Department of Mechanical Engineering

UNIVERSITY OF BATH

Undergraduate programmes

Aerospace Engineering

Automotive Engineering

Mechanical Engineering

Mechanical Engineering with Advanced Design & Innovation

Mechanical Engineering with Manufacturing & Management

Integrated Mechanical & Electrical Engineering
(joint degree with Department of Electrical and Electronic Engineering)

Contents

"Number 1 in the UK for teaching excellence"

Sunday Times University Guide 2012

Why Mechanical Engineering?

Engineering is a creative discipline that involves both responding to change and changing the world around us. These skills are generously rewarded. Graduate engineers command higher salaries than the average for new graduates.

Engineers combine creativity in design with scientific analysis to develop new products for new or existing applications. Having a solid grounding in mathematics, science and analysis, combined with a creative approach to real problems, make the graduate engineer employable in a wide range of industries and businesses. They find jobs in a host of high-technology industries from engineering and manufacturing to financial services, accountancy, the armed forces and management.

Why Mechanical Engineering at the University of Bath?

- **Number 1 in the UK for Teaching Excellence - Sunday Times University Guide 2012**
- **Top 3 in Mechanical Engineering in the UK - Sunday Times University Guide 2012**
- **Bath provides the premier route to become a Chartered Engineer through our 4 year MEng programme**
- **All degree programmes are accredited by a range of professional institutions**
- **A large department with a student/staff ratio of approximately 4:1 in year 1, provides a wide range of options within the fields of engineering and management**
- **Students have a choice of degree programme specialisation up to the end of their second year**
- **Close contacts with industry, allowing for project work in year 3 and year 4**
- **Department is committed to supporting real world group design and individual research project work**

"Four of the top ten graduate salaries are in engineering subjects, including Mechanical Engineering."

Higher Education Statistics Agency

MEng (Hons) programmes in Mechanical Engineering

Accredited by

The Institution of Engineering and Technology

Institute of Measurement and Control

Institution of Mechanical Engineers

Royal Aeronautical Society

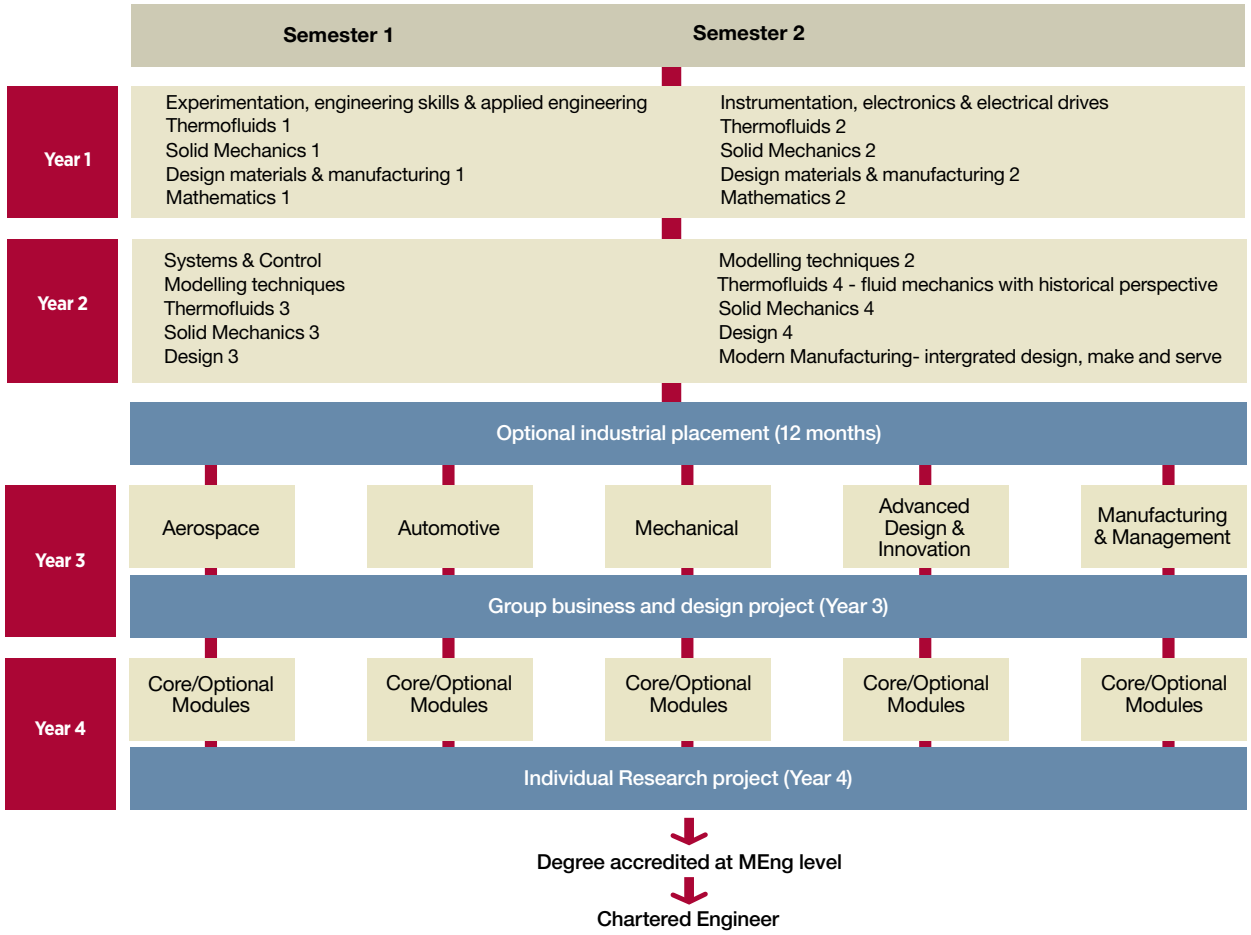
Bath offers the four year masters MEng programme in five disciplines. These provide you with the necessary accreditation towards securing Chartered Engineer status. There is also a combined MEng in Integrated Mechanical and Electrical Engineering (IMEE), jointly run by the Departments of Mechanical Engineering and Electrical Engineering. Our Mechanical MEng degrees are designed to allow you to specialise in one of five areas without giving up the breadth of knowledge needed by a practicing engineer. Our Industrial Advisory Board, with members from a broad range of industries, reviews our programmes on a regular basis to keep them up to date with modern industrial practice. All programmes offer an optional placement year after the second year of study, which is increasingly considered a recruitment tool by prestigious employers. Our graduates are sought after by industry, with an average of 90% progressing directly into graduate level jobs within six months of completing their degree.

