UNIVERSITY OF BRADFORD
MAKING KNOWLEDGE WORK™

School of Engineering, Design and Technology

Postgraduate Prospectus 2012

MAKING KNOWLEDGE WORK

BRADFORD YOU

MAKING KNOWLEDGE WORK

BRADFORD ENGINEERING DESIGN & TECHNOLOGY

For other courses at the University of Bradford
See inside back cover

Front cover image: Secondary-quality verification of a micro-moulded dental implant

The School is formed from several engineering disciplines, **providing greater scope** for interdisciplinary activity, now and in the future

The School has **strong links** with the Bradford **Centre for Engineering** Quality Improvement

The University of Bradford has enjoyed a long **and distinguished** association with engineering **and technology**

International standard laboratory facilities include IRC Polymer Engineering, Environmental, Acoustics and Hydraulics

Our 'Wireless Sensors and Embedded Systems' course was the first of its kind in the UK

We have a pool of **international experts** to conduct interdisciplinary research

The School's four research groups are all centres of excellence and have been recognised as carrying out internationally recognised research

MAKING KNOWLEDGE WORK
BRADFORD ENGINEERING DESIGN AND TECHNOLOGY

WELCOME FROM THE DEAN

Engineering is fundamental to worldwide prosperity. It is a 'people-serving' profession and its activities not only manage our environment but also create it. Careers in Engineering require well-qualified and motivated graduates who want to be future leaders within their field.

We pride ourselves on our links with industry, our research track record, and in being forward-looking and ensuring our taught and research programmes meet the needs of students, employers and society at large. We constantly update our courses to ensure they are relevant to today's fast-moving industry.

I, and my colleagues here in the School of Engineering, Design and Technology, look forward to meeting you and ensuring you enjoy a challenging and fulfilling experience during your Master's studies at the School.

Professor Alastair Wood
Dean of the School of Engineering, Design and Technology

About the School

- We have an excellent track record in research-led postgraduate education, with internationally recognised facilities and laboratories including the Interdisciplinary Research Centre in Polymer Science and Technology, Hybrid Power-Train facility, the Mobile and Satellite Communications Research Centre, the Environmental Acoustics and Hydraulics laboratory, state-of-the-art CADCAM and CAE facilities for modelling and simulation
- We have strong links with industry as evidenced by substantial collaborative research and knowledge transfer facilities such as the Bradford Centre for Engineering Quality Improvement, which has been sponsored by Ford since 1995
- These links ensure our wide range of taught and research programmes are developed specifically to meet industry needs in a broad spectrum of specialist topics, with many courses available on a full-time or part-time basis
- We have a large community of postgraduate students and a strong research presence in Advanced Materials, Automotive Modelling and Control, Communications Systems and Environmental and Infrastructure Engineering
- All of our MSc programmes are research-led, and our graduates have excellent employment prospects

Bradford – An Engineering Heritage

- The University of Bradford has enjoyed a long and distinguished association with engineering and technology. Its forebear, the Mechanics' Institute, was established in 1832 during the UK's Industrial Revolution in the 19th century

Special Features

The School
The School's four research groups are all centres of excellence, and its research is characterised by its international recognition and interdisciplinary nature.

Funding Opportunities Available

Research
Our Doctoral Training Accounts (EPSRC) will be advertised when available and offer appropriately-qualified candidates a stipend and fees for PhD research. These are available to home students (EU students can only receive fees support). In addition, various research contracts provide opportunities for research students and research assistants from time to time. Please see the School website for updated information.

Scholarships
Taught
Each year the School of Engineering, Design and Technology offers a significant number of scholarships for self-funded students. These scholarships contribute to paying part of the cost of the tuition fees. The number awarded and value vary each year. In the 2009/2010 academic year, about 20% of our MSc students in the School received some form of financial support.

- The scholarships are available for self-funded international applicants only

All eligible applicants are automatically considered by the School for scholarships and bursaries. There is no need to apply separately.

For further information please visit:
www.bradford.ac.uk/scholarships


Farmers' Market


Events


Festivals

THE CITY OF BRADFORD

Bradford is perfectly placed, right in the middle of the UK, and with great transport links that mean you can go anywhere you like with ease, whilst living in the least expensive student city in the UK. Many major cities are easily reachable by train, and Leeds/Bradford airport also provides easy access to Europe.

Bradford is a famously cosmopolitan city, the perfect place to learn about other cultures. It is a city rich in culture, with many beautiful Victorian buildings. In Bradford itself there is art, music, theatre, history, clubbing and great food and drink from all over the world right on your doorstep, including some of the best in Asian cuisine, and at little expense. Popular attractions in the city include the magnificent Alhambra Theatre and the acclaimed National Media Museum.

Bradford was the world's first UNESCO City of Film, and hosts an international film festival, animation festival and horror festival each year, and many other film-related activities.

Bradford is surrounded by some of the most spectacular and picturesque countryside anywhere in the country. Very nearby you will find Saltaire, a perfectly preserved model Victorian village set in attractive scenery, now a UNESCO World Heritage Site. You can also visit Haworth, set among stunning moorland landscape, which was the home of the literary family, the Brontës.

The International Office also arranges regular trips throughout the year to visit historic cities such as York, as well as castles and stately homes, and visits to the coast and countryside.

To find out more about the attractions available, visit **www.bradford.ac.uk/bradford** and **www.visitbradford.com**


Climbing Wall at Unique: Fitness & Lifestyle


One World Week at the University


Graduation

ABOUT THE UNIVERSITY OF BRADFORD

The University campus is situated near to Bradford city centre, therefore all of the attractions of the city are within easy walking distance.

Here at Bradford we can bring you a learning experience with students and staff from over 130 countries, current investment of £82 million, including new and totally refurbished buildings and facilities, and strong performance in the major sustainable awards and league tables.

At the University of Bradford our core values of Making Knowledge Work and of sustainability are what will make your time here so valuable for years to come. We have a tradition of almost 50 years as a teaching and research university, at the heart of the UK.

Making Knowledge Work is not just about helping you into employment - although that is one of the University's strengths. It means making your knowledge and skills work for the benefit of the world beyond university, and making what you learn here work for you on a personal level as well.

We have an excellent track record for graduate employment, with most of our courses professionally accredited, as well as being closely aligned with business, employers and professional bodies.

Equally, sustainability does not begin and end with looking after the environment – although that's something we do to an award-winning standard. Amongst other things it is also about making your university experience sustainable by making it valuable for the rest of your life.

For more information about the University and our postgraduate opportunities, visit our website at **www.bradford.ac.uk/postgraduate**

For further information specifically for international and EU students, see our website **www.bradford.ac.uk/international**

CAMPUS LIFE

The city campus is very close to the centre of Bradford and has won awards for its commitment to sustainable living.

You'll find a vibrant community atmosphere on campus where students from different backgrounds, faiths, nationalities and ages become friends for life.

New students will be among the first to use our new accommodation, The Green, and the brand-new Student Central where you'll find social and study spaces, bars and venues and the Students' Union.

On campus there is also a theatre, gallery, music centre, new gym, swimming pool, green spaces, and many places to eat and drink.

Students studying Management or Law-related subjects are mainly based at the dedicated School of Management parkland campus two miles away.

Of course we also have top-quality teaching and laboratory facilities and equipment on campus specifically for your studies.

PREPARING TO STUDY

Accommodation

You will be guaranteed* a place at our new student village, The Green, during your first year, if you apply before the specified time (full details are online). The Green is both a lovely place to live and an eco-friendly one as well. Every building there meets the highest standards of sustainability.

**dependent on accommodation application and acceptance dates*

For more details about what's available, and for costs, visit **www.bradford.ac.uk/accommodation**

The University offers a range of accommodation to suit a wide variety of needs and requirements, in terms of location and facility provision. Bradford is well served with suitable student accommodation within the city close to the campus, including a good selection of University-managed Halls, as well as a good supply of private sector rented accommodation.
See also **www.unipol.org.uk/bradford**

Student Support

For every single aspect of your student life at the University, there is a team of staff whose only role is to support you.

Here are just some of the services available to all students:

- Enrolment and courses
- Accommodation
- Counselling
- Disability Services
- International Office
- Library and IT
- English language support
- Learner Development Unit (LDU)
- Faith Advisers
- Career Development Services
- Fees and Finance/ Bursaries / Financial Support

Financial Support

Tuition fees for 2011/12 for postgraduate courses and for research are set out on the relevant course or research pages. You can find up-to-date information about our fees and financial support for 2012/13 on our website **www.bradford.ac.uk/tuitionfees** as soon as it becomes available.

International Student Day

EU AND INTERNATIONAL STUDENTS

If you apply for and are offered a place at the University to start a course of study or research, you will then need to start preparing for your studies in the UK. Here are some tips:

Visa/Entry Clearance

Most international students will need to apply for Tier 4 (General) Student visa or entry clearance to study in the UK. Ensure you have the latest information on visa application by enquiring at your nearest British Embassy or High Commission. Alternatively, check the UK visas website, **www.ukvisas.gov.uk**

Financial Arrangements

You will be able to open a bank account in the UK once you have registered as a student. You should make arrangements before you leave home to ensure that you will have enough money to pay for your living costs and tuition fees.

The University awards a small number of scholarships for academic excellence to self-financing EU and international students. Certain academic Schools also offer scholarships to EU and international students. For information on the different scholarships, criteria and applications details, see **www.bradford.ac.uk/scholarships**

Your Accommodation

We strongly advise that you finalise and confirm your accommodation arrangements before you leave for the UK, to prevent any delays in getting settled into your lodgings when you arrive in Bradford.

Your Travel Plans

Make sure you record your name on all your documents in the exact same way as it is recorded in your passport. Any inconsistencies in your documents may cause you problems in the UK.

If possible, arrange to fly into Leeds/Bradford International Airport (LBIA) which is about a 30-minute taxi ride from the University of Bradford. Arrange to arrive in time for the International Student Enrolment and Welcome Week, which normally starts in the middle of September. Check with **pick-me-up@bradford.ac.uk** for the dates on which our airport pick-up service will be running.

English Language

If your first language is not English, you will need to provide proof of your English proficiency before you can be admitted onto any of our undergraduate or postgraduate courses. For fuller details see the How to Apply pages.

If you need help with your English or want to build your confidence before starting your main study programme, the University Language Centre runs Preparatory English programmes and also offers free English classes to all international students during their studies. See pages 8-9.

Useful Links

The University's website offers advice and downloadable brochures to help you prepare for your studies in the UK:

- For accommodation in Bradford, see **www.bradford.ac.uk/accommodation**
- For pre-arrival information from visas to registering as a University of Bradford student, see **www.bradford.ac.uk/international/pre-arrival-information.php**

www.ukcisa.org.uk/student/index.php
UK Council for International Student Affairs

www.ukvisas.gov.uk - UK visas

www.educationuk.org/UK/Life-in-the-UK - British Council
www.leedsbradfordairport.co.uk - Leeds/Bradford Airport
www.manchesterairport.co.uk – Manchester Airport

Your First Few Days In Bradford

During the International Student Enrolment and Welcome Week, there will be enrolment, orientation and information sessions and a busy programme run by the Students' Union. There are campus tours and city tours to help you quickly get to know your surroundings. You will also be invited to a reception at the very impressive City Hall, where the Lord Mayor of Bradford formally welcomes you to the City of Bradford.

