UNIVERSITY OF BRADFORD
Faculty of Engineering and Informatics
School of Electrical Engineering and Computer Science
Programme title: BSc (Hons) Information and Communications Technologies

<table>
<thead>
<tr>
<th>Awarding and teaching institution:</th>
<th>University of Bradford</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final and interim awards:</td>
<td>BSc (Honours) [Framework for Higher Education Qualifications level 6]</td>
</tr>
<tr>
<td></td>
<td>Diploma of Higher Education [Framework for Higher Education Qualifications level 5]</td>
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<tr>
<td>Programme titles:</td>
<td>Information and Communications Technologies</td>
</tr>
<tr>
<td>Programme accredited by:</td>
<td>British Computer Society</td>
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<tr>
<td>Duration:</td>
<td>3 years full time; 4 years full-time including a year of study abroad and/or a work placement; 6 years part time, 8 years part-time including a year of study abroad and/or a work placement</td>
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<tr>
<td>UCAS codes:</td>
<td>G502 BSc/ICT, G503 BSc/ICT4</td>
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<tr>
<td>Subject benchmark statement:</td>
<td>Computing</td>
</tr>
<tr>
<td>Date produced:</td>
<td>April 2004</td>
</tr>
<tr>
<td>Last updated:</td>
<td>June 2014</td>
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Introduction

Information and Communications Technologies (ICT) play an ever-increasingly important role in today’s technological society and are crucial to the success and survival of businesses and organisations. ICT is about understanding and managing organisational information systems, and evaluating, developing and deploying effective, innovative and tailored solutions to information, communication and technology problems.

The Information and Communications Technologies programme is designed for students who wish to develop a critical understanding of, and expertise in, the tools, packages, and systems that allow us to implement and manage information systems and networks communicate information within organisations and across the world. In addition, it offers the opportunity to study an area of interest and/or application for ICTs: business or marketing. If your interest lies beyond the range offered here, it is possible to tailor the ICT programme to suit by choosing a minor field of study from those on offer through the Combined Studies programme.

Programme Aims

In accordance with the University’s mission, “Making Knowledge Work”, the School aims to:
• deliver a flexible programme of study in Information and Communications Technologies that reflects the requirements of modern industry, commerce and service sectors as well as areas of staff expertise;

• provide a supportive, structured environment in which students are encouraged to develop independent learning skills;

• develop subject knowledge and understanding, and provide training in discipline skills to enable graduates to pursue further programmes of study or to move directly into responsible careers in ICTs or related practice;

• develop personal transferable skills to enable graduates to pursue further programmes of study or careers in non-cognate fields;

• promote educational opportunities for ethnic minorities, women, mature and alternatively qualified students, as well as school leavers and traditionally qualified students.

Programme Learning Outcomes
Upon successful completion of the programme you will have a highly developed range of knowledge-based and transferable skills. As such you will have achieved:

• **Knowledge and Understanding** of information and communications technologies and the scientific principles that underpin them, following the themes Information Systems, Web Technologies, Database Systems, and Computer Systems and Networks and in the chosen field of study – business or marketing.

• **Discipline Specific Skills** in developing well-structured information resources across the range of digital delivery systems; competence across the range of ICTs; relational database design; programming in a major object-oriented language; scripting languages; multimedia and human-computer interface; computer networking; the ability to critically analyse information system requirements to solve real-life problems and develop computer-based solutions.

• **Personal and Transferable Skills** in the application of IT and communications skills; problem solving; reflection on your own knowledge and learning; working with others on team projects; project management.

**Knowledge and Understanding:**

• Knowledge and understanding of information and communications technologies and the scientific principles that underpin them, following the themes Information Systems, Web Technologies, Database Systems, and Computer Systems and Networks and in the chosen field of study – business or marketing.

**Discipline Specific Skills:**

• developing well-structured information resources across the range of digital delivery systems

• competence across the range of ICTs;

• relational database design;
• programming in a major object-oriented language;
• scripting languages;
• multimedia and human-computer interface;
• computer networking;
• the ability to critically analyse information system requirements to solve real-life problems and develop computer-based solutions.

Personal and Transferable Skills:
• application of IT and communications skills;
• problem solving;
• reflection on your own knowledge and learning;
• working with others on team projects;
• project management.