Programme Structure

The five Mechanical MEng programmes are based on a common programme in the first two years. This allows you to make a decision on your choice of final degree, at the end of year 2, after you have been exposed to all of the options available. These first two years give you a strong foundation in all areas of mechanical engineering so that your specialist knowledge is not at the expense of flexibility.

The Integrated Mechanical & Electrical Engineering programme (IMEE) has a different course structure, see page 14.

Mechanical Engineering programme structure



Course Units

Thermofluids (1,2,3,4)

Thermofluids is the engineering science concerned with the relations between heat and mechanical work, and the conversion of one into the other. It also covers fluid mechanics which deals with fluid flow. You'll need to understand Thermofluids to analyse a whole host of engineering machines. Aircraft aerodynamics and wind turbines as well as car engines and gas turbines all rely on thermofluids.

Solid Mechanics (1,2,3,4)

Solid mechanics is the branch of mechanics, physics and mathematics that concerns the behaviour of solid matter under external actions (e.g. External forces, temperature changes, applied displacements, etc). You'll need a knowledge of Solid Mechanics to design a bridge or analyse the strength of an aircraft body. You'll also use Solid Mechanics to understand how moving machines such as cars respond to forces and torques.

Experimentation, engineering skills & applied engineering

Engineering is a practical discipline in which you will need to gain experience of working with machines. Experimentation, engineering skills and applied engineering includes a workshop training course where you will learn to use machine tools, a series of laboratory exercises to illustrate common engineering phenomena and data acquisition techniques. Writing and presentation skills will be taught to enable you to communicate effectively.

Design materials & manufacturing (1,2)

Design and manufacturing allows the student to use their knowledge of Engineering Science to invent new machines. You will be taught engineering drawing and Computer Aided Design together with all the up to date manufacturing techniques available to the engineer. Students are assessed through individual and group design projects, including a design and make exercise in which you have to make a machine that you've designed on the computer.

Mathematics (1,2)

Mathematics is one of the tools available to the engineer that enables them to understand how machines and systems work. We can use mathematics to predict the performance of machines and as a design tool to analyse new devices. Most engineering subjects rely on applied mathematics to some extent.

Systems & Control

Modern machines are becoming increasingly complex and rely on a combination of mechanical, electrical and computer controlled systems. Systems & Control is the engineering discipline of analysing a set of interacting or interdependent components forming an integrated whole. By understanding the complete engineering machine, rather than a small individual part, the engineer stands a much better chance of improving the performance and efficiency of the product. For instance, many modern aircraft would not fly without microprocessors monitoring the aircraft and pilot behaviour and controlling the wing surfaces accordingly.

Design (3,4)

Design in the second year involves the student in a range of group design projects that require the practical application of engineering science, the ability to analyse and prove the successful operation of the machine, demonstrate how it can be made and how much it will cost. You will also be called upon to produce a business plan and convince your assessors how your project will make a profit for the company.

Modelling Techniques (3,4)

This unit involves the practical application of mathematics and software to predict the behaviour of machines. The industry standard software Matlab is used by students to write computer code that will provide an understanding of the behaviour of complex systems. At the end of the course students will be able to not only write their own programmes but also interpret the results in a practical manner, understanding the benefits and pitfalls of simulation.

Instrumentation, electronics & electrical drives

Increasingly the boundaries between the engineering disciplines of mechanical and electrical engineering are becoming blurred. As a result, it's important that the professional engineer has a broad knowledge of how to measure the performance of systems and how electrical machines interface with mechanical devices. This unit provides an introductory course so that, as a professional engineer, you can work across engineering disciplines.

Explore the full programme catalogue at **www.bath.ac.uk/catalogues**

Aerospace Engineering

UCAS Codes: H400, 4 years without placement
H423, 5 years with placement

Aerospace Engineering is a specialist degree in the design and manufacture of aerospace systems. It includes dedicated units in aerodynamics, aircraft performance, aircraft control and structures along with optional courses covering such areas as composites, advanced aerodynamics, rotorcraft, space flight and noise.

Aerospace engineering provides an exciting career for those wanting to work in this industry. Our graduates are known for their high level of technical leadership, initiative and excellent interpersonal skills that are highly sought after by industry.

Practical Work and Projects

Students have many opportunities throughout the course to further develop their expertise within the aerospace field. In the third year, students work full time in groups to design a new aircraft to a specification determined by industry, including Airbus, British Aerospace and Rolls-Royce. This involves the development of all of the technologies needed in a modern aircraft including aerodynamics, control systems, safety and airworthiness as well as justifying their design in commercial terms.

Students will also participate in a flight test course at a local airfield, and visit the Airbus plant to understand aircraft design and manufacturing.

Examples of individual research projects are:

- **Aerodynamics of membrane wing**
- **Vortex flow over flapping wing**
- **Aircraft noise reduction using novel configurations**
- **Human powered aircraft: wing build and test**
- **Failure investigation of a Rolls-Royce blade**
- **Design of micro-air vehicle (MAV)**
- **Smart structures for morphing wing**

Career opportunities

Career prospects are excellent and jobs our graduates have recently obtained include:

- **Aero Engine Control** - Aerospace Engineer
- **BAE Systems** - Graduate Engineer
- **General Electrics** - Propulsion Engineer
- **Rolls Royce** - Aerospace Engineer
- **Airbus** - Graduate Structural Engineer
- **GE Aviation** - Graduate Engineer

"I found the project really stimulating because it brought together a lot of the theoretical content of the aerospace course and applied it to an intriguing practical problem."