If you have any questions, visit the International Student Information Point where the International Student Adviser and her student helpers will be on hand to help.

ENGLISH LANGUAGE SUPPORT FOR INTERNATIONAL STUDENTS

General English Language Requirements

If your first language is not English, you will have to reach a level of English approved by the University before you can be admitted onto any of our undergraduate or postgraduate courses. You can show you have reached the required level in either of two ways.

1. By taking an international English language test such as:-

IELTS (International English Language Testing System)

This is administered by the British Council and is the University's preferred English language test. The University normally requires a score of 6.0*, with at least 5.5 in each of the four sub-tests (speaking, listening, reading, writing). Testing facilities are available at most British Council overseas offices. When you take your test, you should ask for a copy of your Test Report Form to be sent to the University.

TOEFL (Test of English as a Foreign Language)

This is administered by the Educational Testing Service in the USA. You will need to score at least 87 on the internet-based test. If you take this test, you should enter the University's code 0828 on your answer sheet.

** Students wishing to apply for most postgraduate courses in the School of Management (MSc, MBA) should have a minimum of IELTS 6.5 or TOEFL 95 (internet-based), for MSc courses in the School of Health Studies a minimum of IELTS 6.5 with some courses requiring IELTS 7.0 or TOEFL 100 (internet-based), and certain postgraduate courses in the School of Social and International Studies also require scores of at least IELTS 6.5. Please check the requirements with the appropriate academic School.*

The IELTS and TOEFL tests are the most common, but other English language qualifications may also be accepted. These include the Pearson Test of English Academic (PTE Academic); and also the Cambridge Advanced Certificate; Cambridge Proficiency Certificate; and GCE/GCSE English language – all at grade C or above.

// I improved a lot during the year. I joined most of the English support classes: writing, speaking and pronunciation. I really like these classes and they were really helpful for me to improve my English.// Fang-Chi Tuan

// This place (Room 101) is the first point of contact for integrating non-English speakers within the multicultural environment which makes this University uniquely different from the surrounding unis.// Anais Mutumba

2. By successfully completing a University of Bradford Preparatory English Programme:-

- the Summer Pre-Sessional Course (10 weeks or 6 weeks)
- the International Foundation Programme (two semesters or one semester)
- the IELTS Preparation Course (30 weeks or 15 weeks)

If you have lived in Britain or Ireland for at least three years before you start your course, you may not need to do any preparatory English.

For more information, please email **ulc@bradford.ac.uk** or see **www.bradford.ac.uk/languages/international**

Summer Pre-Sessional Courses

The University Language Centre offers three Pre-sessional Courses for international students enrolling in the University of Bradford in the coming academic year:

- Ten-week English for Academic Purposes (starts July)
- Six-week English for Academic Purposes (starts August)
- Six-week Academic English for Business and Management (starts August)

English for Academic Purposes

(six-week or ten-week course)

This programme aims to prepare international students for life and study at a British university and to provide an effective and enjoyable way for students to improve their English language and study skills.

The programme includes:

- academic listening, speaking, reading and writing skills
- seminar discussion techniques
- examination techniques
- giving effective oral presentations
- building academic vocabulary
- developing grammatical accuracy
- understanding lectures
- effective note-taking and note-making
- improving pronunciation and spoken fluency
- using the Library and Computer Centre, including using sources and references
- getting to know the area around the University and Bradford city
- cultural orientation and programme of social events

The classes are structured to suit the academic teaching styles and kinds of learning projects that you will encounter during your studies at the University of Bradford.

Academic English for Business and Management

This six-week English language and study skills programme is designed for international students who plan to study for a Master's degree (MSc or MBA) at the School of Management. The course comprises five days of tuition each week on academic and general English using specially developed courseware and other material and includes lectures by School of Management staff.

International Foundation Programme (IFP)

If your first language is not English, you can choose to undertake the one-semester (January - May) or two-semester (October - May) International Foundation Programme. The course is available for undergraduate and postgraduate students who are already academically qualified for their chosen degree course but need to increase their competence in English language. The programme improves students' general and academic English and familiarises them with the study skills necessary for studying at a UK university.

The course comprises small group classes, independent study tasks and subject-related projects. Students are formally assessed in each module, through both coursework and final tests. Successful completion of the International Foundation Programme is accepted by the University of Bradford as evidence of competence in English for enrolment on degree courses. No further test such as IELTS is required.

For more information, please email **learning@bradford.ac.uk**

IELTS Preparation Course

Each IELTS Preparation Course is for students who need to improve their academic English and obtain the IELTS score required for study at a UK University. The 15-week course is designed for those who have a score of at least 5.0 at IELTS (with no component less than 4.5) or equivalent, and who wish to upgrade their IELTS score. The 30-week course is designed for those students who already hold a score of at least 4.5 at IELTS (with no component less than 4.5) or equivalent, and who need to do some further work on general and academic English as well as systematic preparation for the IELTS test.

In addition to focusing on the Reading, Listening, Writing and Speaking skills tested in the IELTS Academic English test, the course will also concentrate on improving general language competence and developing English for Academic Purposes (EAP).

For more information, please email **ulc@bradford.ac.uk**

Free English Language Support

Any students exceptionally accepted by the University without the normally required level of English will be obliged to take an English proficiency test. Any of these students with a level of English below the required level will be expected to attend a programme of support classes. They will need to demonstrate satisfactory performance in English before being permitted to progress to the next stage of their degree course or to graduate from the University of Bradford.

All students have access to free English language support classes for the duration of their studies at the University of Bradford to enable them to improve further. Students can take a short test after enrolment on their degree course to establish whether any additional language classes would be helpful. The free English classes begin soon after registration, continuing throughout the academic year and at no extra cost to the student. There are also drop-in sessions for students at specific times.

For more information, see **www.bradford.ac.uk/ulc**

// During the pre-sessional course and my MSc study I often use the Language Centre room to study and practise my English skills. The study equipment and possibilities to join study groups are very useful. Also the daily news service is an incredible service and advantage of the University.//

Mart Postma, MSc student

DEVELOPING INNOVATIONS FOR DENTAL TECHNOLOGY

Dental Root Filling Products Limited (DRFP) approached the Research & Knowledge Transfer Centre for Micro and Nano Technology based in the School of Engineering, Design and Technology at the University of Bradford to assist with the manufacturing of a vital component for a novel root-filling device.

Researchers at the University spent a number of months performing R&D activities to specify, modify and characterise the raw materials and optimise the moulding process in order that components meeting the required specifications could be achieved. Products were then supplied to the customer for evaluation and human clinical trials.

Dentists who trialled the product saw immediate benefits over existing products, and the University has now worked in partnership with the company to manufacture over 100,000 devices.

BRADFORD FOR RESEARCH

The University of Bradford has a unique portfolio of world-class research and knowledge transfer (RKT) activity in the UK and abroad. Knowledge transfer is the exchange of ideas, knowledge and expertise between the University and a range of external organisations where the intention is to create economic and social benefit through innovation in products, services, ways of working and business models.

Track Record

- More than 40 years of research activity
- Multidisciplinary/cross-School research teams
- International reputation for knowledge transfer
- Ranked in the Top 50 English Universities for research funding (HEFCE 2009/10)
- 80% of research output submitted to the last RAE was rated as being of an international quality
- Customer-focused (Customer First accredited)

"One of the University's strengths is that it teaches its students in an atmosphere of research. Our students are being taught their courses by members of staff who are internationally recognised for research."

Professor Phil Coates FREng

Research Quality

The University of Bradford's reputation for international quality research has been further enhanced by a strong performance in the 2008 national Research Assessment Exercise (RAE).

The RAE is a key measure of a university's research strengths and quality. Almost two-thirds of our academic staff were entered in the RAE and, on average, 80% of our return was recognised as research of international and world-leading quality. This figure rose in some disciplines to above 90%. In total 15 research disciplines were entered and all of these gained at least international recognition.

"Our experience has been incredibly positive; the support offered by Momenta and University of Bradford representatives has been excellent."

Craig Naylor
Managing Director, NTR Ltd

"Collaborating (with the University of Bradford) on this KTP has proved beneficial. We have made some outstanding technical advances which could result in efficiency savings for our business, its shareholders and our customers."

David Hanson,
Senior Project Engineer, Yorkshire Water Services Ltd

Research & Knowledge Transfer Centres

Research and knowledge transfer activity takes place across all University disciplines. In the strongest areas we have established ten RKT centres:

- Centre for Advanced Materials Engineering
- Centre for Applied Social Research
- Centre for Automotive Engineering
- Centre for Infection Control and Biophysics
- Centre for Managerial Excellence
- Centre for Polymer, Micro & Nano Technology
- Centre for Pharmaceutical Engineering Science
- Centre for Skin Sciences
- Centre for Sustainable Environments
- Centre for Visual Computing

All have impressive track records of research council funding, research studentships, and working with industry and business.

For more information
www.bradford.ac.uk/research

"In the past five years Bradford has invested more than £20 million in research capability and infrastructure."

Professor Phil Coates FREng

The School is formed from several engineering disciplines providing greater scope for interdisciplinary activity, now and in the future.

RESEARCH AT THE SCHOOL OF ENGINEERING, DESIGN AND TECHNOLOGY

The School of EDT attracts students from around the world and has reaped the rewards of investment from grant-awarding bodies in the UK and EU, often in partnership with industry. This has fostered a first-class, well-equipped research environment for the benefit of our postgraduate students.

Engineering research at the University of Bradford is characterised by its international recognition, interdisciplinary nature and close links with practice.

We have internationally leading facilities for research in the area of engineering materials, environmental and infrastructure, telecommunications and electronics, medical and automotive engineering. These facilities include the IRC Polymer Engineering laboratory, the Mobile and Satellite Communications Research Centre, the Hybrid Powertrain facility and the Environmental Acoustics and Hydraulics laboratories.

The University has established a number of multidisciplinary, cross-school Research and Knowledge Transfer Centres working at the leading edge of research and innovation. Building on 40 years of research activity, the centres deliver world-class research through collaboration with a range of universities, companies and organisations worldwide. All have impressive track records of Research Council funding, research supervision, and working with industry and business.

www.bradford.ac.uk/research

The School's research activity is organised into four large disciplinary-based research groups:

- Advanced Materials Engineering
- Communication Systems Engineering
- Environmental and Infrastructure Engineering
- Mechanical Engineering

Our strategy is to develop research excellence in all our four research groups.

All these groups have research programmes which operate with other Schools and other Universities both in the UK and worldwide. Our current research is strongly funded by government and industry.

Postgraduate Research Fees (PhD) Information for Applicants

Fees (2011-12)*

Home / EU – £3,730 p.a. (full-time), £1,870 p.a. (part-time)
International – £14,450 p.a.
**An increase can be expected for 2012/13*

Entrance Requirements for a research degree (PhD, MPhil)

Minimum academic qualifications required for entry are 2:1 Honours undergraduate degree in a relevant subject. Preference is given to candidates who have undertaken some postgraduate study, or who have substantial practical experience.