On completion of this award at Certificate of Higher Education level, you should be able to:
• Demonstrate knowledge of fundamental concepts and theories of ICT, and the environment in which they operate; basics of software construction and the tools required to support it, develop skill in constructing software.
• State and explain relevant models, principles and practices applicable to information systems.
• Demonstrate understanding of people, systems and operations within complex organisations.
• Collect, manage and present information, ideas and concepts, and interpret data using suitable techniques.
• Work effectively as individuals and in groups.
• Communicate accurately and reliably with a range of audiences using basic theories and concepts of the subjects of study.

On completion of this award at Diploma of Higher Education level, you should be able to:
• Apply knowledge and skills in ICT to the analysis of complex information systems.
• Apply knowledge of investigative and research principles to demonstrate an understanding of how to evaluate computing designs, processes and products.
• Apply knowledge of relevant software to problems and systems.
• Apply knowledge of information systems to the assessment and management of specific problems and challenges.
• Demonstrate the use of practical ICT skills in design and testing of information systems.
• Use personal and technical skills to communicate effectively within computing environments in partnership with other professionals.

Although the University does not recruit directly to Ordinary degrees this route is available. A Bachelor’s degree (Ordinary) is awarded to students who have demonstrated:
• a systematic understanding key aspects of their field of study, including acquisition of coherent and detailed knowledge informed by aspects of ICT.
• an ability to deploy accurately established techniques of analysis and enquiry within ICT.
• conceptual understanding that enables the student:
  ◦ to devise and sustain arguments, and/or to solve problems, using ideas and techniques.
  ◦ to describe and comment upon particular aspects of current research, or equivalent scholarship, or practice in ICT.
• an appreciation of the uncertainty, ambiguity and limits of knowledge.
• the ability to manage their own learning, and to make use of primary sources.

Typically, holders of the qualification will be able to:
• apply the methods and techniques that they have learned to review, consolidate, extend and apply their knowledge and understanding.
• communicate information, ideas, problems and solutions to both specialist and non specialist audiences.

And holders will have:
• the qualities and transferable skills necessary for employment requiring:
  ◦ the exercise of initiative and personal responsibility
  ◦ the learning ability needed to undertake appropriate further training of a professional or equivalent nature.

The Curriculum
The map of your studies is detailed further below showing core (C) and optional (O) modules. Each year, or stage, of an Honours (Hons) programme comprises two semesters with 60 credits of full time study in each semester. For 10 credit modules and 20 credit double modules (last character in module code is a ‘D’) all of the teaching and assessment is undertaken in the same semester. For 20 credit linked modules (last character in the module code is an ‘L’) and the 40 credit project there is teaching and assessment in both semesters. Students following the part-time route will normally study half the number of credits per year, with the programme of study agreed by negotiation.

Although the University does not recruit directly to Ordinary degrees this route is available. Ordinary degrees comprise 100 credits in each stage. Core and optional modules are not shown for Stage 1 of the ordinary programme because this is not available as an entry route. At the end of Stage 1 there may be the possibility to transfer onto the Ordinary route, to be discussed with the programme leader.

Stage 1 [Level 4]
Students who have achieved at least 120 credit points at Level 4 may exit the programme and are eligible for the award of Certificate of Higher Education.

### Stage 2 [Level 5]

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Credit</th>
<th>Stage</th>
<th>Sem</th>
<th>Level</th>
<th>Module Title</th>
<th>Hons</th>
<th>Ord</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM0305L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
<td>Information Systems Analysis and Design OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Computer Communications and Networks</td>
<td>C</td>
<td>O</td>
</tr>
<tr>
<td>CM0315L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
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<tr>
<td>CM0311L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
<td>SQL Programming and Administration</td>
<td>C</td>
<td>C</td>
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<tr>
<td>CM0223L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
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<td>O</td>
</tr>
<tr>
<td>MAN0601M</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>Business Information Systems</td>
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<tr>
<td>CY0218L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
<td>Systems Administration 1</td>
<td>O</td>
<td>O</td>
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<tr>
<td>CY0219L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
<td>Unix Programming 1&amp;2 **</td>
<td>O**</td>
<td>O**</td>
</tr>
<tr>
<td>CM0305L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
<td>5</td>
<td>Information Systems Analysis and Design OR</td>
<td></td>
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</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
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<td>Computer Communications and Networks</td>
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<tr>
<td>CM0315L</td>
<td>20</td>
<td>2</td>
<td>1&amp;2</td>
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<td>Computer Communications and Networks</td>
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<tr>
<td>CY0212M</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>How to Run an SME</td>
<td>O</td>
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</table>

Students who have achieved at least 120 credit points at Level 5 may exit the programme and are eligible for the award of Diploma of Higher Education.