Jon Cherry, MEng (Hons) Aerospace Engineering, working on the human powered aircraft

Typical Subjects Studied:

MEng year 3

Semester 1 Compulsory Units:

- Aerodynamics
- Aircraft performance
- Aerospace structures 1
- Aircraft propulsion
- Aircraft stability & control

Semester 2

- Group business and design project

Or

- External integrated project

MEng year 4

Semester 1

Five optional units from a selection of over 20. Typical selections might include:

- Composite materials
- Turbulence and noise
- Aerospace structures 2
- Computational fluid dynamics
- Finite element analysis

Semester 2

- Individual engineering research project

Key features

- Fully accredited by the Royal Aeronautical Society, Institution of Measurement and Control and Institution of Mechanical Engineers.
- A flight test course conducted at a local airfield and visits to the Airbus plant in Bristol enabling students to understand aircraft from design to manufacture.
- Access to world-leading research centres for aerospace structures and experimental aerodynamics.
- Working in a group to design a new aircraft to a specification determined by industry.

"The reputation of bath in Aerospace and Mechanical Engineering certainly influenced my decision to come study here, but also the fact that the courses have the first two years in common, and that you get to experience many aspects of Mechanical Engineering. This puts you in a better place to be sure what you really want to do for the rest of your degree."

Guillermo Durango, MEng (Hons) Aerospace Engineering

Automotive Engineering

UCAS Codes: H330, 4 years without placement
H343, 5 years with placement

Career opportunities

Graduates from this course are well equipped with the necessary background to work in the broad spectrum of activities that make up the automotive and vehicle industries and are well received by employers both in the UK and overseas. Graduates have a wide range of engineering skills and previous graduates have recently gained jobs with:

- **McLaren Automotive** - Graduate Engineer
- **Lotus Renault GP** - Graduate Design Engineer
- **Triumph Motorcycles** - Design Engineer
- **Ford Motor Company Ltd** - Calibration Engineer

Automotive Engineering is a specialist degree in the design and manufacture of automotive systems. The degree builds on the first two years to specialise in subjects related to vehicle design, performance, analysis and manufacture. The breadth of teaching benefits from exceptionally well equipped laboratory facilities that include engine test cells, a rolling road dynamometer and a road simulator.

Practical Work and Projects

Many of the Automotive Engineering students participate in the Formula Student competition that requires them to design and build a single seat racing car. We are consistently the best placed UK team. Year 3 students experience a week long motorsport racing course as part of the Group Business and Design Project. This includes instructions in driving racing cars and driving a Formula Ford.

The Formula Student activity provides a strong foundation for the full time Group Business and Design Project.

Our students also compete in the Shell Eco-Marathon and have won the UK title on many occasions, achieving a fuel economy in excess of 6,600 miles per gallon.

Examples of individual research projects are:

- **The impact of biodiesel on vehicle performance and emissions**
- **Disc brake cooling system**
- **Simulation of a novel titling three-wheeler**
- **Development of British record holding eco-marathon vehicle**
- **Vehicle duty cycle analysis**
- **Automated engine testing**
- **Investigation of carbon fibre drive shafts**
- **Aerodynamics of racing car bodywork**

Typical Subjects Studied:

MEng year 3

Semester 1 Compulsory Units:

- Control systems
- Vehicle dynamics
- Structural mechanics
- Internal combustion engine technology
- Vehicle engineering

Semester 2

- Group business and design project

Or

- External integrated project

MEng year 4

Semester 1

- Mechanical vibrations and noise
- Powertrain and transportation systems

Three optional units from a selection of over 20. Typical selections might include:

- Energy and the environment
- Finite element analysis
- Materials for energy and transport
- System modelling and simulation
- Manufacturing systems and techniques

Semester 2

- Individual engineering research project

Bath Formula Student racing team 2011, in California.

Key features

- Fully accredited by Institution of Measurement and Control and Institution of Mechanical Engineers.
- Access to world class facilities for automotive engineering including engine test cells, a rolling road dynamometer and a road simulator.
- Opportunity to enter the Formula Student Competition as a member of Team Bath Racing.
- A week long motorsport racing school as part of the group design project.

"Choosing to do Engineering at Bath was the best choice I ever made! The Department has a great atmosphere for both hard work and play. The degree courses are really well structured and allow you to tailor your own degree to suit your own interests."

Richard Burke, MEng (Hons) Automotive Engineering Graduate

Mechanical Engineering

UCAS Codes: H306, 4 years without placement
H309, 5 years with placement

The Mechanical Engineering course offers a wide range of subject options and is particularly suited to those students not wishing to specialise in a specific mechanical engineering discipline at this stage in their education.

You have the option of tailoring the degree programme to your interests by choosing from a wide selection of options such as energy and sustainable design, control systems, materials, structures, aerodynamics, heat transfer, biomechanics, manufacturing and business management.

Practical Work and Projects

The full time Group Business and Design Projects have strong links with industry and are regularly supervised by industrialists as well as academics in the department. Recent group projects have included:

- **A unique modular bike for Moulton Bicycles**
- **A 'flying factory' for straw bale production for Modcell**
- **A tank moving system for the National Tank Museum**

Examples of individual research projects are:

- **Robot motion planning and control**
- **Device for hip and knee assessment**
- **Tracking a black sea turtle underwater**
- **Mechanics of fish swimming**
- **The environmental impact of providing heat and power to rural areas**
- **Solar powered cooker**
- **Machine health and mission planning for an autonomous submarine**
- **Bio-energy production: An environmental life cycle assessment of the extraction of oil from seeds**
- **Scuba divers balancing device**

Career opportunities

Graduates have a wide range of engineering skills and previous graduates have recently gained jobs with:

- **Centrica** - Mechanical Engineer
- **Maersk Oil** - Piping and Mechanical Engineer
- **Hawk-Eye Innovations** - Systems Operator
- **Network Rail** - Graduate Engineer
- **Jaguar Land Rover** - Graduate Engineer
- **Unilever** - Future Leaders Programme in Customer Development
- **E.ON** - Engineer in Gas Turbine Combustion

"The course is able to show you all the impacts that engineering has on the world, and show you how you can contribute towards future developments. It has a great blend of theoretical study and then hands-on experimental work to understand the theory you have just learnt."

