

## 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]	
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Natural Sciences		
Department	Department of Physics		
Main Location of Study	South Kensington Campus		
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		
Specification Details			
Student cohorts covered by specification	2018-19 entry		
Person responsible for the specification	Dr Kenny Weir		
Date of introduction of programme	October 2009		
Date of programme specification/revision	May 2018		

## Programme Overview

Based on the MSc in Optics and Photonics, the MRes in Photonics draws on our experience as one of the largest centres for optics-based research and application in the UK.

The MRes shares the core lectures and laboratory work with the MSc in the first term, and students may select some optional modules in the second term. Photonics MRes students finish with a nine-month project with a research group, in most cases as preparation for a PhD.

## 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

Normally a first class (1st) UK Bachelor's Degree with Honours in Physics. Other scientific disciplines (e.g. engineering, chemistry, mathematics) may be considered (or a comparable qualification recognised by the College).

English Language Requirement

[Standard requirement](#)  
IELTS score of 6.5 overall (minimum 6.0 in all elements)

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

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

## Learning & Teaching Strategy

Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Problem classes</li> <li>• Laboratory work</li> <li>• E-learning</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> <li>• Extended research project</li> </ul>		
<b>Assessment Strategy</b>			
Assessment Methods	<ul style="list-style-type: none"> <li>• Examination</li> <li>• Laboratory work</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 feedback for minor pieces of coursework should be provided to the student within two weeks of the work being submitted. Feedback for major pieces of coursework should be provided within four weeks, though marks may not be available until after the Board of Examiners meeting.</p>			
<b>Re-sit Policy</b>			
<p>In line with College policy, students who are unsuccessful in any of their examinations may usually be allowed an opportunity to re-sit at the discretion of the Board of Examiners.</p> <p>Specific information regarding re-sits for Taught Master's degrees can be found in the relevant Academic Regulations available at: <a href="https://www.imperial.ac.uk/about/governance/academic-governance/regulations/">https://www.imperial.ac.uk/about/governance/academic-governance/regulations/</a></p>			
<b>Mitigating Circumstances Policy</b>			
<p>Students may be eligible to apply for mitigation if they have suffered from serious and unforeseen circumstances during the course of their studies that have adversely affected their ability to complete an assessment task and/or their performance in a piece of assessment.</p> <p>The College's Policy on Mitigating Circumstances is available at: <a href="https://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/">https://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/</a></p>			
<b>Programme Structure</b>			
Full-time	Term One	Term Two	Term Three

Core Modules - Lectures	3	0	0
Core Modules - Practical	1	0	0
Elective Modules	1	0-4	0
Projects	0	1	1
<b>Assessment Dates &amp; Deadlines</b>			
Written Examinations	January and May		
Coursework Assessments	Continuous		
Project Deadlines	September		
Practical Assessments	Continuous		
<b>Assessment Structure</b>			
Marking Scheme			
<p><b>Pass – a candidate must:</b></p> <ul style="list-style-type: none"> <li>A programme weighted final mark of 50% or higher, plus a weighted aggregate mark of at least 50% in the core lecture modules and the laboratory module, plus a weighted aggregate mark of at least 50%, with no individual mark below 40%, for the self-study project and the independent research project.</li> </ul> <p><b>Merit – a candidate must:</b></p> <ul style="list-style-type: none"> <li>A programme weighted final mark of 60% or higher, plus a weighted aggregate mark of at least 50% in the core lecture modules and the laboratory module, plus a weighted aggregate mark of at least 50%, with no individual mark below 40%, for the self-study project and the independent research project.</li> </ul> <p><b>Distinction – a candidate must:</b></p> <ul style="list-style-type: none"> <li>A programme weighted final mark of 70% or higher, plus a weighted aggregate mark of at least 60% in the core lecture modules and the laboratory module, plus a weighted aggregate mark of at least 60%, with no individual mark below 40%, for the self-study project and the independent research project.</li> </ul>			

Module Weighting	
Module	% Module Weighting
Imaging	5%
Lasers	5%
Optical Measurement and Devices	5%
Either two modules from group A OR one module from group B	5%
Laboratory	15%
Self-Study Project	5%
Research Project	60%

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
PO4.4A	Optical Communications	Elective (A)	13	62	0	75	100%	0%	0%	7	3
PO4.4B	Information Theory	Elective (A)	13	62	0	75	100%	0%	0%	7	3
PO4.9	Plasmonics and Metamaterials	Elective (B)	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:

<https://www.imperial.ac.uk/about/governance/academic-governance/regulations>

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

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