### Stage 3 [Level 6]

<table>
<thead>
<tr>
<th>Module Code</th>
<th>Credit</th>
<th>Stage</th>
<th>Sem</th>
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<th>Module Title</th>
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<tr>
<td>CM0347K</td>
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<td>1&amp;2</td>
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<td>Final Year Project OR</td>
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<td></td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Final Year Project with Undergraduate Ambassadors</td>
<td>C</td>
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<tr>
<td>CM0341Q</td>
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<td>1</td>
<td>6</td>
<td>Information Engineering (following CM0305L) OR</td>
<td>C</td>
<td>O</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cyber Security</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>CM0358D</td>
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<td></td>
<td></td>
<td></td>
<td>Design For Mobile Content</td>
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<td>O</td>
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<td>EM0359D</td>
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<td>1</td>
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<td>C</td>
<td>O</td>
</tr>
<tr>
<td>CM0358D</td>
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<td></td>
<td></td>
<td></td>
<td>Cyber Security</td>
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<td>O</td>
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<tr>
<td>CM0331D</td>
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<td>3</td>
<td>2</td>
<td>6</td>
<td>Human Computer Interaction (Design and Development)</td>
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<tr>
<td>EM0240D</td>
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<td>3</td>
<td>2</td>
<td>5</td>
<td>Multimedia Application Development</td>
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<tr>
<td>CM0334D</td>
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<td>3</td>
<td>2</td>
<td>6</td>
<td>Systems Administration 2*** (following CY0218L) OR</td>
<td>O</td>
<td>O</td>
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<tr>
<td>CM0359D</td>
<td>20</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>Large Scale Data Driven Applications</td>
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</table>

** CY0219L Unix Programming 1&2 may only be chosen as an option if CY0218L Systems Administration 1 is also chosen.**

*** If you wish to take CM0334D Systems Administration 2 you must have taken CY0218L Systems Administration 1 in Stage 2.***

**Please note that, while every effort will be made, it may not be possible to permit every possible combination of optional modules, due to timetabling constraints.**

The curriculum may change, subject to the University's programme approval, monitoring and review procedures.

In addition to a degree, successful completion of the Honours degree programme will give candidates a qualification that is recognized by the British Computer Society.
Study abroad and work placement opportunities

You have the option to undertake an industrial placement, or of studying or working abroad for a year between Stages 2 and 3; this option is strongly encouraged. The School has an industrial training tutor who has contacts with a large number of outside organisations and who assists in helping you find a placement. The university’s International Office additionally provides a wide range of opportunities and support for students to gain international experience. Both options provide the opportunity to gain valuable experience, and are viewed favourably by prospective employers.

Teaching and Assessment Strategies

The programme is designed to give you a wide experience of teaching, learning and assessment strategies. Concepts, principles and theories are generally explored in formal lectures, practised in associated tutorials and seminars, and demonstrated in laboratory classes. Practical skills are developed in laboratory sessions. The programme is designed to allow you to develop and enhance your practical and inter-personal skills through working in small groups engaging in problem solving scenarios. Project work is included to allow you to demonstrate your ability to solve problems using the knowledge, understanding and skills you have gained during your programme.

Each 10-credit module on the programme requires you to commit an average 100 hours of study. Some of these hours will be formally timetabled - lectures, laboratories, seminars and tutorials – while others involve private study. The balance between these forms of study changes as you pass through the three years of the programme. There are more “contact hours” (time spent with tutors) in the earlier stages of the programme; by the final year you are expected to manage your own learning, under the general guidance of your tutors.

An optional placement year, normally taken between Stages 2 and 3, will enable you to extend and apply your learning in an appropriate industrial/commercial context, and gain first-hand experience of how your skills might be applied in the workplace.