Stuart White, MEng (Hons) Mechanical Engineering

Typical Subjects Studied:

MEng year 3

Semester 1 Compulsory Units:

- Control systems
- Structural mechanics
- Thermofluid systems
- Mechanical vibration and noise
- Materials selection in engineering design

Semester 2

- Group business and design project

Or

- External integrated project

MEng year 4

Semester 1

Five optional units from a selection of over 30. Typical selections might include:

- Business processes
- Computational fluid dynamics
- Heat transfer
- Energy and the Environment
- System modelling and simulation

Semester 2

- Individual engineering research project

Key features

- Fully accredited by Institution of Measurement and Control and the Institution of Mechanical Engineers.
- A large department with a student to staff ratio of approximately 4:1 in Year 1, provides a wide range of options within the fields of engineering and management.
- Most flexible degree maximising breadth of career prospects.
- State-of-the-art laboratory and computing facilities.

"In my final year, I was a member of the University of Bath's Racing Submarine Team. We were able to explore our ideas in theory, then put these ideas into practice through the build and development of two human powered submarines. The opportunity to take our ideas through the whole design process from concept, through build and development and into practice at the race was truly a priceless experience.?"

Nicola Keen, MEng (Hons) Mechanical Engineering graduate

Mechanical Engineering with Advanced Design and Innovation

UCAS Codes: H761, 4 years without placement
H762, 5 years with placement

Innovation is the process of transforming ideas into functional and marketable products. This course has been set up in recognition of industry's need for engineering designers specialised in the creation of new products, processes and systems.

The course follows an engineering design curriculum and is supplemented with the skills needed for new product and system development. These include innovation techniques, manufacturing, and business management.

Practical Work and Projects

Design projects give students practical opportunities to develop the skills needed for technical product innovation. Students work in teams and independently, and are encouraged to develop their creative, analytical and experimental work, the creation of computer models and prototypes for new technologies and products.

Examples of individual research projects are:

- **Creative responses in highly constrained aerospace design tasks**
- **Investigating the personal information world of the engineer**
- **Golf ball retrieval device**
- **High-tech umbrella**
- **Water pump for the third world**
- **Off-road wheel chair**

Career opportunities

Graduates have a wide range of engineering skills and previous graduates have recently gained jobs with:

- **Dyson** - Design Engineer
- **Bentley Motors** - Design Engineer
- **Triumph Motorcycles** - Design Engineer
- **Atkins** - Graduate Engineer
- **Google** - Business Analyst
- **nPower** - Research Engineer
- **Penny Hydraulics Ltd** - Project Manager
- **Rolls-Royce** - Engineering Professional Excellence Graduate

"The Department of Mechanical Engineering at Bath is fantastic! The staff provide a friendly and supportive environment and take a personal interest in all students. The Department organised my industrial placement as a project manager at a large pharmaceutical company. The skills I learnt really helped with my group design project."

Duncan Boa, MEng (Hons) Mechanical Engineering with Advanced Design and Innovation

Typical Subjects Studied:

MEng year 3

Semester 1 Compulsory Units:

- Product design and development
- Electronics, signals and drives
- Materials selection in engineering design
- Costing for Engineering Design
- Computer aids for design

Semester 2

- Group business and design project

Or

- External integrated project

MEng year 4

Semester 1

Five optional units from a selection of over 20. Typical selections might include:

- Innovation and advanced design

Plus four optional units.
Subjects available vary from year to year, but a typical selection might include

- Finite element analysis
- Biomimetics
- Specialist design 1
- Composite materials

Semester 2

Specialist design 2

Key features

- Fully accredited by the Institution of Mechanical Engineers and the Institution of Engineering and Technology
- Excellent facilities such as a regularly upgraded global design facility, extensive design computer facilities and a bespoke model shop facility for design and make and prototyping activities.
- Opportunities to undertake experimental design projects driven by current industry needs.

"This degree offers the combination of creative design with practical analysis and manufacturing knowledge which will be needed to power future growth in both our existing and new markets."

Mike Zdybel, Rolls-Royce

Mechanical Engineering with Manufacturing and Management

UCAS Codes: H716, 4 years without placement
H713, 5 years with placement

Manufacturing provides an exciting opportunity for people who want to be part of a coherent and integrated system concerned with all aspects of making products. The course develops an understanding of those sciences and disciplines relating to manufacture and management and show how they can be applied to the creation and operation of production processes.

The course emphasises the integrated nature of advanced manufacturing technology and the flexibility in its use. Extensive use is made of projects and case study material to build up conceptual understanding and an imaginative approach to open ended problems.

Management topics are an integral part of the degree comprising a quarter of the course, covering areas such as marketing, finance, supply chain management and business strategy.

A special feature of the Bath programme is the project activity in the final two years. This pulls together the groundwork of earlier years into a team project, with elements of marketing, management, processes and systems. In the final year, the students complete a management or manufacturing project undertaking research in new business or engineering technologies.

Practical Work and Projects

The full-time Group Business and Design Projects involve a range of areas related to manufacturing such as sports and leisure equipment, medical devices and the organisation of information.

