MASTER OF ORTHOPAEDIC SURGERY (MCh Orth) COURSE
Dear Candidate

Thank you for your interest in our MCh (Orth) Postgraduate Degree Course which is fully accredited by the Royal College of Surgeons of England. The degree is also recognised by the States and Medical Councils of India (MCI). We hope that you will find this information booklet helpful in deciding whether to pursue this particular course of study with us. Applications for the course are handled by the University Postgraduate Office and are submitted through the UKPASS electronic application system. Due to the limited yearly places on this extremely popular and successful course please submit your application as soon as possible. Please see:

www.dundee.ac.uk/study/pg/orthopaedicsurgery

I hope to be able to welcome you to the Department and our University Medical School in the near future.

Yours faithfully

Professor Rami J. Abboud
BEng, MSc, PhD, ILTM, SMIEEE, Hon FRCS(Eng)
Associate Dean for Learning and Teaching and Head of Postgraduate Division, School of Medicine
Head of Department of Orthopaedic & Trauma Surgery
Director, Institute of Motion Analysis & Research (IMAR)
Editor-in-Chief, The Foot
Why study an MCh (Orth) with us?

You may be wondering why you should choose to study this particular MCh (Orth) course at the University of Dundee. There are several main reasons why we think you should:

- Currently the longest standing firmly established [MCh (Orth) course](#) in the United Kingdom
- The course is fully [accredited by the Royal College of Surgeons of England](#)
- As a UK postgraduate medical qualification, the MCh (Orth) awarded by the University of Dundee, is recognised by the [States and Medical Councils of India](#) (MCI) as a valid postgraduate qualification
- The course boasts what we consider to be the [best orthopaedics lecturing faculty](#) drawn from specialists across the entire United Kingdom
- Associated [clinical theatre attachment](#) for course duration with [no need for GMC registration](#)
- You will attend workshops using the latest surgical techniques using [Thiel soft-embalmed cadavers](#) which is currently unique to Dundee in the whole of the United Kingdom
- Best research experience in clinical and biomechanics in association with the [Institute of Motion Analysis and Research](#), one of the leading facilities in biomechanics and motion analysis worldwide
- [Top Medical School in Scotland](#) and 4th in the United Kingdom

We have been successfully educating Orthopaedic Surgeons for over 20 years and currently have over 375 graduate Alumni from countries around the world. We continue to offer the highest standard of visiting external lecturer and orthopaedic lecture topics to be found anywhere and on any other similarly titled course (see page 4).

Many of [our graduates](#) have gone on to highly successful careers once returned to their own countries with many taking up new challenges and opportunities within the United Kingdom up to Consultant position. Several have published widely in peer-reviewed journals and at conferences worldwide and have gone onto Fellowships throughout Europe and employment in the United Kingdom.

This unique MCh (Orth) course offers a truly wide ranging curriculum that will help you to achieve your career goals no matter what your speciality. Our distinguished visiting lecturers are specialists at the forefront of innovative orthopaedics and continue to return each year to teach as they understand the value and benefit of this course to working orthopaedic surgeons. They care deeply about the course and what it has achieved over the last 20 years and without their support we would not have been able to be so successful.
Distinguished External Lecturers

The following is just a sample of the high quality of external lecturers that you will get the opportunity to interact with only on this MCh (Orth) Course. A comprehensive list can be found at our website www.orthopaedics.dundee.ac.uk