The Assessment methods you will encounter are varied and your progress will be reviewed using a mix of formal examinations, reports, laboratory portfolios, essays, oral presentations (either individual or team) and the final year project/dissertation. Your performance in each module will be assessed using a mix of these assessment systems to allow you to demonstrate the particular module learning outcomes.

Assessment Regulations

This Programme conforms to the standard University Regulations which are available at the following link: http://www.bradford.ac.uk/qqpo/ordinances-and-regulations/

Admission Requirements

The University welcomes applications from all potential students regardless of their previous academic experience; offers are made following detailed consideration of each individual application. Most important in the decision to offer a place is our assessment of a candidate’s potential to benefit from their studies and of their ability to succeed on this particular programme. Entrance requirements for each
programme will vary but consideration of your application will be based on a combination of your formal academic qualifications and other relevant experience.

If you have prior certificated learning or professional experience which may be equivalent to parts of this programme, the University has procedures to evaluate this learning in order to provide you with exemptions from specified modules contained within the curriculum. Please talk to us if you do not fit the standard pattern of entry qualifications.

The University of Bradford has always welcomed applications from disabled students, and these will be considered on the same academic grounds as are applied to all applicants. We are continually reviewing and developing our practices and policies to make the University more inclusive, but if you are disabled we may need to make some adjustments to make sure that you are not disadvantaged. We would advise you to contact the programme leader before you apply to discuss these.

**Entry requirements:** Typical offer (UCAS tariff points): 240

- A total of 240 UCAS tariff points, to include 160 points from 2 GCE A levels or equivalent.
- GCSE English and Maths minimum grade C.
- For international students: minimum IELTS at 6.0 or the equivalent.

A typical offer to someone seeking entry through the UCAS scheme would be the attainment of a total of 240 UCAS tariff points. However, applications are welcome from candidates with non-standard qualifications or who, lacking academic qualifications, have significant relevant experience.

**Learning Resources**

The JB Priestley Library on the city campus and our specialist library in the School of Management provide a wide range of printed and electronic resources to support your studies. We offer quiet study space if you want to work on your own, and group study areas for the times when you need to discuss work with fellow students. Subject librarians for each School provide training sessions and individual guidance in finding the information you need for your assignment, and will help you organise your references properly.

Student PC clusters can be found in both our libraries and elsewhere on the campus. Many of these are open 24/7. You can also use the University's wireless network to access the internet from your own laptop. Most of our journals are available online (both on and off campus), and you can also access your University email account, personal information and programme-related materials this way. Staff are on hand during the daytime to help you if you get stuck, and there is a 24/7 IT helpline available.
Student Support and Guidance

All students admitted to the School of Electrical Engineering and Computer Science (SEECS) undertake a process of induction led by a senior member of staff. Thereafter, ongoing support for students is provided in the form of one-stop facilities located at the School Student Support Office (SSO) in Horton Building, which is open throughout the day during term, restricted hours outside term. Also support for registered students is provided 24/7 via the intranets of SEECS the School’s Technical Support. The School uses the University’s Virtual Learning Environment (VLE) Blackboard to support students on individual modules.

Programme Team

Support for you personally and in your programme of study, will be provided both by the University and the Programme Team. You will be allocated a personal tutor who is someone with whom you will be able to talk about any academic or personal concerns. The School will ensure that there is someone available with whom you feel comfortable to help and support you. You will be provided with a comprehensive series of handbooks that you can consult on a range of learning issues and your programme tutors will be available to consult on subject specific queries.

As a student in the School of Electrical Engineering and Computer Science, you will be allocated a personal tutor who provides support and guidance on matters relating to your learning, teaching and academic progress. There are specialist tutors in the School who deal with issues where other social factors (relating to gender or disability, for example) may have an impact on your academic performance. The Student Staff Liaison Committee gives the opportunity for you to give formal feedback to the Programme Team and School about curricular issues and the general running of the programme.

The Hub, Student Support Centre

The Hub, Student Support Centre provides a central reception where students can receive information, advice and guidance on a whole range of topics about their life at University. The Hub is located in the Richmond Building adjacent to the Atrium.

The teams located within The Hub:

- Accommodation
- Admissions
  - Education Liaison
  - Enquiries
- Student Administration and Support
  - Bursaries and Financial Support
  - Finance and Credit Control Group
  - Payzone
  - Records and Tuition Fees
- International Office
- Customer Service Team

www.brad.ac.uk/hub
+44 1274 232233
Students’ Union
We value the feedback provided by students and collaborate with the Students’ Union, through a system of Student representatives and formal staff student liaison committees, so that any issues you wish to raise are addressed rapidly.