Examples of individual research projects are:

- **Large scale metrology for aerospace applications**
- **Manufacture of customised shoes for medical applications**
- **Design and development of self-replicating 3D printers**
- **Manufacture of shin pads**
- **Design and manufacture of carbon fibre/magnesium wheels**

Career opportunities

Graduates with manufacturing engineering skills are in strong demand throughout the manufacturing industry. This is especially the case in the automotive and aerospace sectors, in which several recent graduates have found interesting and challenging positions. Examples of jobs that our graduates have recently obtained include:

- **Nissan** - Graduate Engineer
- **Airbus** - Project Controller
- **Biomet** - Manufacturing Engineer
- **Shell** - Project Engineer
- **Mars** - Quality & Food Safety Technologist
- **UBS** - Bank Trader
- **Bank of America Merrill Lynch** - Real Estate Structured Finance Analyst

Typical Subjects Studied:

MEng year 3

Semester 1 Compulsory Units:

- Manufacturing processes and analysis
- Manufacturing systems techniques
- Business processes
- Product design and development
- Project management

Semester 2

- Group business and design project

Or

- External integrated project

MEng year 4

Semester 1

Modelling and analysis of manufacturing systems plus four optional units from a selection of over 30. Typical selections might include:

- Supply management
- Costing for Engineering Design
- Technology and innovation management
- Business information systems

Semester 2

- Individual engineering research project

Key features

- Accredited by the Institute of Mechanical Engineers, the Institution of Engineering and Technology and the Institute of Measurement and Control.
- Department is a world leader in digital manufacturing technologies, which students will have access to.
- Opportunity to combine management with engineering enabling graduates to understand all aspects of a business from design and manufacture to running the business and bringing products successfully to market.

"I applied for the Manufacturing and Management programme because I was interested in applying core theoretical engineering practices to the modern world of the manufacturing industry. This coupled perfectly with the opportunity to study more commercial modules in business and management, which I found extremely interesting and still find useful in my career."

AJ Storton, MEng (Hons) Mechanical Engineering with Manufacturing graduate

Integrated Mechanical and Electrical Engineering

UCAS Codes: HHJ6, 4 year MEng without placement
HH36, 3 year BEng without placement
HH3Q, 5 year MEng with placement
HH3P, 4 year BEng with placement

21st Century industries and research laboratories need graduates with multidisciplinary skills who are able to immediately join teams working on complex projects. This Integrated Mechanical & Electrical Engineering (IMEE) programme has been designed in collaboration with industry to meet this need. The IMEE programme achieves this aim without sacrificing the intellectual rigour of a single-discipline programme.

This programme's first two years combine the core engineering sciences of mechanics, materials, electrical and electronic systems and circuits – all integrated into coordinated project and laboratory work. In years 3 and 4, further core subjects and chosen options are studied in depth, culminating in major group and individual projects. The IMEE programme also develops technical and managerial teamwork skills. A unique feature of the programme is the study of applications beyond the boundaries of traditional mechanical and electrical engineering. Industrial sponsorships and bursaries are available, indicating the exciting employment opportunities open to graduates of this degree programme.

Practical Work and Projects

Engineering laboratory classes integrate both electrical and mechanical engineering in years 1 and 2. In study years 3 and 4, semester-long, industry-focused group and individual projects develop essential technical, team-working, business and management skills. Recent group and individual projects have included systems and hardware-level designs for robotics, mechatronics and intelligent machines, automatic systems control, energy management, micro-electromechanical actuators, motor vehicles and autonomous submarines.

Career opportunities

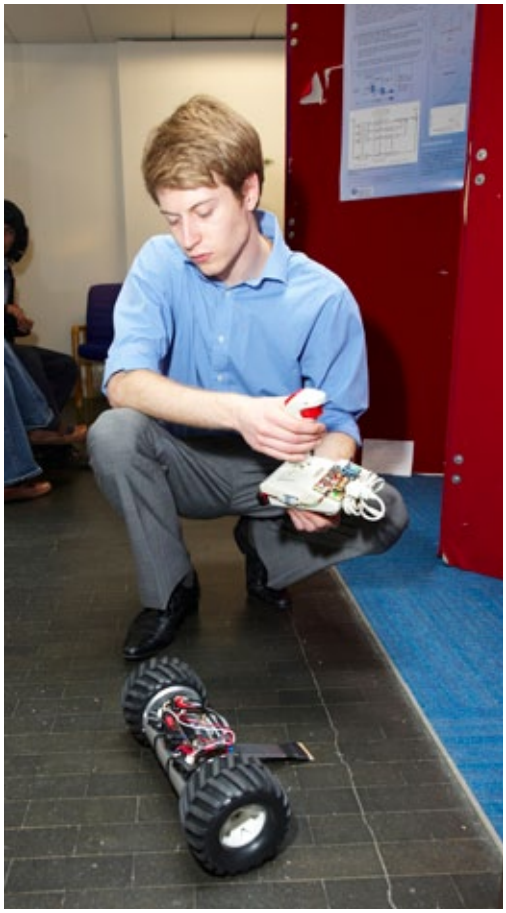
The career prospects for IMEE graduates are excellent and varied. The programme has been designed in consultation with leading industrial partners to make sure that future graduates meet the requirements of 21st Century engineering industries. These partners include :

- Jaguar Land Rover
- OC Robotics
- Rolls Royce
- Reed Hycalog
- BMT Group
- Molins ITCM

"The course is ideal for anyone who wishes to study more than one engineering discipline, and get the 'best of both worlds'. The course will make you highly employable - gaining knowledge in both Mechanical and Electrical engineering means you will stand out even more."