- Mr Alf Bass, Consultant Orthopaedic Surgeon (Alder Hey Children’s Hospital, Liverpool)
- Mr Colin Bruce, Consultant Orthopaedic Surgeon (Alder Hey Children’s Hospital, Liverpool)
- Mr Simon Carter, Consultant Orthopaedic Surgeon (Royal Orthopaedic Hospital, Birmingham)
- Mr Calum Clark, Consultant Orthopaedic Surgeon (Wexham Park Hospital)
- Mr Tim Clough, Consultant Orthopaedic Surgeon (Wrightington Hospital, Wigan)
- Mr Kamal Deep, Consultant Orthopaedic Surgeon (Golden Jubilee National Hospital, Glasgow)
- Mr Raman Dega, Consultant Orthopaedic Surgeon (Wrexham Park and Heatherwood Hospital Trust)
- Mr John Dorgan, Retired Consultant Orthopaedic Surgeon (Alder Hey Children’s Hospital, Liverpool)
- Mr Alastair Gibson, Consultant Orthopaedic Surgeon (Royal Infirmary of Edinburgh)
- Mr Stuart Hamilton, Consultant Plastic, Reconstructive and Aesthetic Surgeon (St John’s Hospital, Livingston)
- Mr Kartik Hariharan, Consultant Orthopaedic Surgeon (Royal Hospital, Gwent)
- Mr Senthil Kumar, Consultant Orthopaedic Surgeon (Glasgow Royal Infirmary)
- Mr Graham Lawson, Consultant Orthopaedic Surgeon (Edinburgh Royal Infirmary)
- Professor Nicola Maffulli, Professor of Sports and Exercise Medicine (Barts and the London School of Medicine)
- Mr Ashish Mahendra, Consultant (Nuffield Health Glasgow Hospital)
- Mr Nilesh Makwana, Consultant Trauma and Orthopaedics (Robert Jones & Agnes Hunt Hospital Wrexham)
- Dr Dhiraj Marothi, Consultant Orthopaedic Surgeon (Shalby Hospitals, Ahmedabad, India)
- Mr Chye Yew Ng, Consultant Orthopaedic Surgeon (Wrightington Hospital, Wigan)
- Mr Steve Parsons, Consultant Orthopaedic Surgeon (Royal Cornwall Hospital, Truro)
- Dr Parag Sancheti, Professor and Medical Director (Sancheti Orthopaedic Institute, Pune, India)
- Mr Kevin Sherman, Consultant Orthopaedic Surgeon (Spire Hull and East Yorkshire Hospital)
- Mr Harvinder Singh, Upper Limb and Trauma Consultant (Leicester General Hospital)
- Dr Tom Smith, Consultant Orthopaedic Surgeon (Sheffield)
- Mr David Stanley, Consultant Orthopaedic Surgeon (Sheffield Teaching Hospitals NHS Foundation Trust)
- Professor John Stanley, Consultant Orthopaedic Surgeon (Wrightington Hospital, Wigan)
- Mr Sumedh Talwalkar, Consultant Orthopaedic Surgeon (Wrightington Hospital, Wigan)
- Professor Ian Trail, Consultant Orthopaedic Surgeon (Wrightington Hospital, Wigan)
MCh (Orth) Course

The MCh (Orth) Course in Dundee is a clinically-based Masters degree that encompasses taught, clinical attachment and research elements, which provide Orthopaedic Surgeons with in-depth knowledge of the latest advances in surgical and biomechanical techniques.

Our admissions philosophy is to seek in recruiting ambitious Orthopaedic Surgeons with career aspirations that encompass leadership, academic excellence and the highest levels of skill and expertise. They value education and recognise the need for professional reflection and lifelong learning to deepen understanding, to enhance ability and to develop sound professional judgment.

The course consists of two semesters. Bioengineering material will provide you with basic science and permit you, as clinicians, to associate with relevant engineering materials. A formal programme of lectures, tutorials, dry bone workshops, Thiel soft-embalmed cadaver workshops, anatomy demonstrations, operating theatre exposure and multimedia demonstrations are provided on various topics including:

- Knee, Foot and Ankle
- Spine
- Trauma
- Pathology
- Implants
- Statistics in Medical Research
- Foot Pressure Analysis
- Hand and Wrist
- Paediatric Orthopaedics
- Tumour
- Disability Medicine
- Orthopaedic Technology
- Mechanics of Materials
- Gait and Motion Analysis
- Hip and Pelvis
- Shoulder and Elbow
- Infection
- Biomechanics
- Prosthetics and Orthotics
- Seating and Wheelchairs
- Sports Injury

“Completing the MCh Course in Dundee was one of the ultimate achievements in my career. I consider it as an essential course for all orthopaedic surgeons who aspire to achieve orthopaedic excellence”

Dr Parag Sancheti (Medical Director, Sancheti Orthopaedic Institute, Pune) - MCh (Orth) Dundee Graduate 2003
Course Testimonials

Dr Parag Sancheti
Professor and Medical Director, Sancheti Orthopaedic Institute, Pune, India - MCh (Orth) Dundee, Graduate and Presentation Skills Award (2003)

Completing the MCh (Orth) course in Dundee, UK, was one of the ultimate achievements in my career. In my opinion this particular MCh (Orth) course is worth the time and money spent. I strongly recommend this course for enhancing all-round development in orthopaedics and also for sharpening research and academic communication skills with special emphasis on producing a well written and structured dissertation for peer review publication. Gaining the Dundee MCh (Orth) degree, which is a foreign qualification, will also add value to your CV and improve your job prospects and orthopaedic career. I consider it an essential course for all orthopaedic surgeons who aspire orthopaedic excellence.