The Students Union provide professional academic representation and advice. The Students’ Union and the University of Bradford work in partnership to provide confidential counselling and welfare services where you can get help with any aspect of your personal or academic life. Student Financial and Information Services (based in the Hub) will provide you with information about a diverse range of issues such as council tax, personal safety and tourist information. International Students can access a range of additional advice and support services through the Student’s Union.

Employability and Career Development
The University is committed to helping students develop and enhance their employability profile and capabilities through learning opportunities embedded within the curriculum.

Furthermore, the University is committed to supporting students to develop their commitment towards a career pathway(s) and to implementing a career plan. Professional career guidance and development support is available throughout your time as a student and as a graduate from Career Development Services. The support available from Career Development Services includes a wide range of information resources, one to one appointments, a weekly workshop programme, a mentoring programme, graduate recruitment and careers fairs, plus information and help to you find part time work, summer work placements, graduate internship programmes and graduate entry vacancies. In addition, some students as part of their programme of study may have the opportunity to complete a Career & Personal Development accredited module delivered by the Career Development Service. All students are encouraged to access Career Development Services at an early stage during their studies and to use the extensive resources available on their web site www.careers.brad.ac.uk.

Career Development Services annually undertakes a survey of all graduates to find out their destination six months after graduation. The survey gathers data on the employment and further study routes graduates have entered and a range of other information including job roles, name and location of employers, salary details etc. The survey findings for each programme of study are presented on the programme information pages on the University website and via Career Development Services’ website www.careers.brad.ac.uk.

Learner Development Unit for Academic Skills Advice
For undergraduate students who are looking to improve their marks during their time at university, study skills and maths advice is available to all regardless of degree discipline or level of study. Students can access a programme of interactive workshops and clinics which is delivered throughout the year. This is in addition to our extremely popular face-to-face guidance from our advisers, who also offer a wide range of online and paper based materials for self-study. http://www.bradford.ac.uk/academic-skills/index.php
Disability
Disabled students will find a supportive environment at Bradford where we are committed to ensuring that all aspects of student life are accessible to everyone. The Disability Service can help by providing support, advice and equipment to help you get the most out of your time at Bradford. It is a place where you can discuss any concerns you may have about adjustments that you may need, whether these relate to study, personal care or other issues. For more information contact the Disability Service by phoning: 01274 233739 or via email: disabilities@bradford.ac.uk

University policies and initiatives

Learning and Teaching
Our University approach to learning, teaching and assessment is encapsulated by an integrated set of themes and principles within our Curriculum Framework. All of our degree programmes have been designed to provide you with an inclusive and engaging learning environment which gives you the opportunity to thrive and develop in your area of study. Our research-informed programmes have a particular focus on developing your employability. We also place a strong emphasis on collaborative, real-world and enquiry-based learning, supported by appropriate learning technologies. Our assessment is designed not just to measure your achievement, but also to shape and guide your learning through preparing you for the increasing level of challenge as you progress through your degree. Together, these lead to you developing a distinctive set of graduate attributes which will prepare you for life beyond university.

Ecoversity:
Ecoversity is a strategic project of the University which aims to embed the principles of sustainable development into our decision-making, learning and teaching, research activities campus operations and lives of our staff and students. We do not claim to be a beacon for sustainable development but we aspire to become a leading University in this area. The facilities we create for teaching and learning, including teaching spaces, laboratories, IT labs and social spaces, will increasingly reflect our commitments to sustainable development. Staff and student participation in this initiative is crucial to its success and its inclusion in the programme specification is a clear signal that it is at the forefront of our thinking in programme development, delivery, monitoring and review. For more details see www.bradford.ac.uk/ecoversity

Further Information
For further information, please check the University prospectus or contact
The Admissions Office
The University of Bradford
Richmond Road
Bradford, BD7 1DP
UK
The Recruitment and Marketing Office
Faculty of Engineering and Computing
The University of Bradford
Horton Building
Richmond Road
Disclaimer
The details of this Programme Specification and information contained therein are subject to change in accordance with the University of Bradford’s course approval, monitoring and review procedures.