If English is not your main language or language of education, you will have to show adequate command of English before being admitted as a research student. The minimum requirement is IELTS 6.0 with at least 5.5 in each of the four sub-tests (speaking, listening, reading, writing), or at least 87 in the internet-based TOEFL.

How to Apply

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Contact details

For any general queries about the PhD or MPhil programmes and to send your completed application documents (if you choose not to apply online) please contact:

Mr John Purvis,
Postgraduate Programmes Officer,
Tel: 00 44 1274 234543 Fax: 00 44 1274 234525
Email: res-eng-enquiries@bradford.ac.uk

To discuss your proposed field of research please contact:
Professor S Tait,
Associate Dean of Research,
Tel: 00 44 1274 234543
Email: s.tait@bradford.ac.uk

For further information visit www.edt.brad.ac.uk/research

We have a long and distinguished association with engineering and technology. Our forebear, the Mechanics' Institute, was established in 1832 during the UK's Industrial Revolution.

ADVANCED MATERIALS ENGINEERING

Advanced Materials Engineering research at Bradford is at the forefront of many of the new material development technologies such as electronic polymers, biomaterials, advanced ceramics, nanocomposites and 'smart' materials which are making an enormous impact in the lives of millions of people.

Our track record is one of strong research delivery, and extensive collaboration with industry. We have a successful and enthusiastic research culture which has resulted in many high-quality journal publications, international conference presentations, and research student completions.

Our research strengths arise from the combined expertise of our world-class advanced material engineering research centres: The UK Polymer Interdisciplinary Research Centre (IRC) based across the Universities of Leeds, Bradford, Durham and Sheffield; The Coating Science and Technology Research Centre. The area leads on two of the Research and Knowledge Transfer Centres: Advanced Materials Engineering; and Polymer Micro & Nano Technology.

A recent highlight of our activity is the UK government-funded Science Bridges China Programme in which leading Bradford researchers work with leading researchers in China.

Leading-Edge Facilities

Our extensive laboratories (floor area 3500m^2) house world-class polymer engineering, medical engineering, thin film coating, and biological test facilities. These state-of-the-art facilities include:

- A new Polymer Micro & Nano Technology Centre for precision small-scale processing of polymer/biomaterials, and nanoscale surface features
- An Advanced Materials/ Medical Characterisation laboratory including a 'Class II' biological area, and AFM/surface, rheology and powder characterisation facilities
- A coating laboratory with web handling for roll, gravure, curtain and multilayer slide coating
- An acoustics material laboratory for Biot-type parameter characterisation
- A modern cell/tissue engineering laboratory
- A state-of-the-art human movement laboratory, incorporates a motion capture facility and a prosthetic joint laboratory, including a friction simulator
- A world-class bioaerosol test facility comprising a class two negatively pressurised chamber
- An extrusion films laboratory
- Solid phase orientation laboratories housing unique large and small-scale facilities
- A Computer Modelling Research Centre with software from Moldflow, Polyflow/Ansys and Compuplast, plus co-operations with Abaqus; laser scanning/solid modelling; and in-house codes (including 'FlowSolve' molecular feature code)
- A human physiology laboratory for evaluating EMG, ECG, Blood Pressure, Urine, Spirometry and other tests
- Medical Electronics Laboratory equipped for the design and manufacturing of medical diagnostic devices

Advanced Materials Engineering Research

Advanced materials engineering research at Bradford covers four broad areas:

1. Polymer Research
Micro and Nano Technology (MNT); In-process measurements; Computer modelling and analysis; Reactive processing; Solid-phase polymer processing; Novel Mixer and Die Design.

2. Thin Film Coating
Coating Flows, including rigid and deformable roll, gravure, curtain and multi-layer slide coating. Bradford is also pioneering the study of wetting under vacuum and with various gases.

3. Powder Metal and Ceramics Processing Research
Polymer binder formulations; unconventional powder metallurgy/materials science for alloy properties; injection moulding of filled systems (hydroxyapatite) for biomedical applications.

4. Medical Technology Research
Combining engineering, biological and clinical expertise to solve medical problems and improve the wellbeing of patients: Orthopaedics and biomechanics; Biomaterials and bio-resorbables; Infection control and epidemiology; Biophysics.

Fees / Entrance Requirements / Contact Details

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How to Apply

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COMMUNICATION SYSTEMS ENGINEERING

We have a long and established history of research in the field of communication systems engineering, which can be traced back to the mid '80s.

Through participation in many influential pan-European, national and industrially-funded research projects, a wealth of knowledge, experience, expertise and know-how have been gathered, ensuring that we remain at the cutting edge of research and development. In particular, we have a strong presence in the EU research community, contributing significantly to various EU Framework Programme projects in the ICT and Aeronautics and Transport areas.

Leading-Edge Facilities

Our research laboratories contain the latest, state-of-the-art hardware facilities:

- The Electrodynamics Laboratory equipped with new near field and SAR measurement facilities up to 6 GHz, and a 100 cubic metre anechoic chamber, capable of providing measurements up to 20 GHz
- The Future Ubiquitous Networks Laboratory equipped with a suite of hardware and software platforms to conduct research in mobile/wireless/satellite communications, wireless sensor networks and embedded systems, auto-ID and RFID technologies

Hardware facilities are matched by an impressive array of software packages.

Electronics and Telecommunications Engineering Research

Research is divided into a framework of focused, key themes, conducted by the following research teams:

- Future Ubiquitous Networks (FUN)
- Communications and Networking
- Wireless Sensors and Embedded Systems
- Future Internet and Middleware
- Satellite Communications

Research dates back to radio propagation characterisation in the 1970s.

- The EC-funded Satellite Communications Network of Excellence (SatNEx)
- We have performed research for the Indian Space Research Organisation and the European Space Agency (ESA)
- Electromagnetics, Antennas, Propagation and Radio Frequency Engineering.

Well-established with more than three decades of research activity. Notable achievements include:

- Exploration of the optimal design of MIMO antenna systems to the world's largest operator Pace company for their short-range wireless communications systems through a two-year knowledge transfer programme
- Investigation of electromagnetic field distributions in biological cells
- Novel work on antenna research to develop novel balanced antennas for application in current and future wireless mobile communication systems
- Mobile Telecommunications and Health Research Scheme project on detection of demodulation in cells
- Advanced Signal Proccessing

This research team has developed the Very Fast Fourier Transform technique which has applications in mobile and wireless communications, particularly OFDM and WiMAX, as well as in image processing.

Examples projects include:

- A wide-band low jitter system for digital transmission using a dual phase-locked loop
- IIR Transient Responses Improvement by Initialisation Techniques
- MMIC circuit design for wide range frequency bands
- Software Defined Radio Technology for aeronautics communications
- Mobile Robotics and Power Electronics

A multidisciplinary area bringing together expertise from mechanical engineering, vehicular systems, electronics, software design and telecommunications. Applications include, wireless sensor networks for robotics, applied artificial intelligence, autonomous vehicles, educational applications and remote sensing.

Example projects include:

- High-power converters: current source inverters, matrix converters, series connections of IGBTs
- Power electronics applied to advanced all-electric injection moulding machines
- Regenerative braking in car
- Robotics applications in office spaces and educational institutions

Our mission is to advance awareness and understanding of telecommunications engineering through addressing global research challenges, transferring knowledge and developing worldwide strategic partnerships.

Fees / Entrance Requirements / Contact Details

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Researchers in the Anechoic Chamber

ENVIRONMENTAL AND INFRASTRUCTURE ENGINEERING

The Environmental and Infrastructure Engineering Group carries out research that examines how structures and the environment behave under a range of natural and human drivers. In the most recent Research Assessment Exercise 90% of our research was rated at 'international level of quality', with over 85% of our academic staff returned as 'research active'.

Environmental and Infrastructure Engineering Research

The group's work is focused around two theme areas; infrastructure and environment.

- Infrastructure

In the infrastructure area, researchers examine how steel and composite structures behave, advanced modelling and full-scale laboratory testing is carried out in our large structures laboratory.

Other researchers in this area also study novel sustainable construction materials such as low-energy Roman cements, and acoustically absorbent materials manufactured from waste materials.

Other researchers study the interaction between soils and structure and develop advanced finite element codes to study the behaviour of structural materials. The work is funded by UK and EU Research Councils and industry and has resulted in patents and the use of our research by industrial end users.

Staff and students have access to well-equipped structures, structural materials and acoustic characterisation and material manufacturing laboratories.

- Environment

The staff in the environment theme study how infrastructure systems are impacted by the environment and how the built environment can impact on the natural environment. A key issue is how engineers can adapt current infrastructure systems to long-term climate change.

The group's researchers are currently working on the development of low-cost, low-energy acoustic-based sensors to monitor the condition and operational condition of drainage infrastructure. This work has been funded by the UK research council and industrial partners and is now moving from the laboratory to practice so is impacting on end users. Work continues on developing other novel sensors that can monitor the environment.

Other researchers are examining how urban water systems are impacted by climate change, especially with regard to the potential for flooding and the transport and release of pollutants into the natural environment such as rivers. These studies range from fundamental laboratory studies, to the use of advanced modelling techniques such as Smooth Particle Hydrodynamics, to studies with water companies and other end uses. Researchers have access to well-equipped, environmental acoustic and hydraulic laboratories. These studies have been funded by the UK Government's Research Councils, the EU and industry. Staff from this group are also part of the Pennine Water Group, a large cross-University research group funded by the UK Government.

Staff from the research group play a leading role in the RKT Centre for Sustainable Environments – **www.sustainable-environments.brad.ac.uk**

Leading-Edge Facilities

Facilities include:

- Environmental Acoustics laboratory for material characterisation, sensor development and testing
- Structural Materials Laboratory with cement mixing, curing and characterisation facilities
- Hydraulics Laboratory, large-scale testing with flumes and pipe rigs with PIV/ADV flow measuring equipment
- Structural Engineering Laboratory with strong floor for full-scale testing of steel, concrete and composite elements

Fees / Entrance Requirements / Contact Details

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"In the RAE 2008, 90% of our research in the Mechanical and Advanced Materials Research Groups was rated at an international level of quality."

MECHANICAL ENGINEERING

Mechanical Engineering research at the University of Bradford has been well established for many years. In the recent Research Assessment Exercise, the Mechanical Engineering and Advanced Materials Research Groups together achieved 90% of our research rated at 'international level of quality', with over 80% of our academic staff returned as 'research active'.

Researchers work closely with small, medium-sized, and large companies and business organisations, locally, nationally, and internationally, including Cummins, Ford, BAE Systems, Tata, Jaguar Cars, Land Rover, Honda, Hyundai, and many others. We have a track record of research funded by industry, the UK Research Councils – EPSRC and other programmes, the European Union and international government agencies.

The broad base of research in Mechanical Engineering includes Automotive Engineering, Quality and Statistical Engineering, Modelling, Simulation, and Control Engineering, Computer-Aided Process Engineering, Computational Mathematics and Numerical Methods, Optimisation, Supply chain management, Predictive Maintenance and Condition monitoring.