Dr Vikram Arun Mhaskar
Consultant Orthopaedic Surgeon, Knee & Shoulder Clinic, New Delhi, India - MCh (Orth) Dundee, Graduate and David Rowley Presentation Skills Award (2013)

The Dundee MCh (Orth) course is an experience no orthopaedic surgeon should miss if they desire professional excellence. The course inculcates a desire to excel as a research oriented orthopaedic surgeon well versed with the latest techniques of surgery. The wonderful facilities available at the centre go a long way in facilitating cutting edge research. The clinical attachments with stalwarts in the field of orthopaedic surgery add a finishing touch to our existing knowledge on techniques of surgery. The staff are very friendly, helpful and approachable making life as smooth as possible during the course. I would say that the course is a stepping stone to reach greater heights as a decisive, confident orthopaedic surgeon. I have some of my fondest memories in life during my stay in Dundee and my interactions with Prof Abboud and hope the course continues to produce gems in the orthopaedic field.

Mr Arpit Jariwala
Consultant Orthopaedic Surgeon, Ninewells Hospital, Dundee, UK - MCh (Orth) Dundee, Graduate and Ian Smillie Class Award of Distinction (2003)

This course is unique as it offers the comprehensive orthopaedic experience essential for orthopaedic surgeons looking to gain further specialist knowledge and skills in addition to a UK qualification. Excellent teaching faculty, diverse lectures, numerous orthopaedic workshops and extremely helpful staff are the hallmarks of this course. The distinctive access to both elective and trauma theatres and clinics help surgeons to gain knowledge regarding the evidence-based management of various orthopaedic conditions. In addition to gaining a UK qualification, the course helped me gain a place on the Higher Orthopaedic training rotation in UK and also supported me for an Upper Limb Fellowship at the prestigious Wrightington Hospital.
Course Testimonials

Dr Tanveer Singh Bhutani
Consultant Orthopaedic Surgeon, Eva Hospital, Ludhiana, India - MCh (Orth) Dundee, Graduate and Ian Kelly Scientific Communication Award (2012)

It was a privilege to be an MCh (Orth) student at the University of Dundee. This course is a comprehensive training and research program in orthopaedics, which also comprises a hospital attachment with your own allocated Consultant. The course opened my eyes to new frontiers in orthopaedics such as total ankle replacement, total elbow replacement, anatomical ACL reconstructions, MPFL reconstructions and chondroplasty. I am glad to have had the opportunity to be a part of the MCh (Orth) Dundee legacy, and think anyone who is lucky enough to get accepted onto the course, should grasp the opportunity with both hands. I am a proud to say that I am part of Dundee University and keep going back to my professors, consultants and staff at Ninewells Hospital for advice, guidance and for the joy of lifelong friendships.

Dr Calvin Mathias
Resident Physician in Orthopaedics, Ng Teng Fong Hospital, Singapore - MCh Orth, Dundee, Graduate, Ian Smillie Class Award of Distinction & David Rowley Presentation Skills Award (2015)

My personal experience of this course was outstanding. Professor Abboud and his dedicated staff are geared towards academic excellence and instill confidence, provide guidance and inspiration. The implant I designed for my research was submitted for a patent application, enabling me to become an inventor, a personal achievement I have dreamed of for many years. I even had the honour of receiving the prestigious ‘Ian Smillie’ and ‘David Rowley’ awards. I am proud to be an MCh (Orth) degree holder, and would strongly recommend this course to anyone who wishes to enrich their orthopaedic career. I not only have an excellent new group of colleagues from Ninewells Hospital and the University of Dundee, but also a great set of lifelong friends.

Dr Dhiraj Marothi
Arthroplasty Surgeon, Shalby Hospital, Ahmedabad, India - MCh Orth, Dundee, Graduate (2009)

While pursuing my master of Orthopaedics Surgery in Dundee, my clinical attachment exposed me to specialty in lower limb reconstruction as well as foot and ankle and attended to OPD and indoor patients. I did my research project on “How much have we lowered our threshold for patient selection for hip arthroplasty in the last 10 years?”. The MCh, Dundee course gave me a sound grounding in basic knowledge of orthopaedics and trauma surgery. I enjoyed my time in Dundee and on successfully completing my degree there I stayed for a further six more months working in Ninewells Hospital. I personally feel the specialised MCh experience helped greatly in advancing my career in India.
Programme Structure

SEMESTER ONE

1. Basic Sciences (Biomechanics)
   - Rigid Body Mechanics
   - Structural Mechanics
   - Medical Statistics
   - Academic Communication
   - Upper Limb Biomechanics

2. Clinical Science (Upper Limb and Paediatrics)
   - Shoulder and Elbow
   - Hand and Wrist
   - Paediatric Orthopaedics
   - Tumour
   - Upper Limb and Paediatric Trauma

