

# Physics for Imaging and Therapy

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**Title:**

Physics for Imaging and Therapy

**Module/Course Code:**

TBA

**Module/Course Title:**

Physics for Imaging and Therapy

**Details of any courses replaced by this course:**

This new module uses some material previously taught on the MSc in Biomedical Engineering and Medical Imaging.

**Normal year of study:**

MSc

**Course level:**

Postgraduate

**Course value:**

15 credits

**Programmes in which this course is offered:**

Mandatory for the two MScs Medical Image Computing, and, Biomedical Engineering and Medical Imaging. If the student has a degree in Physics, this module can be swapped for another module from the Radiation Physics MSc or, in the case of MSc Medical Image Computing students, the MSc VIVE.

**Prerequisites:**

The module is a prerequisite for students without a degree in Physics for the two modules Medical Imaging (ionising) and Medical Imaging (non-ionising).

**Unsuitable for disabled?:**

No

**Exam Board:**

Medical Physics and Bioengineering

**Department teaching this course:**

Medical Physics and Bioengineering

**Course organiser:**

Name: Dr David Atkinson

Email: D.Atkinson@ucl.ac.uk

Phone: 30201

**Faculty:**

Engineering Sciences

**Can this course be taken as a short course?:**

Not at present - please contact us if interested.

**Is this course open to part-time or affiliate students?:**

The course is open to part-time students of the following two MScs, Medical Image Computing, and, Biomedical Engineering and Medical Imaging.

**Availability:**

The module is available only to students on the above two MScs.

**Learning time:**

Lectures: 25  
Tutorials: 10  
Laboratory classes: 0  
Report, coursework writing and programming: 0  
Independent project work: 0  
Private Study: 55  
Revision: 60  
TOTAL: 150

**Assessment:**

Written exams (closed book): one (two hours), weighting 100%.  
Written exams (open book): None  
Oral exams or vivas: None  
Written coursework: None.  
Practical exams: None

**Teaching load:**

Lectures (incl. preparation): 60  
Tutorials (incl. preparation): 0  
Laboratory classes (incl. preparation): 0  
Marking of coursework: 0  
Marking of exam scripts: 40  
Annual revision time (e.g. revision of lecture notes and problem sheets): 10  
Other annual administrative load related to this module: 20

**If this course is taught in programmes with different level of award, give details.:**

Not applicable

**Educational aims:**

1. To provide students with background knowledge of Physics applied to Medical Imaging and Therapy.

**Course syllabus (outline):**

\* Interactions \* Detectors \* Sources \* Dosimetry \* Introduction to MRI \* Introduction to Nuclear Medicine \*  
Radiation Protection

**Intended learning outcomes:**

Upon successful completion of this module, students will: \* know the basics of physics applied to medical imaging and therapy.

**Reading list:**

A reading list for the complete MSc in Medical Image Computing will be available from the course web site at <http://www.ucl.ac.uk/cmhc/msc>

**Details of any distance learning available:**

None available

**Details of any offsite teaching:**

None available

**Starting and review dates:**

Starting date: September 2007  
Date of the last review: Not applicable  
Date of the next review: September 2008

**Other Departments to which access is required:**

Not applicable

**How will the course be monitored?:**

Student questionnaires, peer observation of teaching, staff/student committee, and periodic reviews by the Departmental Teaching Committee

**Student numbers:**

40. 20 from MSc in Medical Image Computing at steady state. 20 from MSc in Biomedical Engineering and Medical Imaging.

**UG/PG overlap:**

None

**Assessment at different levels:**

N/A

**Is this course taught by more than one Department? If so, give details.:**

No

**Proportion of teaching in other departments:**

Not applicable

**Additional costs to students:**

None

**Additional resources:**

None

**Setup costs:**

Set up costs are covered by EPSRC CTA funding.

**Knowledge:**

\* The basic physics for imaging and therapy as outlined in the syllabus.

**Knowledge teaching methods:**

Specialist knowledge is acquired through a combination of lectures, demonstrations, independent study and case studies.

**Knowledge assessment methods:**

Examination.

**Intellectual skills:**

\* The ability to analyse a problem and use appropriate scientific and professional tools to solve it. \* The ability to evaluate and confront different methodologies of problem solving, development and design, develop critiques of them and propose alternative avenues where appropriate. \* The ability to understand and analyse information and data. \* Creativity and independence of judgement.

**Intellectual skills teaching methods:**

Intellectual skills are taught at the same time as specialist knowledge, using the same teaching methods.

**Intellectual skills assessment methods:**

Intellectual skills are assessed at the same time as specialist knowledge, using the same assessment method.

**Practical skills:**

\* Installation of medical image processing software packages. \* Programming skills using languages such as C++ and libraries such as vtk.

**Practical skills teaching methods:**

Practical skills are an integral part of this module. They will be taught in laboratory classes and by independent learning.

**Practical skills assessment methods:**

Practical skills are assessed through coursework.

**Transferable skills:**

\* The ability to use information technology effectively. \* The ability to learn computer languages. \* The ability to understand the concepts and types of Intellectual Property Rights.

**Transferable skills teaching methods:**

Transferable skills are taught at the same time as specialist knowledge, using the same teaching methods.

**Transferable skills assessment methods:**

Transferable skills are assessed at the same time as specialist knowledge, using the same assessment method.

**Amendments:**

None.

**Departmental approval:**

Name:

Position:

Date:

**External approval:**

Name:

Position:

Date:

**Faculty approval:**

Name:

Position:

Date:

**College approval:**

Name:

Position:

Date:

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