

PRICES	Course 1	Course 2	Course 3	Course 4	Course 5
Standard price	£495	£495	£165	£495	£660
University & Hospital Staff & all Trainees	£395	£395	£140	£395	£525
Full time Students	£210	£210	£115	£210	£280
Course 3 available at £115 if booked with any other course					
One or two day registration on Courses 4 & 5 is accepted and will be charged pro rata					

Name .....

Organisation .....

Address .....

Postcode .....(if UK) Tel No: .....

Fax No: .....Email: .....

**Please confirm you are happy for your details to be passed onto the course(s) lecturers and other**

**Delegates attending the course(s). This is in way of an attendee list which only goes to course**

**lecturers and delegates attending the Physics of Medical Imaging Course(s). Yes / No**

Background experience: .....

How did you hear about this course? IPEM mailing ☐ ICR website ☐

Recommendation ☐ Other ☐ Please specify.....

I should like to enrol for Course(s): 1 2 3 4 5 (Please circle)

Students please add: Tutor/Supervisor's signature .....

I enclose a cheque for the full amount of £ ..... payable to:

**"The Institute of Cancer Research - PHRJH"**

or by Credit Card: MasterCard/Visa only accepted (tick as appropriate)

Master card ☐ Visa ☐

Card No.

Expiry Date:..... Signature .....(Essential)

Address of Cardholder.....

**Or Invoice details – please raise a Purchase Order to – The Institute of Cancer Research,**

**123 Old Brompton Rd, London, SW7 3RP**

Do you wish to receive accommodation details? Yes / No

Please fax/send or email this completed form, and forward payment to:

**Physics Department**

**The Royal Marsden NHS Foundation Trust**

**Downs Road, Sutton, Surrey SM2 5PT,**

**UK Tel. +44 (0)20 8661 3075 Fax. +44 (0)20 8643 3812**

**e-mail: PhysicsCourseAdmin@icr.ac.uk.**

The ROYAL MARSDEN  
NHS Foundation Trust

ICR The Institute of  
Cancer Research

# THE PHYSICS OF MEDICAL IMAGING

**Course 1: Mon, 31 Oct -  
Wed, 2 Nov 2016**

**Magnetic Resonance Imaging and  
Spectroscopy**

**Course 2: Wed, 23 - Fri, 25 Nov 2016**

**Ultrasound Imaging**

**Course 3: Tue, 14 Feb 2017**

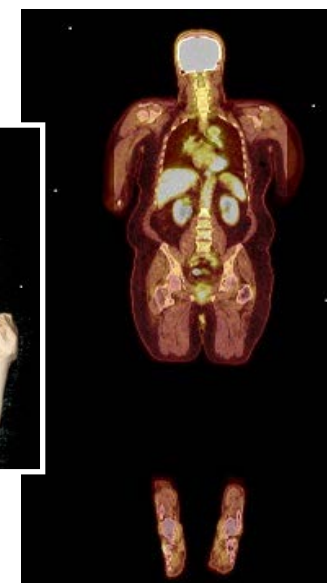
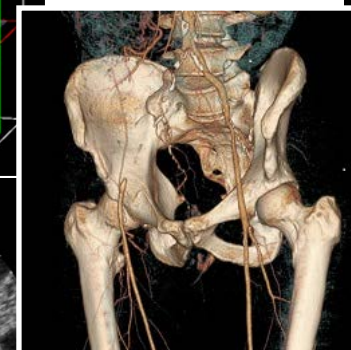
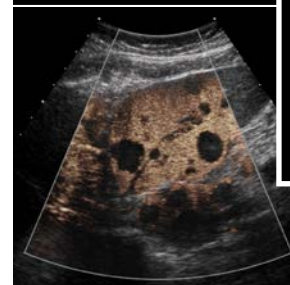
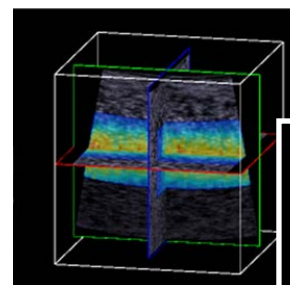
**Image Theory, Perception and Processing**

**Course 4: Wed, 15 - Fri, 17 Feb 2017**

**Diagnostic Radiology and CT**

**Course 5: Tue, 7 - Fri, 10 Mar 2017**

**Nuclear Medicine**



The Joint Department of Physics  
The Institute of Cancer Research and  
The Royal Marsden NHS Foundation Trust

[http://www.icr.ac.uk/medical\\_imaging\\_course](http://www.icr.ac.uk/medical_imaging_course)

## PROGRAMME DESCRIPTION

The programme provides the necessary physics background that underpins day-to-day medical imaging physics activities. It is aimed primarily at new entrants to the profession, but should be of benefit to post-graduate students, post-doctoral research workers, physicist-managers, representatives of allied commercial organisations and anyone wishing to deepen or re-establish their understanding of the physics of medical imaging.