3. Research Project

SEMESTER TWO

1. Clinical Science (lower Limb and Spine)
   - Spine
   - Foot and Ankle
   - Knee
   - Hip and Pelvis
   - Tumour and Infection

2. Applied Basic Science (Technology and Rehab)
   - Medical Statistics Workshops
   - Hip, Knee Biomechanics
   - Prosthetics
   - Wheelchairs
   - Orthotics
   - Motion Analysis

3. Research Project
   - Research and Audit Skills
   - PowerPoint Progress Presentations
   - Dissertation
   - Paper and Poster Presentations

Objective Structured Clinical Exam (OSCE)

Multiple Choice Exam

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Each MCh (Orth) Dundee, UK student is given a clinical attachment with a consultant orthopaedic surgeon at Ninewells Hospital for the course duration with no need for GMC registration.
Teaching and Assessment

This MCh (Orth) course is taught by staff from the Institute of Motion Analysis and Research and the Department of Orthopaedic & Trauma Surgery based in the School of Medicine at Ninewells Hospital & Medical School, and also by an invited faculty of renowned external lecturers from the world of orthopaedics.

How will you be taught?
You will be taught via lectures, tutorials, multi-media demonstrations, dry bone workshops, anatomy demonstrations, clinical and operating theatre attachments, and hands-on latest surgical techniques using Thiel soft-embalmed cadavers, which is unique to Dundee in the whole of the UK.

What will you study?
Bioengineering material will provide you with basic science and permitting you, as clinicians, to associate with clinical engineering materials to compliment your clinical knowledge. A formal programme of lectures are provided and these include: Foot and Ankle; Hand and Wrist; Hip and Pelvis; Knee; Paediatric Orthopaedics; Shoulder and Elbow; Spine; Trauma; Tumour; Infection; Pathology; Disability Medicine; Biomechanics; Implants; Mechanics; Orthopaedic Technology; Statistics in Medical Research; Mechanics of Materials; Orthotics; Prosthetics; Seating and Wheelchairs; Foot Pressure Analysis; Gait Analysis; Motion Analysis; Sports Injury; Academic English; Presentation Skills; Scientific Method; Article Critiquing; Scientific Poster Design.

How will you be assessed?
The programme assessment is made up of three elements: two written Multiple Choice Question (MCQ) exams (one per semester) using the latest e-assessment technology and iPads, Objective Structured Clinical Examination (OSCE) and a your thesis. Candidates will be examined orally on the subject of thesis by a committee consisting of a convenor, an external and internal examiners. Students are required to pass each element to qualify for the award of the degree. There is no resit facility.
Employability and Career

Many of our MCh (Orth) graduates have gone on to highly successful careers after studying in Dundee. Not only have our graduates gone on to further their careers once returned to their own countries, many have taken up new challenges and opportunities within the UK up to Consultant position. Most have published widely in journals and at conferences and have even gone onto Fellowships throughout Europe and employment in the UK.

This unique MCh (Orth) course offers a truly wide ranging curriculum that will help you to achieve your career goals no matter what your speciality. Our distinguished visiting lecturers are specialists at the forefront of innovative orthopaedics and continue to return each year to teach as they understand the value and benefit of this course to working surgeons. They care deeply about the course and what it has achieved over the last twenty years and without their support we would not have been able to be so successful.

“I strongly feel this course is by far the most comprehensive MCh (Orth) course available in the world today. During my time in Dundee I wrote four research articles and submitted two abstracts to upcoming orthopaedic meetings in the UK”

Dr Pradyumna Raval (Speciality Doctor in Trauma and Orthopaedics, Wishaw General Hospital, United Kingdom - MCh (Orth) Dundee, Graduate 2015
MCh Orth, Dundee course accredited by the Royal College Surgeons of England

RCS
ADVANCING SURGICAL STANDARDS
Entry Requirements and Course Fees

Candidates must have obtained:

- MBChB or an equivalent qualification;
- Must normally possess a further postgraduate qualification (e.g. the Master of Surgery in Orthopaedics or Diploma of the National Board in Orthopaedics from India) or an equivalent postgraduate specialist qualification;
- Normally at least four years' post registration in orthopaedic surgery.

Please note that registration with the GMC is not required.

Fees are set each year on 1st September. Current course fees can be viewed at: www.orthopaedics.dundee.ac.uk/149_Fees-And-Funding.html

As there are a limited number of places for this programme, all applicants are required to make a pre-payment of 50% of the full tuition fee within eight weeks of accepting an unconditional offer. If an applicant receives a conditional offer, all conditions must be met before an unconditional offer is issued. Please note that this amount will be deducted from tuition fees and the advance payment is not an additional cost. If an application is withdrawn at a later date an administration fee of GBP1000 is non-refundable for all applicants. If the pre-payment is not received within the eight-week period applicants are notified of the University’s intention to withdraw the application and the place will be offered to another applicant.

