology
INU7003P Atom and Photon Physics

Programme Title: MSc Physics (Euromasters)

INK7048P Advanced Photonics
INU7022P Quantum Computation and Communication
INR7015P Quantum Electronics of Nanostructures
INU7014P Molecular Physics
INU7017P Particle Physics
INR7003P Particle Accelerator Physics
INK7066P Modelling Quantum Many-Body Systems
INU7016P Order and Excitations in Condensed Matter
INK7037P Theoretical Treatments of Nano-systems
INR7012P Physics at the Nanoscale
SPA7008P Electronic Structure Methods
INR7008P Superfluids, Condensates and Superconductors
INK7067P Advanced Condensed Matter
INK7032P Standard Model Physics and Beyond
INR7002P Nuclear Magnetic Resonance
INR7014P Statistical Data Analysis
INK7034P String Theory and Branes
INK7054P Supersymmetry
SPA7023P Stellar Structure and Evolution
SPA7005P Cosmology
SPA7019P Relativity and Gravitation
SPA7006P Electromagnetic Radiation in Astrophysics
INU7045P Planetary Atmospheres
INU7008P Solar Physics
SPA7022P Solar System
SPA7010P The Galaxy
SPA7004P Astrophysical Plasmas
INU7026P Space Plasma and Magnetospheric Physics
SPA7009P Extrasolar Planets & Astrophysical Discs
INK7051P Environmental Remote Sensing
INU7013P Molecular Biophysics
INK7068P Cellular Biophysics
INK7001P Theory of Complex Networks
INK7002P Equilibrium Analysis of Complex Systems
INK7004P Dynamical Analysis of Complex Systems
INK7005P Mathematical Biology
INK7003P Elements of Statistical Learning
SPA7028P Advanced Cosmology
SPA7029P Collider Physics
SPA7031P Supersymmetric Methods in Theoretical Physics
INK7069P Dark Matter and Dark Energy
INR7018P Computer Simulation in Condensed Matter
INU7089P Physical Models of Life
Plus any new level 7 modules belonging to SPA and the intercollegiate programme.

Year two:
A total of 120 credits, consisting of:

SPA7026P Physics (Euromasters) Project

Academic Year of Study FT - Year 1

Queen Mary University of London

Programme Title: MSc Physics (Euromasters)

Module Title	Module Code	Credits	Level	Module Selection Status	Academic Year of Study	Semester

What Are the Entry Requirements?

Entry to the Programme requires a minimum of an upper second honours degree at Bachelors level in physics, or its equivalent. Direct entry to the second year of the programme requires students to have achieved the equivalent of a postgraduate diploma in physics at a SEPnet partner

How Do We Listen and Act on Your Feedback?

The Staff-Student Liaison Committee provides a formal means of communication and discussion between Schools and its students. The committee consists of student representatives from each year in the school/institute together with appropriate representation from staff within the school/institute. It is designed to respond to the needs of students, as well as act as a forum for discussing programme and module developments. Staff-Student Liaison Committees meet regularly throughout the year. Each school operates a Learning and Teaching Committee, or equivalent, which advises the School/Institute Director of Taught Programmes on all matters relating to the delivery of taught programmes at school level including monitoring the application of relevant QM policies and reviewing all proposals for module and programme approval and amendment before submission to Taught Programmes Board. Student views are incorporated in this Committee's work in a number of ways, such as through student membership, or consideration of student surveys.
All schools operate an Annual Programme Review of their taught undergraduate and postgraduate provision. The process is normally organised at a School-level basis with the Head of School, or equivalent, responsible for the completion of the school's Annual Programme Reviews. Schools/institutes are required to produce a separate Annual Programme Review for undergraduate programmes and for postgraduate taught programmes using the relevant Undergraduate or Postgraduate Annual Programme Review pro-forma. Students' views are considered in this process through analysis of the NSS and module evaluations.

Academic Support

The students will be allocated an academic advisor as well as a project supervisor. Weekly project supervision meetings are expected.

Programme-specific Rules and Facts

(Proposed regulatory change):

Where a student misses the progression hurdle by 30 or fewer credits due to approved extenuating circumstances or because late summer resits were not offered, the SEB may apply its discretion and, if it deems it appropriate, permit the student to progress.

Programme Title: MSc Physics (Euromasters)

Specific Support for Disabled Students

Queen Mary has a central Disability and Dyslexia Service (DDS) that offers support for all students with disabilities, specific learning difficulties and mental health issues. The DDS supports all Queen Mary students: full-time, part-time, undergraduate, postgraduate, UK and international at all campuses and all sites.
Students can access advice, guidance and support in the following areas:
• Finding out if you have a specific learning difficulty like dyslexia
• Applying for funding through the Disabled Students' Allowance (DSA)
• Arranging DSA assessments of need
• Special arrangements in examinations
• Accessing loaned equipment (e.g. digital recorders)
• Specialist one-to-one "study skills" tuition
• Ensuring access to course materials in alternative formats (e.g. Braille)
• Providing educational support workers (e.g. note-takers, readers, library assistants)
• Mentoring support for students with mental health issues and conditions on the autistic spectrum.

Links With Employers, Placement Opportunities and Transferable Skills

The School has a dedicated SEPnet Employer Engagement Officer who provides links between students and industry, arranging work placement opportunities.

Programme Specification Approval

Person completing Programme Specification	Dr Rodolfo Russo
Person responsible for management of programme	Dr Rodolfo Russo
Date Programme Specification produced/amended by School Learning and Teaching Committee	11 Jan 2017
Date Programme Specification approved by Taught Programmes Board	

Queen Mary University of London