David Angell, MEng (Hons) Integrated Mechanical & Electrical Engineering

	Semester 1	Semester 2
Year 1	Mathematics I Circuit Theory Solid Mechanics I Thermofluids I Design, Materials & Manufacturing I	Mathematics II Digital Electronics Solid Mechanics II Design, Materials & Manufacturing II Introduction to Integrated Engineering
Year 2	Electromagnetics Modelling Techniques I Electronic Devices & Circuits Digital Systems Design Design, Materials & Manufacturing III	Signals Systems & Communications Modelling Techniques II Electrical Systems & Power Electronics Thermofluids II Electronic Control System Design
	Optional industrial placement	
Year 3/4	Integrated Engineering Control Engineering Power Electronic & Drive I *Plus any two of the following:* Materials Selection in Engineering Design Mech Vibration & Noise Vehicle Engineering Business Processes Microelectronic Systems Signal Processing Electrical Energy Systems & Analysis	Group Design & Business Project
	BEng (Hons) completed	
Year 4/5	Robotics Engineering System Modelling & Stimulation *Plus any three of the following:* Digital Image Processing Energy Management System Computational Intelligence Power Electronics & Drive II Innovation/Manufacturing Advanced Control Energy & the Environment Modelling & Analysis of Manufacturing Systems Biomimetics Fluid Power	Individual Integrated Mechanical & Electrical Engineering Project
	MEng (Hons) completed	



Key features

- Accredited by both the Institution of Engineering & Technology and the Institution of Mechanical Engineers
- Taught by two world-class Departments, Electronic & Electrical Engineering and Mechanical Engineering
- An integrated view of engineering, combining mechanical and electrical engineering using extensive industrial case studies
- New state-of-the-art robotics laboratory for enhanced group and individual projects

"There is always a lot to keep my mind engaged because of the broad subject range. During my time in the Department I have been fortunate to visit companies such as Airbus and Royal Mail as well as indulging in pizza after evening talks given by companies such as Rolls Royce and BP. There are excellent placement opportunities, a key reason why I chose Bath and mine has been with Aero Engine controls."

Melissa Leung, MEng (Hons) Integrated Mechanical & Electrical Engineering

Industrial Placements

The Department of Mechanical Engineering offers optional, year-long paid placements with some of the world's most successful companies. Placements allow you to experience life in the workplace and are designed to make you more employable. Our strong links with industry mean we can offer opportunities to be employed by major companies, smaller businesses and government research organisations.

During a placement you will develop your skills in a commercial environment and learn about sophisticated engineering systems. Students decide whether to take a placement during the second year of their degree. If you take part, you will spend your third year as a paid employee of a company or research centre. Placements last for 12 months, although they can be extended. Most employers are based in the UK.

Support and guidance

Our dedicated placements team will help you look for a position and advise you about CVs and interviews. They will also stay in regular contact with you throughout the year. The placement itself is structured and monitored so that it can form part of your record of professional development towards your Chartered Engineer status.

Key benefits

A placement gives you the opportunity to:

- Improve your employment prospects
- Earn between £15,000 and £21,000, whilst keeping your student status
- Decide what strand of engineering to go into after year 2
- Develop your skills alongside professional engineers
- Use advanced equipment typical to current industry
- Make industry contacts, which may lead to further work – or a graduate job offer
- Take a further step towards earning professional status

Recent placement students have worked at

- Airbus
- BAE Systems
- Dyson
- GE Aviation
- Honda Engineering
- Jaguar Land Rover
- McLaren
- National Oilwell Varco
- Proctor & Gamble
- Red Bull Technology
- Rolls-Royce
- RWE npower
- Siemens
- Triumph Motorcycles
- Williams F1

"Placement students gain exposure to the real world in a technology driven, business organisation leading the way in Fast Moving Consumer Goods. They add real value as a full member of the team, expected to deliver within our new products, innovation and supply chain capability."

Unilever, Richard Ward, Innovation Planning Manager

"In total I worked on 13 different projects during my time at 3P, each with their own unique technical challenges. I dealt with every aspect of project work, from forming initial concepts, to creating robust models, building new machines, testing and development and finally delivery of the finished project to the customer. I have enjoyed the responsibility given in running major parts of the projects by myself."

Jack Tuxford, 3P Innovation, MEng (Hons) Mechanical Engineering

What industry says

The Mechanical Engineering programmes at the University of Bath are known for producing high quality engineers with excellent problem solving skills, innovative design ideas and managerial capabilities.

Here are just a few comments on what employers in industry think of Bath graduates and the department:

"Each year, University of Bath students graduate with a natural flare for innovation and creativity which in many cases closely matches ITCM's activities."

Bruce Paxton
Innovative Technology for Custom Machinery (ITCM)

"The students at the University of Bath are enthusiastic, intelligent, and fit in well with our team."

Dr Martin Cross
Engineering Infrastructure Manager, Niftylift Ltd

"The Department continues to uphold its strong belief in high quality academic achievements. This coupled with a modern understanding and teaching of the life/work skills required by modern engineers makes their courses produce graduates that stand out and can deliver excellent results from day one."

Adrian Landa
Rotork

"Williams benefit from the work output of enthusiastic and passionate engineers at the beginning of their careers and the undergraduates build experience and skills in the basics of design and have broad exposure to many aspects of manufacturing and development engineering that will provide them with a good foundation for a career in any engineering environment."

Ed Wood
Chief Designer
Williams Grand Prix Engineering Ltd

"The Department at Bath is a consistent provider of good quality students who deliver real ideas and engineering solutions to the BP project teams."

Hazel E Burrows
Property Support Manager
BP Remediation Management

"The standard of students is exceptionally high and in our opinion the University of Bath attracts extremely talented individuals that have a real passion for Engineering."

Alison Hallsworth
OC Robotics

"Over 20 years we have taken students from 6 UK Universities and we keep coming back to Bath as they have excellent quality of students and we are rarely disappointed."

Dr Dave Seward
Senior Engineer
3P Innovation

"Bath provides high calibre young people hungry and keen to develop and do well. They gain exposure to the real world in a technology driven, business organisation leading the way in FMCG. They add real value as a full member of the team, expected to deliver within our new products, innovation and supply chain capability."

Richard Ward
Innovation Planning Manager
Global Supply Chain
Unilever UK Central Resources Ltd.

What our students say...

"The Mechanical Engineering programme at the University of Bath, as well as being ranked very highly nationally, has lots of group projects and practical sessions which are very good at preparing students for life in real engineering companies after graduation. The teaching and support are very good, and the students have a great relationship with the staff and feel able to talk to them about whatever they are struggling with, or interested in.

One particular strength with this degree is the fact that you don't have to commit straight away to any particular discipline - if you're not sure which part of engineering you want to go into, you have 2 years to learn all of the basics and find out what really interests you before committing. Finally, if you would like to spend a year undertaking a placement with an engineering company, the University can help find one for you. This can be a real help when you're looking for your first job!