Applications for this course can be made at: www.ukpass.ac.uk

When applying please ensure that the following documents are attached:

- Copies of all degree certificates
- Copy of your current CV
- References from two academic/clinical referees
- Copy of your IELTS or TOEFL English language requirement certificate

For further information about all things MCh (Orth), for assistance in applying for Visas and of what to expect from your time in Dundee please visit the Department’s website www.orthopaedics.dundee.ac.uk
Further Information

Assessment

Course assessment is divided into three elements:

- On-line multiple choice question (MCQ) examination for each semester (in December and May)
- Thesis (to be submitted in April)
- Objective Structured Clinical Examination (OSCE) and VIVA Examination (in May)

A candidate must satisfy the examiners in all parts of the examination by passing each element to qualify for the award of the degree. Candidates will be examined orally on the subject of their thesis. Please note that there are no re-sit facilities.

Candidates shall normally attend the exam date as specified at the beginning of each semester except with the special permission of the Course Director and the College Board and under any other special circumstances.

Marking Scheme

Candidates shall be required to satisfy the examiners for the Degree through the following percentages:

- 50% overall average in the written papers over the two semesters
- 50% overall average in the OSCE examination
- pass in the dissertation and viva voce

The following percentages will decide the winner of the Ian Smillie Class Award of Distinction:

- written examination - 30%
- OSCE examination - 40%
- dissertation/VIVA - 30%

The Ian Kelly and David Rowley Awards for Paper and Presentation Skills will be decided by an expert panel of external and internal examiners.
Orthopaedic & Trauma Surgery Department

The Department of Orthopaedic & Trauma Surgery, at the University of Dundee, was founded in 1967 when the University of Dundee split from St Andrews’ University and established an independent teaching medical school. The department is based in the Tayside Orthopaedic and Rehabilitation Technology (TORT) Centre at Ninewells Hospital & Medical School. Current staff includes a professor, two clinical senior lecturers, two non-clinical senior lecturers, one non-clinical lecturer, one research assistant and one senior clinical gait analyst, who are supported by various support staff to make your stay with us as beneficial and enjoyable as possible.

The department has a tradition of teaching and research in the field of mechanisms of disease, treatment of disorders of the musculoskeletal system and biomedical and rehabilitation engineering. The founder, Professor Ian Smillie, gained a worldwide reputation in knee surgery and the role of the meniscus. His successor, Professor George Murdoch, founded and developed the Dundee Limb Fitting Centre and the Tayside Rehabilitation Engineering Services, which acquired an international reputation for the treatment of the amputee and assessment of gait analysis. His successor, Professor David Rowley, sustained the department’s international reputation and innovation in the area of joint replacement complemented by a worldwide service in Clinical Audit Outcomes. The current Professor and Head of Department, Rami J. Abboud, is a Biomedical and Rehabilitation Engineer with over 22 years of Biomechanics and Clinical Motion Analysis expertise. He is the founder and current Director of the Institute of Motion Analysis and Research (IMAR) and has developed a number of groundbreaking initiatives originating with the establishment of the Foot Pressure Analysis Clinic and Laboratory in 1993 and subsequently IMAR in 2003. Professor Abboud is the Head of Postgraduate Division, Associate Dean for Learning & Teaching and the past Chairman of the School of Medicine Intercalated BMSc honours degree.

In 1990 the Distance Learning Section was established and now has over 100 students from all over the world studying its programmes. The MCh (Orth) and the Intercalated Honours Degree in applied Orthopaedic Technology have been added to complete a comprehensive portfolio of research and taught courses designed to meet the growing demand for education in the rapidly developing field of musculoskeletal medicine, biomechanics and surgery. The Clinical Audit Services coordinate several important clinical research and audit studies, in association with various companies and health boards. The department holds major UK and European grants concerned with motion analysis and clinical audit in a range of different orthopaedic and biomechanical related pathologies.
The TORT Centre, which was opened on the 1st September 1999, encompasses a unique combination of surgeons, engineers, orthotists, prosthetists and various specialised professionals to support our clinical/research activities. The TORT Centre houses a diverse number of specialists under one roof who are supported with state of the art high-tech equipment and five laboratories as part of the Institute of Motion Analysis and Research (IMAR). It is going to be our job to pass on our knowledge and fields of expertise to you during your stay with us.

In 2007, the department received from the American Orthopaedic Society for Sports Medicine (AOSSM) the Society's highest honour, the ‘2007 AOSSM Hall of Fame’, presented posthumously to Professor Ian Smillie for his significant contributions to the specialty of Sports Medicine.

