

## MRes Photonics

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

### Programme Information

Programme Title	Photonics		
Award(s)	MRes		
Programme Code	F3U6	F3U6B [1+3]	
Associateship	None		
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Natural Sciences		
Department	Department of Physics		
Mode and Period of Study	1 academic year, full-time		
Cohort Entry Points	Annually in October		
Relevant <a href="#">QAA Benchmark Statement(s)</a> and/or other external reference points	<a href="#">Master's Awards in Physics, Astronomy and Astrophysics</a>		
Total Credits	ECTS:	90	CATS: 180
<a href="#">FHEQ Level</a>	Level 7		
<a href="#">EHEA Level</a>	2 <sup>nd</sup> cycle		
External Accreditor(s)	None		
<b>Specification Details</b>			
Student cohorts covered by specification	2016/17 entry		
Person responsible for the specification	Dr Kenny Weir		
Date of introduction of programme	October 2009		
Date of programme specification/revision	March 2017		

## Description of Programme Contents

The Department of Physics has a long and successful research record in imaging and photonics.

This 12-month MRes, built on our renowned [MSc in Optics and Photonics](#), usually forms the first year of the four-year MRes+PhD research training programme in the [Photonics group](#).

Some funded studentships for the combined MRes and PhD programme are available to Home/EU students.

## Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: [www.imperial.ac.uk/students/academic-support/graduate-attributes](http://www.imperial.ac.uk/students/academic-support/graduate-attributes)

MRes Photonics graduates will be able to:

- Describe the essentials of optical phenomena and its applications, beyond the undergraduate level;
- Appraise the specialized topics in optics at the forefront of current knowledge;
- Design and construct an experiment and critically evaluate the results, including a numerical estimation of the errors;
- Construct a computational model of an optical system and apply the model to 'real-world' problems;
- Complete an extended, supervised independent project;
- Communicate the results of their work, both orally and in writing to a specialist and non-specialist audience;
- Contribute to a team and manage their time effectively;
- Undertake further academic study at Doctoral level in photonics and in subjects where photonics is an important enabling science.

## Entry Requirements

Academic Requirement	First class (1st) Honours degree in physics. Other scientific disciplines (e.g. engineering, chemistry, mathematics) may be considered.
Non-academic Requirements	None
English Language Requirement	<a href="#">Standard requirement</a>

The programme's competency standards documents can be found at:

<http://www.imperial.ac.uk/natural-sciences/departments/physics/students/current-students/taught-postgraduates/>

<b>Learning &amp; Teaching Strategy</b>	
Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Problem classes</li> <li>• Practical work</li> <li>• E-learning</li> <li>• Tutorials</li> <li>• Practical classes</li> </ul>
E-learning & Blended Learning Methods	<ul style="list-style-type: none"> <li>• Blackboard</li> <li>• Panopto</li> </ul>
Project and Placement Learning Methods	<ul style="list-style-type: none"> <li>• Self-study project</li> </ul>
<b>Assessment Strategy</b>	
Assessment Methods	<ul style="list-style-type: none"> <li>• Examination</li> <li>• Problem exercises</li> <li>• Written report</li> <li>• Oral presentation</li> </ul>
<b>Academic Feedback Policy</b>	
<p>The feedback policy will follow the guidelines of the Department of Physics, where written feedback should be provided to the student within two weeks of the work being submitted.</p> <p>Many of the lecture modules have classworks, which allow students to work through problems under the guidance of the lecturer.</p> <p>The laboratory work is continually assessed.</p>	
<b>Re-sit Policy</b>	
<p>The College's Policy on Re-sits is available at: <a href="http://www.imperial.ac.uk/registry/exams/resit">www.imperial.ac.uk/registry/exams/resit</a></p>	
<b>Mitigating Circumstances Policy</b>	
<p>The College's Policy on Mitigating Circumstances is available at: <a href="http://www.imperial.ac.uk/registry/exams">www.imperial.ac.uk/registry/exams</a></p>	
<b>Assessment Dates &amp; Deadlines</b>	
Written Examinations	January and May
Coursework Assessments	Continuous
Project Deadlines	September
Practical Assessments	Continuous

## Assessment Structure

### Marking Scheme

The MRes in Photonics consists of two elements:

1. Core Skills (35% of the total programme mark), consisting of the components:
  - a. Examinations (20% of the total programme mark); and
  - b. Laboratory work (15% of the total programme mark).
2. Project (65% of the total programme mark), consisting of the components:
  - a. Literature review (5% of the total programme mark); and
  - b. Optional modules (up to 10% of the total programme mark);
  - c. Project work (up to 60% of the total programme mark).

The marking scheme for the elements and components will follow the 'Regulations for the Examinations of Masters Degrees'

**Pass** – *a candidate must:*

- Achieve an aggregate mark of 50% or higher in each element;
- Pass each component with a mark of 40% or higher.

**Merit** – *a candidate must:*

- Achieve an aggregate mark of  $\geq 60\%$  and;
- Achieve a mark of  $\geq 60\%$  for at least two of the elements and;
- Achieve a mark of  $\geq 50\%$  for the other element.

**Distinction** – *a candidate must:*

- Achieve an aggregate mark of  $\geq 70\%$  and;
- Achieve a mark of  $\geq 70\%$  for at least two of the elements and;
- Achieve a mark of  $\geq 60\%$  for the other element.

Module Weightings			
Element	Module	% Module Weighting	
Core (35%)	Imaging	14.28%	
	Lasers	14.28%	
	Optical Measurement and Devices	14.28%	
	From elective group (A)	<b>EITHER:</b> Optical Communications <b>AND</b> Information Theory	7.14% each
		<b>OR:</b> Plasmonics and Metamaterials	14.28%
Laboratory	42.85%		
Project (65%)	Self-Study Project	7.69%	
	Research Project	92.30%	

Indicative Module List											
Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	% Written Exam	% Course- work	% Practical	FHEQ Level	ECTS
PH9-OIM	Imaging	Core	28	122	0	150	100%	0%	0%	7	6
PH9-OLA	Lasers	Core	28	122	0	150	100%	0%	0%	7	6
PH9-OOMD	Optical Measurement and Devices	Core	28	122	0	150	100%	0%	0%	7	6
PH4-OP	Optical Communications	Elective (A)	13	62	0	75	100%	0%	0%	7	3
PH4-IT	Information Theory	Elective (A)	13	62	0	75	100%	0%	0%	7	3
PH4-PM	Plasmonics and Metamaterials	Elective (A)	27	123	0	150	100%	0%	0%	7	6
PH9-PLAB	Laboratory	Core	102	48	0	150	0%	100%	0%	7	6
PH9-PSSP	Self Study project	Core	0	250	0	250	0%	80%	20%	7	10
PH9-PPRJ	Project	Core	0	1250	0	1250	0%	80%	20%	7	50

## Supporting Information

The Programme Handbook is available at:

<http://www.imperial.ac.uk/physics/students/current-students/taught-postgraduates/>

The Module Handbook is available at:

<http://www.imperial.ac.uk/physics/students/current-students/taught-postgraduates/>

The College's entry requirements for postgraduate programmes can be found at:

[www.imperial.ac.uk/study/pg/apply/requirements](http://www.imperial.ac.uk/study/pg/apply/requirements)

The College's Quality & Enhancement Framework is available at:

[www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance](http://www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance)

The College's Academic and Examination Regulations can be found at:

<http://www3.imperial.ac.uk/registry/proceduresandregulations/regulations>

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<http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters-statutes-ordinances-and-regulations/>

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<http://www.hefce.ac.uk/reg/of/>