Research areas:

Within this broad base we have specific areas of research activity such as Competitive product and process design, Failure Mode Avoidance methodologies, Car and commercial vehicle dynamics and design, Brakes and braking, including regenerative and hybrid systems, Vehicle dynamics and safety, Engine mapping and calibration, and Power transmission. We aim to encourage MSc students to participate in and learn from our research work.

We have brought our research excellence together in the Research and Knowledge Transfer Centre for Automotive Engineering which has leading expertise and facilities in the following 3 areas:

- The Bradford Engineering Quality Improvement Centre (BEQIC) where we research into systems engineering design, failure mode avoidance, quality & reliability with a strong focus on Design and Manufacture
- The Hybrid Powertrain Engineering Research Centre (HyPER-C) has expertise in Turbocharger technology, Engine calibration and mapping, Brakes and braking systems, hybrid drive systems, HIL, CAN, and advanced modelling techniques
- The Advanced Engineering Systems Optimisation Centre (AESOP) for research into engineering mathematics and computation, numerical methods and statistical engineering

The RKT Centre provides research, knowledge transfer, professional training, and consultancy in these 3 areas with the primary area of application being the automotive industry (car and commercial vehicle and tier 1/2/3 suppliers) with a strong environmental and sustainability interest. We also engage with wider manufacturing industry in areas such as aerospace, materials processing, and petrochemical.

Leading-Edge Facilities

We have state-of-the-art experimental laboratory facilities:

- 5 engine test beds including a new 500kW computer-controlled regenerative engine test facility
- A new 200kW rolling road test facility for full vehicle performance testing
- A fully equipped experimental laboratory for hybrid powertrain systems performance research, together with hardware-in-loop and CAN provision
- A fully equipped automotive workshop staffed by highly qualified technical staff

For mathematical, computational and modelling research we have extensive computing facilities with most major engineering analysis packages represented within our information technology framework.

We have dedicated study and development space in our Ford Suite for Engineering Quality Improvement where we run many industry projects.

Fees / Entrance Requirements / Contact Details

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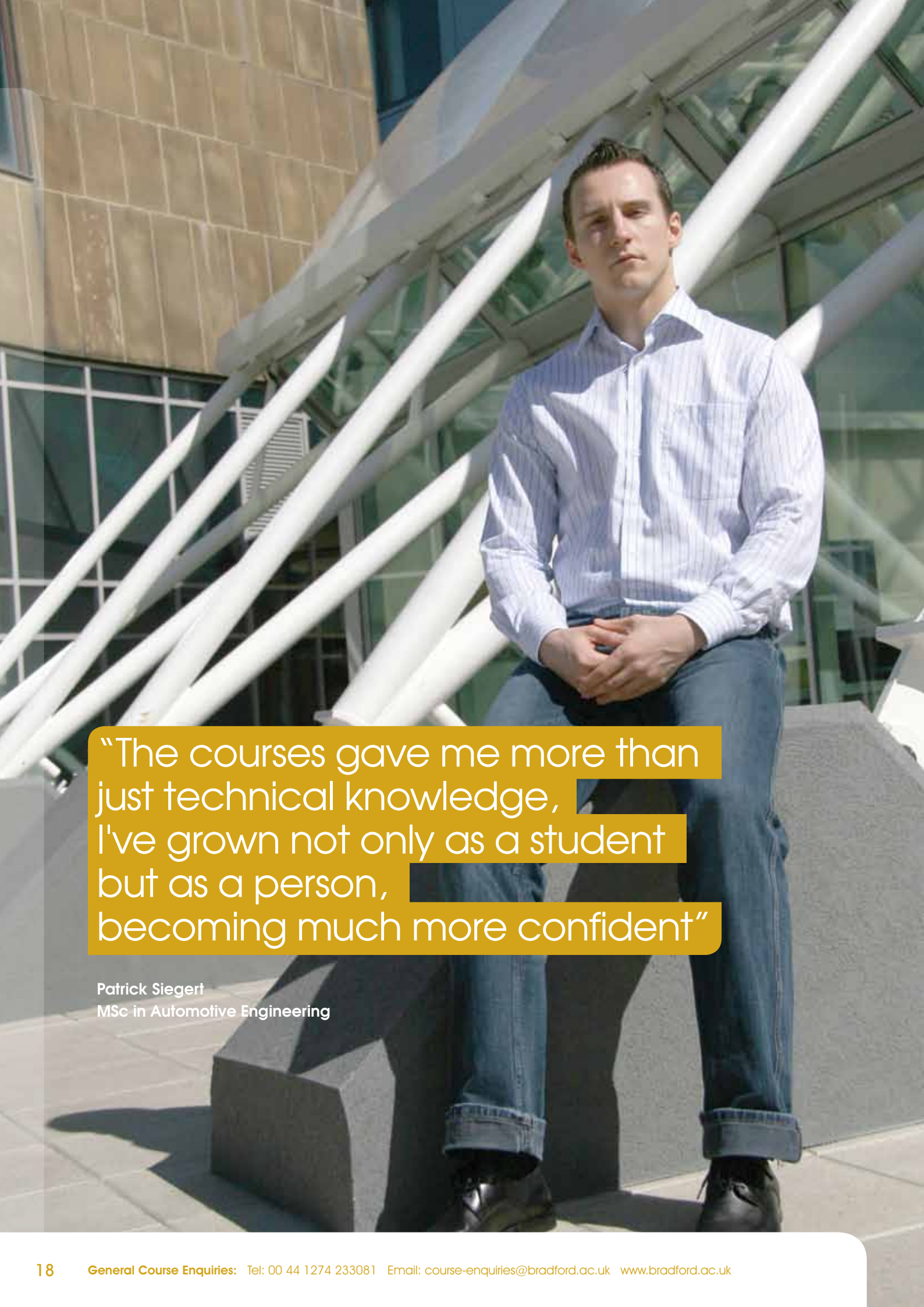


"The courses gave me more than just technical knowledge, I've grown not only as a student but as a person, becoming much more confident"

Patrick Siegert
MSc in Automotive Engineering

TAUGHT COURSES

Taught courses cover a broad spectrum of specialist topics, leading to a variety of postgraduate qualifications up to the award of a Master's degree. Typically, a taught Master's course of full-time study lasts 12 months. Two semesters of instruction are followed by a dissertation written over the summer. However, many courses may be studied part-time (one or two days per week) over two or more years which makes it easier for students in full-time work to make day-release arrangements. The taught element of part-time courses generally last two years instead of one, with a further year allowed for the completion of the dissertation.

Taught Course Structure

All courses have two parts: the taught course part (which takes up most of the first two semesters) and the project/dissertation stage.

For full-time courses with a September start date, the taught course part runs from late September to late January, and late January to May. Some of the modules in the second semester will be direct preparation for the research project you will undertake over the summer, and which will form the basis of your Master's dissertation.

Courses are organised on a modular basis. Teaching is usually concentrated on two or three days in the week during normal term times. Modules are usually examined or assessed at the end of the semester in which they are taught.

To complete the Master's course, you spend the summer writing a dissertation (sometimes described as a project report, a management project or a long essay), usually between 10,000 and 15,000 words. The dissertation is written on an agreed topic and is usually submitted by mid-September, a year after starting the course.

If you do not proceed to the dissertation you will be eligible to be awarded the Postgraduate Diploma on the basis of your performance in the module assessments and examinations.

If you complete half the taught course modules successfully then you will be eligible for the award of a Postgraduate Certificate (PGCert).

For information about study patterns for full-time courses with a January start date, and all part-time courses, please contact the School listed on the course page.

All of the postgraduate taught courses in our School are featured in this Prospectus. Other courses available at the University of Bradford are set out in a table on the inside back cover.

The course content listed is correct at the time of printing, however modules may be subject to change. Students should enquire as to the up-to-date position when applying for their course of study.

Civil and Structural Engineering

MSc

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Civil engineering is essential for both developed and developing countries, and there is a great global need for professionals with expertise in the design, operation and maintenance of infrastructure, which is so essential to our present-day lives.

Sustainable use of materials, resources, and energy, in order to enhance the quality of life, for current and future generations, is a key aim for civil and structural engineers. Those in this field increasingly need to build on their Bachelor degree qualification and increase their knowledge base to remain competitive.

Special Features:

- It draws on the School's research which is conducted jointly with its collaborative companies
- It is designed to provide advanced civil and structural engineering education
- It addresses a balanced curriculum between advanced technical and design skills, and research skills
- Option modules are also included to offer students more choices and meet their interests and needs
- Graduates of this course are equipped to enter a wide range of industries such as consulting or contracting, utility providers (such as the water, gas, or electricity companies), the railways, and many other fields
- This degree is accredited by the Joint Board of Moderators (JBM: The Institution of Civil Engineers, The Institution of Structural Engineers, The Institution of Highway Engineers and The Chartered Institution of Highways & Transportation) as meeting the requirements for Further Learning for a Chartered Engineer (CEng) for candidates who have already acquired an Accredited CEng (Partial) BEng(Hons) or an Accredited IEng (Full) BEng/BSc (Hons) undergraduate first degree. See **www.jbm.org.uk** for further information.

Collaborative Partners:
Yorkshire Water, Bersche-Rolt, Transport Research Laboratory, AngloFelt Industries, Lime Technology, Castle Cement, Ibstock Bricks.

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 50 credits (4 x Core Modules and 1 x Option Module):

- Advanced Geotechnics *(10 Credits)* (C)
- Advanced Structural Analysis *(10 Credits)* (C)
- Advanced Structural Engineering Project *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Engineering Vibration *(10 Credits)* (C)
- Advanced Numerical Methods *(10 Credits)* (O)
- Design Optimisation *(10 Credits)* (O)

Semester 2 50 Credits (2 x Core Modules and 2 x Option Modules):

- Advanced Structural Engineering Project *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Case Study *(20 Credits)* (C)
- Earthquake Engineering *(10 Credits)* (O)
- Environmental Computational Fluid Dynamics *(10 Credits)* (O)
- Finite Element Methods *(10 Credits)* (O)
- Risk Management *(10 Credits)* (O)
- Steel and Composite Design *(10 Credits)* (O)
- Sustainable Energy *(10 Credits)* (O)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

Electrical and Electronic Engineering

MSc

The primary purpose of this new exciting course is to provide a flexible MSc course with a few core modules and many option modules. The core modules consist of fundamentals, professional skills and project work. The option modules give the ability to tailor the remainder of the course with a series of modules in a variety of areas including telecommunications, electronics and signal processing. This is a new course, building on the strength of the School in electronics and telecommunications.

Examples of projects:

- Modelling and design of WiFi front-end transceiver
- 2G and 3G balanced antenna design for mobile handsets
- Controlled-switchable beam-steering antenna for mobile base station using genetic algorithms
- Interfacing GPS to mobile platform

Special Features:

This course has been designed to be as flexible as possible, while still providing a platform for the assimilation of specialist knowledge in the areas of electrical and electronic engineering. This accredited programme capitalises on the expertise of staff in the School who are involved in significant research activity in a wide variety of subject areas.