In 2012, Professor Rami J. Abboud, was elected an Honorary Fellow of the Royal College of Surgeons of England. Honorary Fellowship is given to a very limited number of individuals of outstanding academic merit, or other outstanding contributions to the profession. Those who receive this rare accolade are usually world recognised in that particular speciality. The number of living not-medically qualified Honorary Fellows at any one time shall not exceed 30. This prestigious accolade that has been bestowed upon Professor Abboud by the College further cements our reputation as one of the leading institutes for teaching, research and training in Orthopaedic and Trauma Surgery and Biomechanics.

In 2013 the MCh (Orth) Dundee, course was granted full accreditation by the Royal College of Surgeons of England. This accreditation is extremely important and comes as the department was celebrating the 20th anniversary of the course. This is the only face-to-face course accredited by the College outside of England.

The research pursued and published in our facilities is multidisciplinary in nature. It reflects the unique blend of staff expertise offering cutting-edge research in musculoskeletal surgery, clinical biomechanics, clinical audit, rehabilitation, implant design, orthotics, prosthetics, wheelchair and seating, footwear biomechanics and preventative injury.
Institute of Motion Analysis & Research

The Institute of Motion Analysis & Research (IMAR) was established by Professor Rami Abboud in 2003 by combining the Foot Pressure Analysis Laboratory, the Materials Testing Laboratory, the Disability Research and Assessment Laboratory and the Dundee Gait Laboratory. A new laboratory dedicated to Sports Biomechanics was completed in January 2007 to augment and support the current facilities of IMAR. IMAR’s main goal is to promote excellence in teaching and research and to provide a comprehensive clinical service in the field of motion analysis.

It has been possible to study gait in Dundee due to the establishment of a dedicated Gait Laboratory that was set up as far back as the 1960s, a Foot Pressure Analysis Laboratory in 1993 and most recently the Institute of Motion Analysis and Research (IMAR) in 2003. We are now in the position of providing a unique and comprehensive clinical service in motion analysis at IMAR, which incorporates a plethora of the latest state-of-the-art gait, sport, pressure and motion analysis equipment within five interlinked laboratories facilitating close and solid collaboration between Engineers, Physiotherapists, Orthotists, Prosthetists, Podiatrists, Surgeons and Physicians.

Research
The Department of Orthopaedic and Trauma Surgery’s current areas of research include:

- Joint Replacements
- Biomechanics
- Sports
- Motion Analysis
- Foot Pressure Analysis
- Footwear Biomechanics
- Orthotics
- Gait Analysis
- Medical Instrumentation
- Finite Element Analysis
- Osteoporosis
- Prosthetics
- Seating and Wheelchairs
- Bone Density
Foot Pressure Laboratory
This unit was established in 1988 and was consolidated by the work of Professor Rami Abboud, Honorary Consultant Clinical Scientist with special interest in lower limb biomechanics. The laboratory is equipped with the latest state of the art biomechanical equipment, which are used both for research developments and clinical service.

Gait Analysis Laboratory
There has been a laboratory in Dundee since 1968, consisting of a custom-made, strain gauged force platform built into a raised walkway and two Bolex cameras which were mechanically synchronised. The laboratory obtained its first electronic motion analysis system in 1977 at which time it also purchased two precision force platforms. This prototype system was replaced with its commercially manufactured equivalent in 1985 and this was subsequently replaced with the next generation Vicon System, Vicon VX, in 1991. The Dundee Gait Lab continues to strive to improve the quality of its facilities and the service it provides and to this end the system was upgraded to a Vicon 370 system in 1999, to a Vicon 612 in 2005, to a Vicon MX-13 in 2007 to a Vicon MX-40 and T20 in 2008 and 2010 respectively. The latter four since its association with IMAR.

Sports Biomechanics Laboratory
This is a purpose-built 32 meter long laboratory incorporating the latest high-tech motion analysis systems dedicated for sports assessment and research. The systems include: a 12 camera Vicon MX13 and 6 camera Vicon T20 system with two high resolution AMTI force plates mounted on modular rails to accommodate various sports setups; two 100HZ Basler colour digital cameras; the Novel Emed-X sports pressure platform (400 Hz), the Novel Pedar-X inshoe pressure system; the Novel Pliance bike pressure system; the Novel Pliance saddle pressure system and the Novel Pliance seating mats.