The University's sense of community and ethos are its biggest selling points, and the fact that it's a campus university which is the hub of where everything's happening. It's very convenient to discover new activities when they're all on your doorstep, especially in first year."

Colin Field, MEng (Hons) Aerospace Engineering

"Can you think of a nicer place to study? I left home with some trepidation wondering what the next 4 years of my life were going to be like. After all I'd never lived in Bath and you've heard all the stories about how hard degrees are in Mechanical Engineering! I'm not saying it was easy but I found the staff and the department as a whole to be very supportive and helpful, they certainly made me feel welcome. This all adds up to an exceptional educational environment.

One of the many good points about studying at Bath is the course structure, starting with 2 years of general engineering. Students then specialise in whichever field of engineering suits them best, for me this was aerospace. I believe this approach is essential in producing well rounded engineers. I can honestly say I had a great time and a first class education so I decided to further my studies and have just started a 3 year PhD in Aerodynamics. Good luck!"

David Marles, MEng (Hons) Mechanical Engineering

The University and the City

The University of Bath

The University of Bath is a campus university, just one mile from the city centre. A campus university means everything you need as a student is within easy reach on one site. It creates a good sense of community and also means that everything is within a ten minute walk from the on campus residences. University of Bath students have access to a range of social and study facilities:

- A new £5.5 million **student centre** that opened in September 2010, offering lots of varied social spaces for students.
- A **careers advisory centre** that offers help on anything from finding and applying for a job, to interview techniques. They also organise networking events and workshops on employability.
- A £30 million Olympic style **sports training village**, representing one of the best sports facilities of any university in the country. Supporting traditional sports such as hockey and the more unusual like skydiving.
- A **students' union** recognised by the National Union of Students as one of the top three in the UK.
- Over 100 **clubs and societies**. Choose anything from break-dancing to bell ringing, curry appreciation to cheerleading. Offering travel opportunities such as surfing in Morocco or raising money for charity by climbing up Mount Kilimanjaro.
- Houses the **biggest night club** in Bath as well as two other bars.
- Access to two grocery **stores**, two banks, a travel agency, dentist, medical centre, a chaplaincy, bookshop and around ten different places to eat and drink on campus.
- A **library** that represents one of only two in the UK to be open 365 days a year, 24 hours a day, with many books and articles that can be accessed online.
- More than **1,500 computers** for student use as well as wi-fi hotspots all over campus.
- The opportunity **to learn a language** for free alongside your course; from beginners to expert in up to nine different languages. With access to the Modern Languages library which offers an informal way to learn through access to foreign television, films and newspapers.
- Dedicated student support through the newly built **Student Services Centre**. Offering help from housing contracts to disability advice.
- A range of discounted classes in dance, music and visual arts, along with free practice facilities through the **Institute of Contemporary Interdisciplinary Arts (ICIA)**. They also offer an extensive programme of live performances, exhibitions and concerts.

The City of Bath

Bath attracts many visitors and is one of the most interesting, cosmopolitan and vibrant cities in the UK. As well as being a very safe city (England's safest city - Complete University Guide 2010), Bath is the only city in the UK to be included in UNESCO's World Heritage List, named after the natural hot spring which was popular with the ancient Romans and has stayed mostly unchanged for 2000 years. You can now enjoy the mineral rich waters yourself in the modern Thermae Spa, Britain's original and only natural thermal spa, with its rooftop views and panoramic views of Bath's skyline.

Bath has anything from high end famous restaurants to cheaper student bars, as well as theatres and cinemas and a large variety of shops. There's a lot to do in Bath and there are many outdoor activities like boating along the River Avon and the famed Bath-Half Marathon.

You can enjoy many things in Bath for free as a student, and there's more to see than just the sites for tourists, with many students enjoying underground nightclubs and boutique shops. When living here, you can enjoy the frequent cultural events, with festivals going on every couple of weeks, ranging from the International Film Festival to the Beer Festival.

Bath is only one mile from campus and can be accessed by a regular bus service, running until 2am, every 6 minutes. Bath is strategically placed, with London only 90 minutes away by train and Bristol only 15 minutes by train.

How to apply

UCAS online application

UCAS is the national admissions service responsible for managing applications to all higher education courses in the UK.

We recommend that you apply as early as possible, but we guarantee to give equal consideration to all applicants applying before 15 January of your entry year. We will consider applications received after this date if places are available. See full details of application deadlines on the UCAS website.
www.ucas.ac.uk

Typical entry requirements

The following typical offers are a correct guide at the time of going to press but may be subject to change at any time. Consult our website for the most up to date information.
www.bath.ac.uk/study/ug

A levels: A typical offer would be A*AA. Mathematics and Physics are required at A2 with an A* in either Mathematics or Physics as well as a grade C in GCSE English. AAA required for MEng Integrated Mechanical and Electrical Engineering.

International Baccalaureate: A typical offer would be an overall 36 with 6 in higher level Mathematics and Physics and 5 in English at Standard Level (or equivalent).

European Baccalaureate: A typical offer would be 77% overall with 80% in Maths and Physics, English 6.0 at Level 1, 7.0 at Level 2 and 7.5 at Level 3.

We also consider applicants with equivalent UK and overseas qualifications. Further details of recognised qualifications are detailed on our website:
www.bath.ac.uk/study/international/country/findCountry.html

Keep track of your application

As well as the UCAS website, you will be able to track the progress of your application through the Bath application tracker. You will receive a username and password automatically after you apply through UCAS.