The faculty is composed mainly of physicists, many of whom are internationally renowned for their expertise. A selection of key talks delivered by clinicians and other scientists provides the necessary broader scientific and clinical perspective. Overviews of specialised or research related topics, such as MR Spectroscopy are given. There are many opportunities for informal discussions and there will be visits to the Department of Nuclear Medicine, Ultrasound, X-ray and Computed Tomography and the MR Unit of The Royal Marsden NHS Foundation Trust.

**The programme consists of five separate courses. Each course is repeated annually. Registration on this form will be accepted for any combination of courses 1, 2, 3, 4 and 5. Cost (see back page for details) includes lunches and light refreshments and (with courses 2-5 only) a copy of Webb's Physics of Medical Imaging (2<sup>nd</sup> Edition, published 2012).**

## PROVISIONAL SYLLABUS

### COURSE 1 – Magnetic Resonance Imaging and Spectroscopy (3 days)

The Magnetic Resonance Imaging & Spectroscopy module is offered as a stand alone training course, run in conjunction with IPEM. Further details are available on the website:

[http://www.icr.ac.uk/mri\\_spectroscopy\\_course](http://www.icr.ac.uk/mri_spectroscopy_course)

and/or contact Dr G Payne, Tel: 020 8661 3711, e-mail: [gsp@icr.ac.uk](mailto:gsp@icr.ac.uk)

### COURSE 2 – Ultrasound imaging (3 days)

Introduction and fundamentals of Ultrasound: Physics and imaging systems principles; Bioeffects and safety of diagnostic ultrasound; Quality assurance of ultrasound diagnostic devices; Fields of medical application and research.

Contact: Dr T O'Shea, Tel: 020 8722 4852, e-mail: [tuathan.oshea@nhs.net](mailto:tuathan.oshea@nhs.net)

*Front cover pictures: Top Left: Coloured elasticity image overlayed on a 3D B mode; Bottom Left: image of liver tumours with ultrasound contrast agent overlayed on normal B mode; Centre: volume-rendered bifemoral CT angiogram; Right: coronal slice of total body <sup>18</sup>F DG PET/CT scan.*

### COURSE 3 – Image theory, perception and processing (1 day)

Formal mathematics of medical imaging; Perception and interpretation of medical images; Image processing and display techniques.

Contact: Dr E Castellano, Tel: 020 7808 2514, e-mail: [elly.castellano@rmh.nhs.uk](mailto:elly.castellano@rmh.nhs.uk)

### COURSE 4 – Diagnostic Radiology and CT (3 days)

Review of the x-ray and CT imaging chains; Digital Image receptors; Multislice CT design and performance; PACS; Quality control; System optimisation in clinical practice; Advances in x-ray and CT imaging.

Contact: Dr E Castellano, Tel: 020 7808 2514, e-mail: [elly.castellano@rmh.nhs.uk](mailto:elly.castellano@rmh.nhs.uk)

### COURSE 5 – Nuclear Medicine (4 days)

This will consist of four one day courses that may be attended separately or in any combination.

1. Radionuclides and radiation protection
2. Physics of gamma camera and SPECT imaging
3. Physics of PET/CT
4. Internal dosimetry for molecular radiotherapy.

Topics covered include radiopharmacy, basic and advanced physics of molecular imaging and clinical applications.

Contact: Dr I Murray, Tel: 020 8661 3715, e-mail: [iain.murray@icr.ac.uk](mailto:iain.murray@icr.ac.uk)

## VENUE

Courses 1, 2 & 5 are held on the Sutton campus of The Royal Marsden Hospital and Institute of Cancer Research:

[http://www.icr.ac.uk/contact\\_us/sutton/index.shtml](http://www.icr.ac.uk/contact_us/sutton/index.shtml)

Courses 3 and 4 are held at the Chelsea campus:

<http://www.royalmarsden.nhs.uk/location-visiting/pages/chelsea-london.aspx>

Details of the courses may also be viewed on the Physics Department website:

[http://www.icr.ac.uk/medical\\_imaging\\_course](http://www.icr.ac.uk/medical_imaging_course)