Bone Density and Signal Processing
Modern computers permit us to explore the complex information available from common or garden clinical images such as radiographs. The black and white image we are so familiar with if stored digitally contains quite complex information regarding the structure of bone, for example. Using Fourier transforms of wave analysis we have made very accurate predictions about bone structure which are of interest in predicting the likelihood of fracture in osteoporotic bone. The Bone Density Group is exploring the use of this highly complex signal processing analysis in the clinical decision making process using neural networks.
Taught Postgraduate Courses

The Department contributes to the teaching of undergraduate medicine in the exciting new integrated Dundee Medical School curriculum. It also addresses postgraduate education and, besides training specialist registrars and clinical fellows has specifically designed the postgraduate courses as listed below:

- **Master of Orthopaedic Surgery (MCh Orth, Dundee, UK)** accredited by the Royal College of Surgeons of England
- **MSc/Diploma in Orthopaedic Science** accredited by the Royal College of Surgeons of England
- **MRes & MPhil in Sport Biomechanics**
- **MSc/Diploma in Motion Analysis**
- **MSc/Diploma in Orthopaedic and Rehabilitation Technology**
- **Postgraduate Certificate Course in Clinical Audit and Research for Healthcare Professionals**

“This course provides plenty opportunities of assisting in theatres, performing cadaveric/dry bone workshops using the latest instruments, attending conferences, publications and giving presentation”

*Dr Ranat R. (Consultant in Trauma & Arthroplasty) - Jaipur, Rajasthan, India - MCh (Orth) Dundee, Graduate 2015*

“In addition to gaining a UK qualification, the course helped me gain a place on the Higher Orthopaedic training rotation in UK and fully supported me for my recent Upper Limb Fellowship at the prestigious Wrightington Hospital.”

*Mr Arpit Jariwala (Consultant Upper Limb Orthopaedic Surgeon, Ninewells Hospital, UK) - MCh (Orth) Dundee Graduate 2003*
Course Regulations

1. Candidates for admission to a course of study leading to the Degree of Master of Orthopaedic Surgery (MCh Orth) must have obtained: (i) MB ChB Degree or an equivalent qualification; (ii) must normally possess a further postgraduate qualification, e.g. the Master of Surgery in Orthopaedics or Diplomate of the National Board in Orthopaedics from India; or an equivalent postgraduate specialist qualification; (iii) and normally at least four years post registration experience in Orthopaedics.

2. It is imperative that students obtain a student visa for the whole duration of the course with the appropriate funds (course fees, consumables and living expenses). Failure to have a student visa and appropriate funds will result in you being unable to matriculate or pursue the course.

3. All applicants are required to make a pre-payment of 50% of the full tuition fee within eight weeks of accepting an unconditional offer. If an applicant receives a conditional offer, all conditions must be met before an unconditional offer is issued. This amount will be deducted from tuition fees and the advance payment is not an additional cost. If an application is withdrawn at a later date an administration fee of GBP1000 is non-refundable for all applicants. If the pre-payment is not received within the eight-week period applicants are notified of the University’s intention to withdraw the application and the place will be offered to another applicant.

4. The full-time course leading to the Degree extends over one academic year, comprising two semesters. Entry to the course occurs annually in September and concludes in the following June. There is no facility for candidates to pursue this course of study on a part-time basis.

5. (i) The Course Director shall appoint a person or persons to supervise the work of the candidate. The candidate shall report to the supervisor(s) on such occasions and in such manner as the supervisor(s) may require. Failure to attend 10% or more of the lectures/tutorials/workshops in any one semester, without a valid reason approved by the Head of Division or Course Director, may mean that candidates are unable to complete the academic requirements of the course and may result in studies being terminated. (ii) Fees will be forfeited if the candidate’s studies are terminated due to lack of diligence on the part of the candidate.

6. The College Board, on the recommendation of the supervisor or supervisors, shall approve the programme of work for a candidate. The candidate will be required to attend courses of lectures or other instruction and to pass all examinations associated with such courses of lectures or instruction at a level satisfactory to the Head of Division or Course Director.

7. The programme of work shall consist of courses of study together with a special study as well as of a research project. A candidate shall submit a dissertation embodying the results of his/her special study or research project, a PowerPoint, a poster and a full paper.

8. The examination shall consist of three elements: two written papers (one per semester), an OSCE examination and an assessment of the dissertation. A candidate must satisfy the examiners in all parts of the examination, passing each element to qualify for the award of the Degree. The candidate will be examined orally on the subject of the dissertation. There is no re-sit facility.