Enquiries

admissions@bath.ac.uk
Tel: +44 1225 383019

Useful Links

Open Days

We hold two open days a year, which give you a great opportunity to experience student life at Bath University.
www.bath.ac.uk/study/ug/opendays

Finance, Scholarships and Bursaries

You may be eligible to apply for one of many scholarships or bursaries the university has to offer. There are a range of scholarships supported by generous donors who share our pride in student achievement.
www.bath.ac.uk/study/ug/finance/funding

Accommodation

All first year students are guaranteed accommodation. There is a range of rooms available from £65-£140 per week, with options of en-suites. All accommodation is self-catering.
www.bath.ac.uk/study/ug/accommodation/index.html

Living Costs

To help you with budgeting over the year, we have calculated an estimate of how much an undergraduate year should cost.
www.bath.ac.uk/study/ug/funding/living-costs

Careers

90% of our students get graduate-level jobs on leaving and command salaries about £3,500 above the national average. The Sunday Times ranked the University of Bath in the top 10 for highest graduate salaries at an average of £23,343.
www.bath.ac.uk/careers/prospective.html

Disability Support

The University of Bath has excellent provisions for those with learning difficulties or disabilities from note takers to dedicated support workers. To ensure the correct support, please declare early or contact a member of staff for more information.
www.bath.ac.uk/disabilityadvice

Students Union

Be part of our award winning Student Union, ranking 3rd in the country. Offering over 100 sports and societies from curry appreciation to cheerleading.
www.bathstudent.com

Sports development

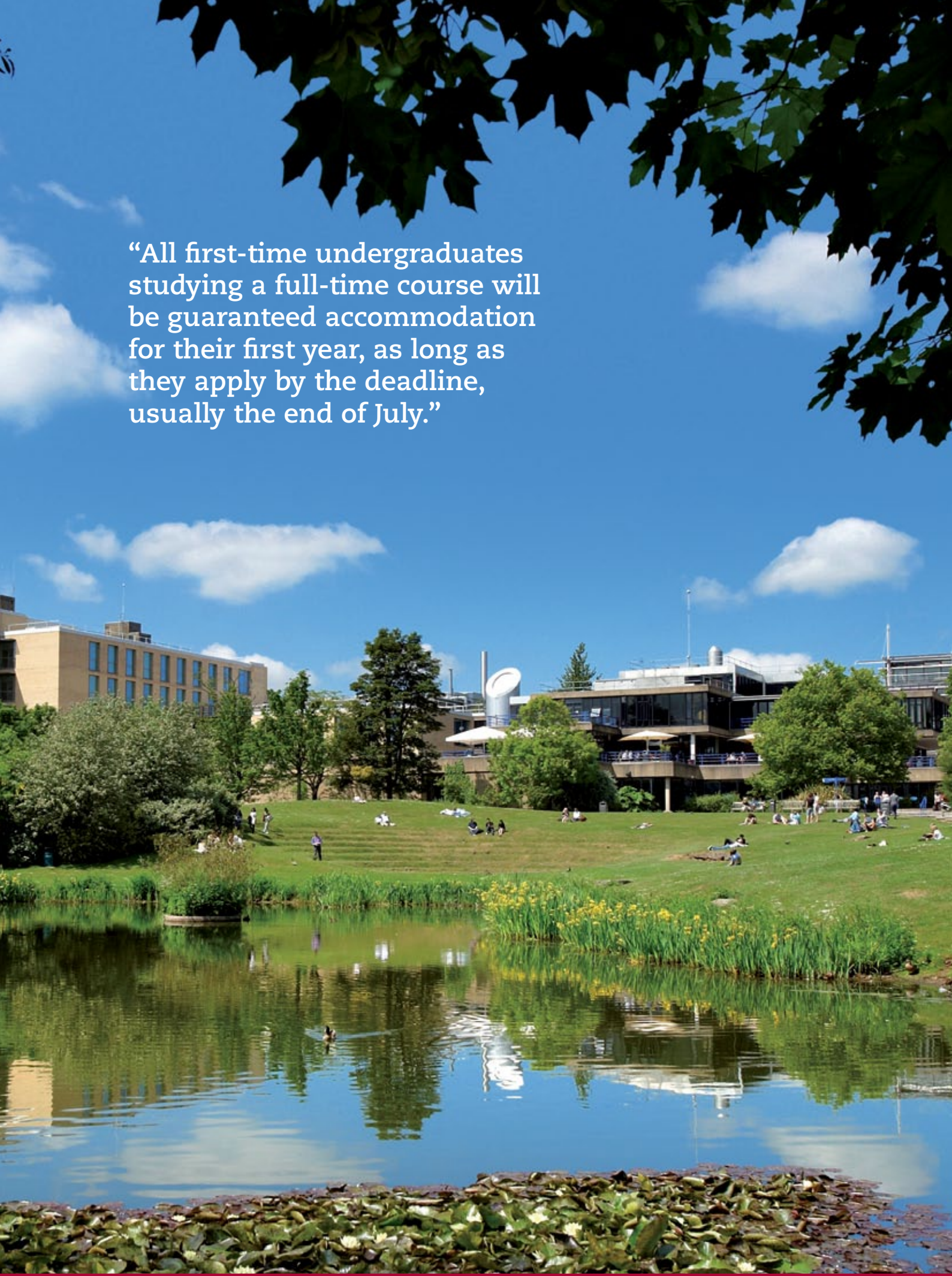
We want sport to be open to all and have a £30 million complex of facilities available for use by those of all abilities.
www.teambath.com

ICIA - Arts on Campus

The Institute of Contemporary Interdisciplinary Arts (ICIA) organises an extensive programme of live performances, exhibitions, concerts and classes on campus for students. Students have access to cheaper tickets for performances, and on a range of classes such as photography, street dance, DJ skills and samba drumming.
www.bath.ac.uk/icia/home

International Students

25% of students at Bath are International, and come from over 100 different countries. There is a range of support from societies and social programmes to academic and financial support.
www.bath.ac.uk/study/international



"All first-time undergraduates studying a full-time course will be guaranteed accommodation for their first year, as long as they apply by the deadline, usually the end of July."

Department of Mechanical Engineering

UNIVERSITY OF BATH

Undergraduate programmes

www.bath.ac.uk

BathMechEng

UNIVERSITY OF THE YEAR 2011-12