IET Accredited Programme
The Institution of Engineering and Technology

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September and January

Attendance Mode:
Full-time

Duration:
12-15 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Modules 2011/12:

(C) = Core (O) = Option

Stage 1 (September start date) / **Stage 2** (January start date)
50 Credits (1 x Core Module and 40 credits from the Option Modules listed):

- Signals and Systems Theory† *(10 Credits)* (C)
- Advanced Networking Protocols *(10 Credits)* (O)
- Antennas and Mobile Propagation† *(10 Credits)* (O)
- Control System Design *(20 Credits split over both Stages,10 Credits per Stage)* (O)††
- Cryptography and Network Security *(10 Credits) (O)*
- Digital Signal Processing *(10 Credits) (O)*
- Intelligent Sensor Fusion *(10 Credits)* (O)
- Mobile and Wireless Communications Networks *(10 Credits)* (O)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Stages,10 Credits per Stage)* (O)
- Power Devices and Applications† *(10 Credits) (O)*

Stage 2 (September start date) / **Stage 1** (January start date)
50 Credits (1 x Core Module and 40 credits from the Option Modules listed):

- Research Seminar Series *(10 Credits) (C)*
- Advanced Mobile and Satellite Communications† *(10 Credits)* (O)††
- Control System Design *(20 Credits split over both Stages,10 Credits per Stage)* (O)††
- Digital Communications Principles *(10 Credits)* (O)
- Digital Design using HDL† *(10 Credits)* (O)
- Mobile Applications Technologies *(10 Credits)* (O)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Stages,10 Credits per Stage)* (O)
- Risk Management *(10 Credits)* (O)
- Sustainable Energy *(10 Credits)* (O)
- Terminal Technologies *(10 Credits)* (O)
- Wireless Embedded Technology in Healthcare *(10 Credits)* (O)

Semesters 1 and 2, and Stage 3:

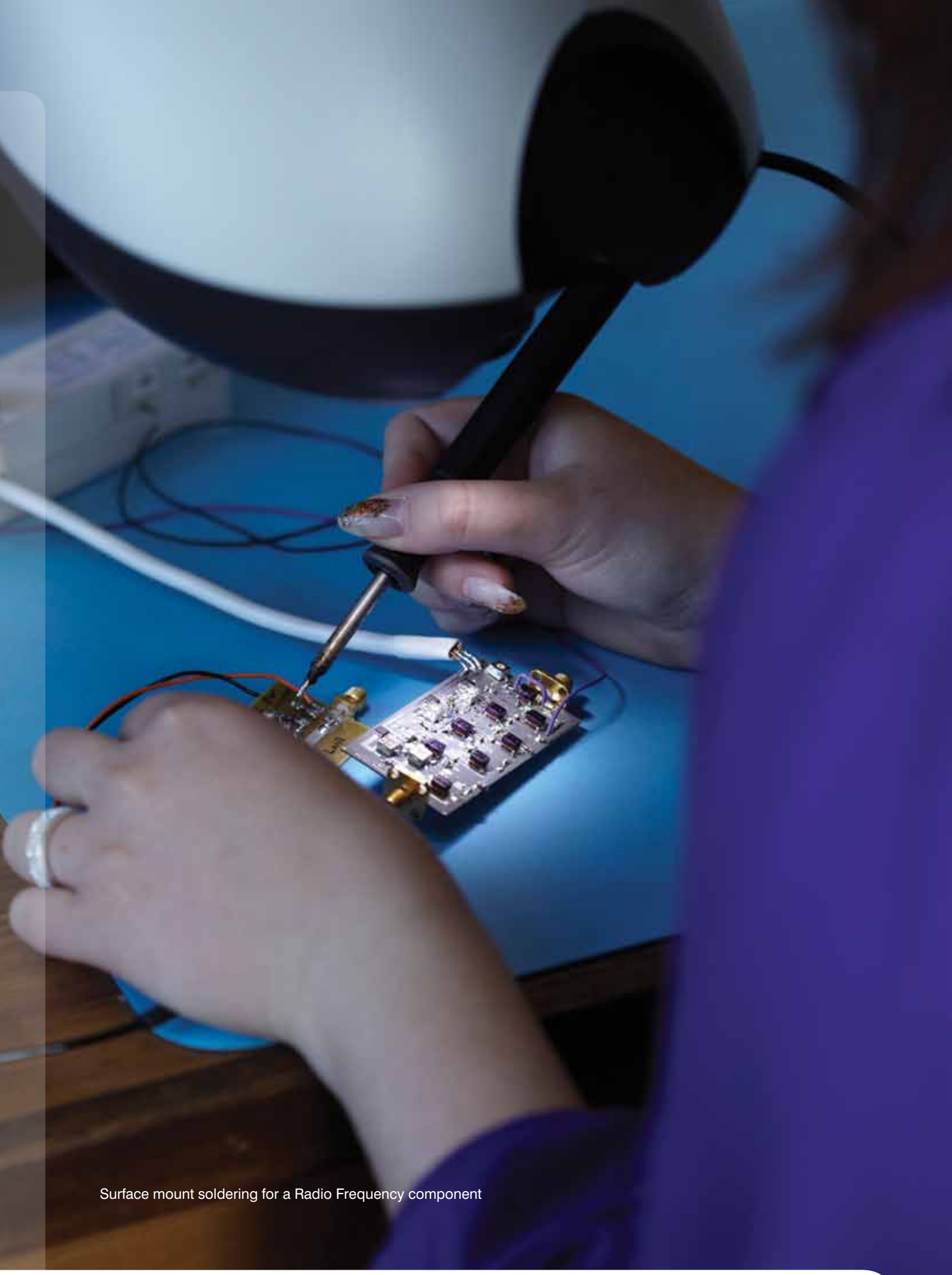
- MSc Project (80 Credits) (C)

The modules below are substitution modules. These are only available to students graduating from Bradford BEng courses who may have already studied one or more of the modules shown above:

- Advanced Embedded Systems Design† *(10 Credits)* (S1)††
- Advanced Embedded Systems Applications† *(10 Credits)* (S2)††
- Advanced Numerical Methods *(10 Credits)* (S1)
- Computer Applications of Numerical Methods *(10 Credits)* (S1)
- Design Optimisation *(10 Credits)* (S1)
- Satellite Communications *(10 Credits)* (S1)

†† *September-start date only*

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course.



Surface mount soldering for a Radio Frequency component

For further information: Tel: 00 44 1274 234543 Email: pg-eng-enquiries@bradford.ac.uk www.bradford.ac.uk/postgraduate/courses/edt

Electrical Engineering with Power Electronics

MSc

Huge advances in wireless, internet and information technologies have resulted in massive growth in the diversity of electrical engineering applications, ranging from kitchen appliances to intelligent mobile robots, garden lighting solar cells to renewable energy wind farms.

This hands-on highly-innovative course, which is constantly updated, examines state-of-the-art tools and techniques in hardware, software, digital signal processing, power electronics and control, including industrial applications in the emerging power and energy industry – providing an in-depth insight into these areas.

Students take an interactive approach to learning skills highly relevant to the needs of the electronics industry. Those taking part in the programme encourage and support each other to push their knowledge to the frontiers of these expanding technologies.

Examples of projects:

- Design and construction of an autonomous postman
- Investigation of very fast switching of high-power IHGBTs
- Application of neural networks to motor drives

Special Features:

- This course supplies a significant practical element in robotics and power electronics as well as covering concepts in modern power electronics. Essential theory on the signal processing driving modern electrical engineering is examined, and a thorough understanding of energy generation and the issues related to energy are covered
- There are excellent laboratory facilities for carrying out practical projects and students can tap into the knowledge of specialist lecturers researching specific topic areas

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
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IET Accredited Programme
The Institution of Engineering and Technology

Modules 2011/12:

All Modules are Core (C)

Semester 1 50 Credits (5 x Core Modules):

- Control System Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Digital Signal Processing *(10 Credits)* (C)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Power Devices and Applications *(10 Credits)* (C)
- Signals and Systems Theory *(10 Credits)* (C)

Semester 2 50 Credits (5 x Core Modules):

- Control System Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Power Converters and Applications *(10 Credits)* (C)
- Research Seminar Series *(10 Credits)* (C)
- Sustainable Energy *(10 Credits)* (C)
- Terminal Technologies *(10 Credits) (C) (to replace Sustainable Energy if substitution is required)*

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

The modules below are substitution modules. These are only available to students graduating from Bradford BEng courses who may have already studied one or more of the modules shown above:

- Advanced Embedded Systems Design† *(10 Credits)* (S1)
- Advanced Embedded Systems Applications† *(10 Credits)* (S2)
- Advanced Numerical Methods *(10 Credits)* (S1)
- Computer Applications of Numerical Methods *(10 Credits)* (S1)
- Design Optimisation *(10 Credits)* (S1)

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course

Personal, Mobile and Satellite Communications

MSc

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September and January

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
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IET Accredited Programme
The Institution of Engineering and Technology

Mobile communication technology is advancing at great speed – more than five billion people worldwide own a mobile phone – and to sustain this market growth, the industry needs to operate in an innovative and technically challenging environment.

Examples of projects:

- Software simulation for OFDM in 4G mobile communications.
- Resource management in 3G mobile networks.
- Simulation of wireless LAN (IEEE802 11b) MAC protocols.

Special Features:

- This course is the University's most popular applied-sciences postgraduate degree programme and provides skills in the latest technology driving the telecommunications revolution. It covers key areas of mobile communications and the internet, and satellite and digital communication systems
- Students not only study the fundamentals associated with mobile communications but also the latest advances in the mobile communications field, including the way 2G and 3G systems operate, with an emphasis on radio transmission technology. The concepts of software radio are introduced as are the fundamentals behind satellite technology. Advances in antennae are examined; the theory behind the underlying networks that allow mobile communications to operate, from system and network perspectives, is studied together with subjects such as the internet and its protocols, quality of service (QoS) support, mobility management, security mechanisms and the convergence between mobile and Internet technologies. An understanding of the underlying software that resides on the terminal is also developed

Modules 2011/12:

All Modules are Core (C)

Stage 1 (September start date) / **Stage 2** (January start date) - 50 Credits (5 x Core Modules):

- Antenna and Mobile Propagation *(10 Credits)* (C)
- Digital Signal Processing *(10 Credits)* (C)
- Mobile and Wireless Communication Networks *(10 Credits)* (C)
- Satellite Communications *(10 Credits)* (C)
- Signals and Systems Theory *(10 Credits)* (C)

Stage 2 (September start date) / **Stage 1** (January start date) - 50 Credits (5 x Core Modules)

- Advanced Networking Protocols *(10 Credits)* (C)
- Digital Communication Principles *(10 Credits)* (C)
- Mobile Applications Technologies *(10 Credits)* (C)
- Research Seminar Series *(10 Credits)* (C)
- Terminal Technologies *(10 Credits)* (C)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

The modules below are substitution modules. These are only available to students graduating from Bradford BEng courses who may have already studied one or more of the modules shown above:

- Advanced Embedded Systems Design† *(10 Credits)* (S1)
- Advanced Embedded Systems Applications† *(10 Credits)* (S2)
- Advanced Numerical Methods *(10 Credits)* (S1)
- Design Optimisation *(10 Credits)* (S1)

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course

Wireless Sensors and Embedded Systems

MSc

This pioneering course was the first of its kind in the UK and is helping to meet the escalating demand for a skilled workforce in this exciting branch of telecommunications and the wireless/mobile computing industry. The skills gained are in demand in a wide range of areas such as patient health monitoring and diagnosis in healthcare; embedded automatic control and monitoring in machinery and robotics; as well as in construction and civil engineering, manufacturing, the environment, transport, and security and surveillance.