9. (a) Candidates shall be required to satisfy the examiners for the Degree through the following percentages: (i) 50% overall average in the written papers over the two semesters; (ii) 50% overall average in the OSCE examination; (iii) pass in the dissertation and viva voce. (b) The following percentages will decide the winner of the Ian Smillie Class Award of Distinction: (i) written examination - 30%; (ii) OSCE examination - 40%; (iii) dissertation/VIVA - 30%. (c) The Ian Kelly and David Rowley Awards for Paper and Presentation Skills will be decided by an panel of external and internal examiners. (d) The candidate shall normally attend the exam dates as specified at the beginning of each semester except with the special permission of the Course Director and the College Board and under any other special circumstances. (e) The Head of Division or Course Director shall determine the dates for the examination and shall also decide upon the date by which dissertations are to be submitted. In exceptional circumstances, and with the approval of the Course Director, late submission of a dissertation may be accepted.

10. (a) In all cases, the syllabus of courses and subjects for examinations shall be approved by the College Board. (b) Courses of study within the University may include instruction in other institutions approved by the College Board.

11. If a candidate is prevented by illness or other sufficient cause from beginning or completing the written part of the examination, the examiners may, at their discretion, recommend to the College Board that the candidate be permitted to enter for the written examination at a later specified diet.

12. A candidate shall submit three hard (printed) copies and one electronic copy of the Dissertation and one hard copy and an electronic copy of the Paper in a style approved by the Head of Division or Course Director in collaboration with an external examiner(s), who shall be appointed by the University Court on the recommendation of the Senatus, as advised by the College Board and who shall act as an external examiner(s) for the final examination for the Degree.

13. The report and recommendation of the examiners shall be submitted to the Senatus by the Head of Centre or Course Director and shall take into account the candidate’s performance in the written examinations, OSCE examination and the standard achieved in the dissertation/VIVA.
About the University of Dundee

From its very beginning the University of Dundee was both inspirational and down to earth; traits that remain its fundamental watermark today. The Nobel Laureate, Seamus Heaney, described the University as an institution ‘with its Head in the clouds and its feet firmly on the ground’. Perhaps the most apt description of the University’s ethos comes from one of its founding fathers, Patrick Geddes, who advised that ‘By creating we think, by living we learn’.

The University’s origins date back over 100 years to the founding of University College Dundee in 1881. The driving force was a rising demand for the extension of liberal education and the advancement of technical instruction. Today the University of Dundee has a strong emphasis on the professions, educating more than 70% of its students into the non-business professions ~ medicine, dentistry, nursing, law and architecture ~ more than any other Scottish university. It also has thriving arts and science colleges.

With women accounting for over 60% of our student population, the University has long since fulfilled and surpassed the earlier vision of Mary Ann Baxter ‘promoting the education of persons of both sexes in the study of science, literature and the fine arts’. That quote translates today to excellence in teaching and research and contributing to the social, economic and cultural life of Scotland.
About the University of Dundee

The high quality of teaching and research at the University, together with the satisfaction ratings of our students, have contributed to a series of high rankings and accolades over the past few years:

- Dundee University Medical School ranked 1st in Scotland and 4th in the UK for Medicine: *Guardian University League Table 2016*

- University of Dundee in world’s top 100 universities for Medicine and Health: *Times Higher Education’s World University subject rankings 2016*

- University of Dundee is Scottish University of the Year: *The Times & Sunday Times Good University Guide 2016*

- Dundee University Students’ Association (DUSA) No 1 students’ union in Scotland and fourth in the UK: *The National Student Survey 2016*

- Dundee University School of Medicine named winner of Innovation Technology Excellence Award: *Herald Higher Education Awards, 2015*

- University of Dundee ranked 2nd in the UK and Top in Scotland for Anatomy & Physiology: *Complete University Guide 2015*

- University of Dundee ranked No. 1 in Scotland for the past six years: *The Times Higher Education Student Experience Survey 2015*

- University of ranked 19th in the World's Top 100 Universities founded within the last 50 years, and one of only two UK universities in the Top 2: *Times Higher Education 100 under 50, 2015*
Contact Information

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The Department runs the following courses:

Postgraduate Taught Courses
Master of Orthopaedic Surgery (MCh Orth) - RCS England Accredited
Diploma/Master in Orthopaedic Science - RCS England Accredited
Diploma/MSc in Motion Analysis
Diploma/Master in Orthopaedic and Rehabilitation Technology
Postgraduate Certificate in Clinical Audit and Research for Healthcare Professionals

Postgraduate Research Courses
MRes & MPhil in Sport Biomechanics
MSc/MPhil/PhD in the area of Motion Analysis
MSc/MPhil/PhD in Musculoskeletal Biomechanics
MSc/MPhil/PhD in Biomedical Engineering
Doctor of Medicine (MD)

Undergraduate Courses
BMSc in Applied Orthopaedic Technology

Continuing Professional Development Certificate Courses
Clinical Statistics
Orthopaedic Medical Technology
Plaster Technology