Examples of projects:

- Sensor data collection, assimilation and manipulation
- Wireless sensor network architecture design
- Robotic control with wireless sensors
- Wireless sensor network security

Special Features:

- Motivated by technological developments and advances in wireless sensor networks, this course is taught by staff at the forefront of research linked to the areas of study and opens up opportunities for students to work within industry and the public sector
- The programme provides participants with a stimulating learning experience combining theory, practice and research through generic, subject-specific, and research modules
- The world-class Mobile and Satellite Communications Research Centre boasts a fully equipped laboratory to host MSc students, whose research projects are based on industrial projects that bridge the gap between theory and practice

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

IET Accredited Programme
The Institution of Engineering and Technology

Modules 2011/12:

All Modules are Core (C)

Semester 1 50 Credits (5 x Core Modules):

- Advanced Embedded Systems Design *(10 Credits)* (C)
- Control Systems Design
  (20 Credits split over both Semesters, 10 Credits per Semester) (C)
- Digital Signal Processing *(10 Credits)* (C)
- Intelligent Sensor Fusion *(10 Credits)* (C)
- Mobile Robotics and Wireless Sensors
  (20 Credits split over both Semesters, 10 Credits per Semester) (C)

Semester 2 50 Credits (5 x Core Modules):

- Advanced Networking Protocols *(10 Credits)* (C)
- Control Systems Design
  (20 Credits split over both Semesters, 10 Credits per Semester) (C)
- Mobile Robotics and Wireless Sensors
  (20 Credits split over both Semesters, 10 Credits per Semester) (C)
- Research Seminar Series *(10 Credits)* (C)
- Wireless Embedded Technology in Healthcare *(10 Credits)* (C)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

The modules below are substitution modules. They are only available to students graduating from Bradford BEng courses who may have already studied one of more of the modules above:

- Advanced Numerical Methods *(10 Credits)* (S1)
- Computer Applications of Numerical Methods *(10 Credits)* (S1)
- Design Optimistaion *(10 Credits)* (S1)

Accurate quarter-scale clay models are used as part of the design development process

 For further information: Tel: 00 44 1274 234543 Email: pg-eng-enquiries@bradford.ac.uk www.bradford.ac.uk/postgraduate/courses/edt

Automotive Engineering

MSc

This course provides advanced knowledge and understanding of vehicle control, mechatronics, and computer-aided engineering techniques designed to meet the up-to-the-minute needs of the automotive industry.

Examples of projects:

- Model-based powertrain control
- Design and prototyping of hybrid vehicles
- Turbocharge evaluation and optimisation

Special Features:

- Students benefit from the School of Engineering, Design and Technology's strong links with the automotive industry, in particular Ford Motor Company, Jaguar Cars, Land Rover, Cummins Turbo Technologies and their supplier base
- Modern-day vehicles feature an increasing use of control systems and microprocessors to integrate mechanical, electrical and electronic systems. Students are involved in meeting the challenges of the automotive engineering industry including achieving the best combination of performance and fuel economy while meeting ever-tightening emissions legislation; achieving a good ride and control of the vehicle; and ensuring safety over a wide range of braking and traction conditions

Collaborative Partners:
Ford Motor Company, Jaguar Cars, Land Rover, Cummins Turbo Technologies and their supplier base.

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Institution of MECHANICAL ENGINEERS
The Institution of Mechanical Engineers

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 50 Credits (4 x Core Modules and 1 x Option Module):

- Control Systems Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Engine and Powertrain† *(10 Credits)* (C)
- Engine Mapping and Calibration *(10 Credits)* (C)
- Virtual Vehicle Prototyping *(10 Credits)* (C)
- Computer Applications of Numerical Methods *(10 Credits)* (O)
- Design Optimisation *(10 Credits)* (O)
- Engineering Vibration *(10 Credits)* (O)
- Interdisciplinary Competitive Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Materials Failure Analysis† *(10 Credits)* (O)

Semester 2 50 Credits (3 x Core Modules and 2 x Option Modules):

- Control Systems Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (C)
- Vehicle Drive-Train Analysis *(10 Credits)* (C)
- Vehicle Dynamics† *(10 Credits)* (C)
- Finite Element Methods *(10 Credits)* (O)
- Interdisciplinary Competitive Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Risk Management *(10 Credits)* (O)
- Sustainable Energy *(10 Credits)* (O)
- Vehicle Control Systems *(10 Credits)* (O)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course

Mechanical Engineering

MSc

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Institution of MECHANICAL ENGINEERS
The Institution of Mechanical Engineers

This course is designed to provide an advanced level of knowledge and understanding in mechanics, materials selection, manufacturing, mechatronics, control, plus computer-aided design and engineering techniques to design and develop integrated mechanical systems.

Special Features:

- The course is carefully designed to ensure all-round growth of the student – developing intellectual knowledge and understanding, discipline-specific expertise, as well as personal and transferable skills. Graduates gain technical depth, and broadening in terms of the ability to innovate, exposure to other branches of engineering, and enhanced research skills. In addition, leadership and managerial strengths are cultivated that can lead to Chartered Engineer (CEng) status
- Participants benefit from learning advanced principles of the design and control of mechanical systems along with computational and simulation methods to ensure reliability and robustness of mechanical systems. They will gain knowledge in vibration, computational fluid dynamics, and manufacturing simulation. Students will learn to use industry-standard computational tools and analysis packages in the advanced analysis, design and evaluation of complex mechanical systems and numerical methods for modelling and analysing engineering problems

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 50 Credits (3 x Core Modules and 2 x Option Module):

- Computer Applications of Numerical Methods *(10 Credits)* (C)
- Design Optimisation *(10 Credits)* (C)
- Engineering Vibration *(10 Credits)* (C)
- Control Systems Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Interdisciplinary Competitive Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Manufacturing Planning and Control *(10 Credits)* (O)
- Materials Failure Analysis† *(10 Credits)* (O)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)

Semester 2 50 Credits (3 x Core Modules and 2 x Option Modules):

- Advanced Solid Mechanics *(10 Credits)* (C)
- Environmental Computational Fluid Dynamics *(10 Credits)* (C)
- Finite Element (FE) Methods *(10 Credits)* (C)
- Control Systems Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Interdisciplinary Competitive Design *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Mobile Robotics and Wireless Sensors *(20 Credits split over both Semesters, 10 Credits per Semester)* (O)
- Reliability Engineering† *(10 Credits)* (O)
- Risk Management *(10 Credits)* (O)
- Sustainable Energy *(10 Credits)* (O)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course

Micromoulding machine used to manufacture products at micro-scale, often with sub-micro features

Polymer Engineering

MSc

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in Advanced Materials or a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Institution of MECHANICAL ENGINEERS
The Institution of Mechanical Engineers

The ability to engineer and process polymeric materials with advanced properties is a challenging task which lies at the heart of today's emerging technologies. Consumer products have become more sophisticated placing increasing demands on the functionality of polymers; this can be seen in the exploitation of polymers in electronics, nanotechnology, sustainable energy and medicine.

Increased sophistication requires intelligent transformation and structuring of the polymer morphology. Engineering polymers for new applications requires not only knowledge of their physical/ mechanical properties but an understanding of process influence on microstructure and morphology. A polymer engineer needs to design, optimise and control processing so as to tailor and impart desirable structure in the polymeric or composite material.

The course thus develops knowledge and understanding of polymer engineering for students to be able to successfully utilise the vast array of polymers and polymer composites available to today's engineers.

Special Features:

- This course draws its strengths from the expertise of globally-acclaimed IRC in Polymer Science and Technology, based in the School of Engineering, Design and Technology. Research themes from three centres within the IRC feed into the curricula and ensure relevance to emerging technology; the Centre for Polymer Micro and Nano Technology, the Centre for Advanced Materials Engineering and the Centre for Pharmaceutical Engineering Science.
- Graduates will enjoy excellent career prospects in polymer R&D and plastics conversion industries.
- Students have a choice of research projects that push the boundaries of polymer engineering, process rheology, process and product development, polymer micro and nanotechnology, bioactive composites, medical implants, pharmaceutical polymers, shape memory polymers, and coating science and technologies.
- Facilities include state-of-the-art polymer processing, characterisation and simulation capabilities.

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 50 Credits
(2 x Core Modules and 20 credits from the Option Modules listed):

- Polymer Science and Technology *(10 Credits)* (C)
- Polymer Engineering *(20 Credits)* (C)
- Biotribiology *(10 Credits)* (O)
- Biomaterials *(10 Credits)* (O)
- Computer Applications of Numerical Methods *(10 Credits)* (O)
- Design Optimisation *(10 Credits)* (O)
- Manufacturing Planning & Control *(10 Credits)* (O)

Semester 2 50 Credits
(2 x Core Modules and 20 credits from the Option Modules listed):

- Polymer Characterisation *(20 Credits)* (C)
- Polymer Processing *(10 Credits)* (C)
- Advanced Solid Mechanics *(10 Credits)* (O)
- Finite Element Methods *(10 Credits)* (O)
- Risk Management *(10 Credits)* (O)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

Medical Engineering

MSc

This exciting course was developed in response to increasing demand in this emerging discipline and is run by the medical engineering research team, which is an integral part of the Advanced Materials Engineering Research Group at Bradford.

The Medical Engineering teaching team includes Professor Clive Beggs (microbiology, biophysics and tissue engineering), Professor Simon Shepherd (biophysics and genomics), Dr Peter Twigg (biomaterials and biomechanics), Dr Mansour Youseffi (biomaterials) and Dr John Buckley (gait analysis, biomechanics and visual performance). The team has close research ties with clinicians at hospitals in Bradford, Leeds and Harrogate.

Special Features:

- The University has a long tradition of outstanding research in the field of medical engineering and was the first university in the UK to offer this discipline at undergraduate level
- You will study in a research-intensive environment and gain an advanced understanding of the subject
- You will have the opportunity to use some of the specialist biomedical engineering research facilities including:
  - A tissue characterisation laboratory
  - A state-of-the-art human movement laboratory
  - A prosthetic joint laboratory
  - A human physiology laboratory
  - A world-class bioaerosol test facility
  - An electrostatics laboratory
- In addition to the above, the School has access to the University's excellent cell/tissue culture laboratory facility
- We have applied for IMechE accreditation for this course for 2012 entry

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September

Attendance Mode:
Full-time

Duration:
12 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 60 Credits (1 x Core Module and 3 x Option Modules):

- Major PG Diploma Project *(30 Credits)* (C)
- Biomaterials† *(10 Credits)* (O)
- Design Optimisation *(10 Credits)* (O)
- Genomic Coding *(10 Credits)* (O)
- Medical Ethics and Regulations† *(10 Credits)* (O)
- Tissue Engineering and Wound Repair *(10 Credits)* (O)

Semester 2 60 Credits (1 x Core Module and 3 x Option Modules):

- Major PG Diploma Project *(30 Credits)* (C)
- Clinical Biomechanics *(10 Credits)* (O)
- Clinical Signals *(10 Credits)* (O)
- Finite Element Methods *(10 Credits)* (O)
- Infection Control *(10 Credits)* (O)
- Medical Instrumentation and Imaging† *(10 Credits)* (O)
- Rehabilitation Engineering *(10 Credits)* (O)
- Risk Management *(10 Credits)* (O)

Stage 3:

- MSc Project *(60 Credits)* (C)
- Wireless Technology in Healthcare *(10 Credits)* (O)**

Modules marked with an † are Level-3 modules. No more than two Level-3 modules can be chosen for the entire MSc course

** Students wishing to take the module 'Wireless Technology in Healthcare' in Stage 3 can only take 20 Credits from Semester 2 Option modules

Information Technology Management

MSc

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September and January

Attendance Mode:
Full-time

Duration:
12-15 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

This course provides students with valuable skills to understand and exploit the explosive growth in information technology (IT) and the internet. It provides expertise in the areas of management of information technology and how to program and operate web servers.

Examples of projects:

- Corporate performance of top UK commercial websites
- Interactive websites
- Website design

Special Features:

- The Advanced Web and Server Programming, and Advanced Systems Programming modules enable students to program by utilising the software programming languages used in servers. The former covers website generation using HTML, Java-script and wireless mark-up language, as well as programming links between websites and databases using PHP. Cryptography and Network Security and Commerce on the WWW modules provide network and security skills. Management skills are developed with modules in Project Management, Six Sigma for Business Excellence, and Risk Management. Project skills are expanded with the Research Seminar series. Managing Knowledge in Organisations gives an understanding of knowledge and its strategic management as an organisational asset
- Graduates of this course have great career prospects, given that nearly every contemporary commercial or public organisation uses IT in its daily operations. In particular, the introduction of third-generation mobile communications, together with emerging technologies – such as Wi-Fi – are creating exciting professional opportunities for graduates demonstrating the high-level skills that this programme brings

Modules 2011/12:

(C) = Core (O) = Option

Semester 1 40 Credits
(1 x Core Module and 20 credits from the Option Modules listed):

- Advanced Web and Server Programming *(20 Credits)* (C)
- Accounting for Management Design *(10 Credits)* (O)
- Corporate Strategy and Engineering Management *(10 Credits)* (O)
- Cryptography and Network Security *(10 Credits)* (O)
- Design for Human-Computer Interaction *(10 Credits)* (O)
- Manufacturing Systems Simulation *(10 Credits)* (O)
- Networks and Protocols *(20 Credits)* (O)
- Project and Programme Management *(20 Credits)* (O)
- Security, Privacy and Data Protection *(20 Credits)* (O)
- Six Sigma for Business Excellence *(10 Credits)* (O)
- Supply Chain Management *(10 Credits)* (O)

Semester 2 - 60 Credits (4 x Core Modules and 2 x Option Modules):

- Commerce on the WWW *(10 Credits)* (C)
- Knowledge Management and Business Intelligence *(10 Credits)* (C)
- Research Seminar Series *(10 Credits)* (C)
- Risk Management *(10 Credits)* (C)
- Applied Strategic Management *(10 Credits)* (O)
- Corporate Strategy and Engineering Management *(10 Credits)* (O)
- Mobile Applications Technologies *(10 Credits) (O)*
- Reliability Engineering *(10 Credits)* (O)

Semester 1 and Stage 3:

- MSc Project *(80 Credits)* (C)

Manufacturing Management

MSc

Manufacturing Engineering has a major impact on society and has been responsible for the creation of robots and automated guided vehicles to name but a few.

This course addresses this technological drive and is designed to produce students who remain competitive in the world marketplace by being versatile, adaptable and computer literate. They will possess technical knowledge, analytical capability and practical skills and business and commercial awareness in the design and implementation of manufacturing technologies and systems, to meet the huge demand for well-qualified manufacturing engineers.

This programme is designed to provide skills in computer-aided design and manufacturing, manufacturing technologies and processes, quality control systems, supply chain management, computer-integrated manufacturing, materials selection, and the latest techniques such as lean manufacturing systems.

Manufacturing technology: Provides a detailed understanding of key technologies, materials and techniques employed in modern manufacturing and production systems.

Manufacturing Systems: Develops a comprehensive appreciation of management and business, interfaced with technology in a contemporary manufacturing business environment.

Special Features:

- The School's programmes have an established record for excellence in research in mechanical, manufacturing, materials, medical and automotive engineering
- The course enables graduates of the programme to progress quickly to impressive positions of professional responsibility in manufacturing-related organisations, with a minimum of extra training
- In creating the course, advice has been sought from leading industrial organisations, including BAE Systems Ltd. This all helps to ensure that your course is as up-to-date as possible and is consistent with contemporary management practices

Suitable for International Students:
Yes

Level of English required for non-native speakers:
IELTS at 6.0 or the equivalent

Start Date:
September and January

Attendance Mode:
Full-time

Duration:
12-15 months

Entry Requirements:
A second-class Honours degree or equivalent in relevant discipline.

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience in a related area are considered on an individual basis.

Fees (2011-2012)*:	**FT**
Home/EU:	£4,270
International:	£12,450

*An increase can be expected for 2012/13

How to apply:
See page 34

IET Accredited Programme
The Institution of Engineering and Technology

Modules 2011/12:

All Modules are Core (C)

Semester 1 50 Credits (5 x Core Modules):

- Manufacturing and Materials Processing *(10 Credits)* (C)
- Manufacturing Planning and Control *(10 Credits)* (C)
- Manufacturing Systems Simulation *(10 Credits)* (C)
- Six Sigma for Business Excellence *(10 Credits)* (C)
- Supply Chain Management *(10 Credits)* (C)

Semester 2 50 Credits (5 x Core Modules):

- Advanced Manufacturing Technology *(10 Credits)* (C)
- Aerospace Manufacture and Management *(10 Credits)* (C)
- Knowledge Management and Business Intelligence *(10 Credits)* (C)
- Risk Management *(10 Credits)* (C)
- Sustainable Energy *(10 Credits)* (C)

Semesters 1 and 2, and Stage 3:

- MSc Project *(80 Credits)* (C)

HOW TO APPLY

The easiest and quickest way to apply to study at the University of Bradford is to use our online form at www.bradford.ac.uk/postgraduate

Although we encourage online applications, downloadable forms are also available from the above website under the 'How to Apply' sections.

If you would prefer a paper copy of the Postgraduate Application Form please contact the Course Enquiries Office:

Email: course-enquiries@bradford.ac.uk

Tel: 0800 073 1225 (freephone)
or from outside the UK dial 00 44 1274 233081

University of Bradford
Bradford
West Yorkshire BD7 1DP
United Kingdom

www.bradford.ac.uk/

If you complete a downloadable or paper form, you should return this to the contact person or office listed on the course or research page.

Along with an application form the following supporting documents are normally required:

- Degree certificates/transcripts
- Two references (at least one should be academic)
- Evidence of English language (if required)
- A copy of your passport

If you apply online there is a facility to upload these documents at the end of the process. We prefer you to submit your application form and supporting materials electronically. This will help us to process your application more rapidly.

Entry Requirements

All applicants for postgraduate degrees have to satisfy the requirements of the relevant programme – see the section on entry requirements on the relevant course pages in this Prospectus, and also the Ordinances of the University. The Ordinance of the University relating to taught courses can also be found via the internet at:
www.bradford.ac.uk/taught-degrees-qa
and the Ordinance for research can be found at:
www.bradford.ac.uk/research-degrees-qa

English Language Requirements

If your first language is not English, you will need to provide proof of your English proficiency before you can be admitted onto any of our postgraduate courses. You can show you have reached the required level in either of two ways.

1. By taking an international English language test such as:

- **IELTS (The International English Language Testing System).** This is administered by the British Council and is the preferred English language test by the University. You will need to achieve an Overall Band score of at least 6.0, with at least 5.5 in each of the four sub-tests (speaking, listening, reading, writing). Testing facilities are available at most British Council overseas offices. When you take your test, you should ask for a copy of your Test Report Form to be sent to the University.

- **TOEFL (The Test of English as a Foreign Language).** This is administered by the Educational Testing Service in the USA. You will need to score at least 87 on the internet-based test. If you take this test, you should enter the University's code 0828 on your answer sheet.

The IELTS and TOEFL tests are the most common, but other English language qualifications may also be accepted. These include the Pearson Test of English Academic (PTE Academic); and also the Cambridge Advanced Certificate; Cambridge Proficiency Certificate; and GCE/GCSE English language – all at grade C or above.

2. By successfully completing a University of Bradford Preparatory English Programme:

- Summer Pre-Sessional English Courses (6 or 10 weeks)
- International Foundation Programme (one or two semesters)
- IELTS Preparation Course (15 weeks or 30 weeks)

Find them at www.bradford.ac.uk/languages/international, or for more information please email ulc@bradford.ac.uk and see pages 8-9.

Additional instructions for Taught Courses

If you wish to apply for a postgraduate taught course, you should preferably complete the online form, or complete the paper application form and return this to the contact person or office listed on the course page, preferably via email at the University address.

We advise you to send in your application at an early stage, especially if you will require a visa to study in the UK, even if you have not yet completed your previous course of study. It is quite usual for offers to be made conditional on your successful completion of a certain qualification.

All applications are considered carefully and individually. It helps us to process your application if the form is submitted online or typed or clearly written, with all sections completed fully and accurately, and all relevant supporting documentation submitted.

The application form will ask you to provide the names of two people who know your academic or professional work (an academic reference is a requirement), and who would be willing to provide a confidential statement to the University regarding your suitability for the course you are applying for. You must arrange for your referees to send references to the University, unless you have provided their email addresses as part of the online application form and then the system will email your referees direct.

Additional instructions for Research

In addition to your completed application form and supporting documents, you need to provide details about your preferred research area. For more information on what areas are available, please visit the School's Research website, or contact the person listed on the School's research page of the area that interests you.

The School must ensure that the University can provide the necessary supervision, equipment and research materials. For this to happen, the School needs to know about your proposed research topic in some detail, and also be assured that you have the prerequisite knowledge and experience.

If you don't apply online, you should send this information and any supporting documents to the contact name given for research on the appropriate page. If you have applied online, your information will be sent automatically to the relevant research group.

The majority of research students start in September, but it may be possible to start with effect from January, April or July. Typical periods of registration for full-time research are fifteen months (minimum twelve) for an MPhil, and three years minimum for a PhD.

Part-time and distance learning study

Distance learning is available for some taught courses, and part-time study is possible for some taught courses and in principle for all research degrees. Part-time taught courses generally last for two years. Typical periods of registration for part-time research degrees are three years for MPhil and five years for PhD.

Extramural study

In some limited circumstances it may be possible for students to undertake a significant part, or even the whole, of a programme of research away from the University, provided that suitable arrangements for supervision can be made. This must be negotiated with the appropriate School.

Visiting students

Each year we welcome a number of occasional and visiting students who are not registered for a complete degree programme. These students attend individual courses or undertake a special programme of research as either full-time or part-time students, and pay fees at an appropriate rate.

If you are interested in undertaking a programme of study or research which does not lead to any formal Bradford qualification, you should write to the contact name in the appropriate School setting out your requirements.

Academic Year Dates and Enrolment

Our academic year runs from near the end of September to the end of May. All full-time taught Master's and research programmes involve study over 12 calendar months, as they incorporate a research project/ dissertation that you work on in the summer months.

Check with our Student Administration staff at hub-ceremonies@bradford.ac.uk for details of when your graduation ceremony would be.

International student enrolment and induction normally takes place almost two weeks before the start of term, but for home or EU students enrolment normally takes place a week before the start of term.

It is best if new research students can also enrol at the beginning of the academic year in September, though there is more flexibility here. If you wish to start your research programme at any other time (such as the beginning of January), then you will need to make arrangements with your School.

You are encouraged to attend the special 'Welcome Week' organised by the Students' Union which takes place during enrolment, a week prior to the start of term. This will introduce you to the University in particular, and life in the City of Bradford in general. If you are coming from overseas you should also certainly aim to attend the special programme of orientation events for International Students, which will be held throughout 'International Student Enrolment' and 'Welcome Week'.

It is also a good idea to make sure of your accommodation before Semester One starts, especially if you are coming from overseas and/or making your own arrangements. Accommodation is easier to find in Bradford than in most cities in the UK, but it is still wise to get this sorted out before you begin your formal study.

Therefore we shall certainly expect you to come to Bradford before the first day of the first semester towards the end of September.

At the time of going to print, precise dates for 2012/13 are not available, but you can obtain them by checking our website or by contacting the International Office or your School.

Visiting Us

For details of University Open Days or other opportunities to visit us, visit: www.bradford.ac.uk/openday or contact the Course Enquiries Office, email: openday@bradford.ac.uk

Useful Contacts and Information

General Course Enquiries
Tel: 0800 073 1225
From outside the UK dial 00 44 1274 233081
Textphone/Minicom: 00 44 1274 233685
Fax: 00 44 1274 235585
Email: course-enquiries@bradford.ac.uk
University of Bradford, Bradford,
West Yorkshire, BD7 1DP, United Kingdom

Facilities for Disabled Students
Tel: 00 44 1274 233739
Minicom: 00 44 1274 235094
Fax: 00 44 1274 236200
Email: disabilities@bradford.ac.uk

Accommodation

Halls of Residence
Tel: 00 44 1274 234883 or 235501
Fax: 00 44 1274 234882
Email: accommodation@bradford.a.cuk

Private Accommodation
Tel: 00 44 1274 235899
Fax: 00 44 1274 235824
Email: info@unipol.bradford.ac.uk

International Office
Tel: 00 44 1274 235954
Fax: 00 44 1274 235953
Email: international-office@bradford.ac.uk

Students' Union
Tel: 00 44 1274 233300
Email: ubu-comms@bradford.ac.uk

Financial Support
Tel: 00 44 1274 236977
Fax: 00 44 1274 235810
Email: hub-support@bradford.ac.uk

SEDT PGP / 2600 / 10 / 2011

We can arrange for this material to be transcribed into an accessible format such as Braille, large print, E-text (compatible with screen-reading software) or digital audio such as CD. Please contact Marketing and Communications on 00 44 1274 233035.

The University of Bradford – Confronting Inequality: Celebrating Diversity™

The University of Bradford is committed to promoting equality, diversity and an inclusive and supportive environment for students, staff and others closely associated with the University in conformity with the provisions of its Charter.

The contents of this publication are correct at the time of printing. The University reserves the right to alter or withdraw courses, services and facilities as described in this Prospectus without notice and to amend Ordinances, Regulations, fees and charges at any time. Students should enquire as to the up-to-date position when applying for their course of study. Admittance to the University is subject to the requirement that the student complies with the University's admissions procedures and observes the Charter and Statutes and the Ordinances and Regulations of the University.

Acknowledgements

This University of Bradford School of Engineering, Design and Technology Prospectus has been designed to give a general view of the postgraduate provision available in the School at the University of Bradford. If there is any information not included that you would have liked to see, or anything on which you would have liked more detail, then send your comments to the Marketing and Communications Department at the University (marcomms@bradford.ac.uk).

Useful Links

www.bradford.ac.uk
http://twitter.com/BradfordUni
www.youtube.com/UniversityOfBradford
www.wildwestyorkshire.com
www.facebook.com/Bradfordalumni

Find us on Facebook

OTHER POSTGRADUATE COURSES AVAILABLE AT THE UNIVERSITY

Area/Subject	Qualification
School of Computing, Informatics and Media	
Advanced Computer Animation and Special Effects	MA / MSc
Advanced Computer Science	MSc
Artificial Intelligence for Games	MSc
Computer Animation and Special Effects	MA / MSc
Computing	MSc
Computing by Research	MSc
Creative Technology by Research	MSc
Digital Arts and Media	MA
Digital Filmmaking	MA
Digital Media by Research	MSc
Film Studies	MA
Forensic Computing	MSc
Informatics by Research	MSc
Internet, Computer and System Security	MSc
Media Studies	MA
Mobile Applications	MSc
Mobile Computing	MSc
Mutlidisciplinary Computing	MSc
Music Video Production	MA
Networks and Performance Engineering	MSc
Professional Media Practice	MA / PGDip / PGCert
Software Engineering	MSc
Visual Computing	MSc
Visual Effects for Post-Production	MA
Web Technologies	MSc
School of Health Studies	
Advanced Practice – CPD modules	MSc / PGDip / PGCert
Advanced Practice (Nursing)	MSc / PGDip / PGCert
Advanced Practice (Acute Care)	MSc / PGDip
Advanced Practice (Cancer Care)	MSc / PGDip / PGCert
Advanced Practice (Children and Young People)	MSc / PGDip / PGCert
Advanced Practice (Critical Care)	MSc / PGDip / PGCert
Advanced Practice (End of Life Care)	MSc / PGDip / PGCert
Advanced Practice (Public Health)	MSc / PGDip / PGCert
Dementia Studies	MSc / PGDip / PGCert
Dementia Studies (Dementia Care Mapping)	MSc / PGDip / PGCert
Dementia Studies (Dementia Workforce Development)	MSc / PGDip
Dementia Studies (Training in Dementia Care)	MSc / PGDip / PGCert
Diversity Management	MSc / PGDip / PGCert
Health and Social Care Educator (Teacher / Practice Teacher)	PGDip / PGCert
Health and Social Care Management	MSc / PGDip
Imaging in Medicine	MSc
International Health Management	MSc
Leadership, Management and Change in Health and Social Care	MSc / PGDip
Medical Imaging	MSc / PGDip / PGCert
Medical Imaging (Computed Tomography)	MSc / PGDip / PGCert
Medical Imaging (Magnetic Resonance Imaging)	MSc / PGDip / PGCert
Medical Imaging (Radiographic Image Reporting)	MSc / PGDip / PGCert
Midwifery	MSc / PGDip / PGCert
Midwifery – Advanced Clinical Practice	PGDip / PGCert
Midwifery – Diagnostic Hysteroscopy and Therapeutic Management	PGDip / PGCert
Midwifery – Sexual Health	PGDip / PGCert
Nursing (Advanced Practice Nursing)	MSc / PGDip / PGCert
Practitioners with a Special Interest	MSc / PGDip / PGCert
Prescribing for Healthcare Professionals	2 individual M level modules
Rehabilitation Studies	MSc / PGDip / PGCert
Rehabilitation Studies (Continence for Physiotherapists / Musculoskeletal Physiotherapy Practice / Physiotherapy in Women's Health / Sports Physiotherapy)	PGDip / PGCert
Rehabilitation Studies (Physiotherapy)	MSc

Area/Subject	Qualification
School of Life Sciences	
Advanced Pharmacy Practice	MSc
Analytical Sciences – Analytical Chemistry	MSc / PGDip / PGCert
Analytical Sciences – Archaeological Analysis	MSc / PGDip / PGCert
Analytical Sciences – Environmental Analysis	MSc / PGDip / PGCert
Analytical Sciences – Forensic Analysis	MSc / PGDip / PGCert
Analytical Sciences – Pharmaceutical Analysis	MSc / PGDip / PGCert
Archaeological Prospection – Shallow Geophysics	MSc / PGDip
Archaeological Sciences	MSc / PGDip
Archaeology	MA / PGDip
Biomedical Sciences	MSc
Cancer Pharmacology	MSc
Clinical Pharmacy (Community)	MSc / PGDip / PGCert
Clinical Pharmacy (Hospital)	MSc / PGDip / PGCert
Drug Discovery	MSc
Drug Toxicology and Safety Pharmacology	MSc
Forensic Archaeology and Crime Scene Investigation	MSc / PGDip / PGCert
Human Osteology and Palaeopathology	MSc / PGDip
Pharmaceutical Services and Medicines Control	MSc
Pharmaceutical Technology	MSc / PGDip / PGCert
Pharmacy	DPharm
School of Lifelong Education and Development	
English language preparatory programmes	Pre-Master's
International Foundation Programme (IFP)	Pre-Master's
Higher Education Practice	PGCert
Professional Studies	MA, MSc / PGDip / PGCert
TESOL and Applied Linguistics	MA / MEd
Training and Development	MSc / PGDip / PGCert
School of Management	
Applied Management and Enterprise	MSc
Applied Management and Sustainability	MSc
Architectural and Construction Management	MBA
Business Administration	MBA
Business Administration	DBA
European and International Business Management	MSc
Finance	MSc
Finance, Accounting and Management	MSc
Healthcare Law	LLM
Human Resource Management	MSc
International Business and Management	MSc
International Business Law	LLM
Law	GDL
Management	MSc
Marketing and Management	MSc
Sustainable Operations and Management	MSc
School of Social and International Studies	
African Peace and Conflict Studies	MA / PGDip
Applied Criminal Justice Studies	MA / PGDip / PGCert
Applied Dual-Use Biosecurity Education	PG CCE
Conflict Resolution	MA / PGDip
Conflict, Security and Development	MA / PGDip
Development and Project Planning	MSc / PGDip / PGCert
Development Policy and Practice for Civil Society	MSc
Economics (pre-Master's)	PGFndnSt Cert
Economics and Finance for Development	MSc / PGDip
Health Psychology	MSc / PGDip
Human and Organisational Capacity Building for Development	MSc / PGDip / PGCert
Human Trafficking and Contemporary Slavery	MSc / PGDip / PGCert
International Development Management	MA / PGDip / PGCert
International Politics and Security Studies	MA / PGDip
Mental Health Practice	MA / PGDip / PGCert
Mental Health Studies	MA / PGDip / PGCert
Peace Studies	MA / PGDip
Project Planning and Management	MSc / PGDip / PGCert
Psychology	MSc / PGDip
Public Policy and Programme Management	MSc / PGDip
Social Work	MA

Please note that due to external regulations on funding and visas it may not be possible to offer every course to international students. This will only affect a small number of courses. Please check with the department before applying for your course.

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