Course Information Sheet

BSc (Hons) Architecture

Mode and course length – Full-Time (4 years)

Location – ARU Cambridge Campus

Awarding Body – Anglia Ruskin University. As a registered Higher Education provider Anglia Ruskin University is regulated by the Office for Students.

Overview

Location of study:

Level 3 – ARU Cambridge Campus

Level 4-6 – ARU Chelmsford Campus

From the design of a family home to an entire city, architects shape the world in which we live. Our course delivers the creative and technical skills you'll need to help transform our built environment and succeed in architectural practice.

We'll help you to consider the cultural, environmental, technological, social, legal, economic and regulatory contexts of architecture. You'll learn about its history, and explore the design of buildings as well as the technical and managerial skills needed to turn them into reality. You'll consider 'buildability', sustainability and how to meet human needs in building design. You'll learn how to produce architectural drawings, and to analyse, research and develop briefs.

Architects have to switch effectively between being an artist, designer, planner, communicator, manager and leader. We'll make sure you learn to reason logically, communicate clearly and read critically. You'll become a creative problem-solver who can work independently and as a team member.

In preparation for a career in professional practice, you'll cover business and management as well as inter-relationships in the construction industry. You'll be well prepared to contribute to the running of a successful practice.

At our end-of-year Summer Exhibition, you'll have the chance to display your work to the public.

Each year the School of Architecture organises a European study trip. There is a cost associated with participating in the study visit, which typically lasts 5 days. During the visit, students and staff experience another culture and see how this is represented through both historic and contemporary architecture and in the city's urban planning. Recent study visits have included trips to Lisbon, Venice, Rome, Vienna, and the Netherlands.

Course Delivery

Our courses are delivered through teaching and learning methods which provide students with the widest possible exposure to a modern and innovative higher education experience.

These methods vary and could include attendance at lectures and seminars, undertaking laboratory exercises or work-based activities, practical work, performances, presentations, field trips, other relevant visits and e-learning through Canvas, our online learning management system.

Each course is divided into a number of 'modules' which focus on particular areas, each of which has a specific approach to its

delivery. This information is published to students for each module they take via the Module Definition Form (MDF) and Canvas.

Assessment

Throughout the course, we'll use a range of assessment methods to help measure your progress. These will include design projects, presentations, timed assignments, exams and coursework.

Fees

Information about your course fee including any annual fee increases or deposits (if required) can be found in your offer letter.

Additional Costs

Small model making tools, modelling materials and printing - £150+

Large format printing and stationary - £150+

Contribution to field trip to a European city (subsidised) - £250

Building Site Safety boots - £30-50 (must be boots that cover the ankle)

Modules

Core Modules

Year 1: Foundation in Architecture

This module will provide students with the necessary skills to begin studying at level 4 in Architecture and related courses.

Students will be introduced to the core skills necessary to succeed in higher education, including researching and referencing appropriately, demonstrating appropriate ICT skills, and communicating effectively verbally and in writing.

Students will be introduced to practical art and design skills including developing skills of visual storytelling, image-making both in traditional and digital media, visual language and communication, formulating an independent creative response to a broad range of subject matter.

Students will also be introduced to the fundamentals of design from a creative perspective, and to some of the key ideas/movements dominating art, design and culture, during the past few centuries.

Students will work extensively in groups and collaboratively, with students from art and design, architecture and engineering pathways.

The module is made up of the following 8 constituent elements:

- Interactive Learning Skills and Communication (ILSC)
- Information Communication Technology (ICT)
- Creative Workshops 1
- Creative Workshops 2
- Approach to Design
- Critical and Contextual Studies
- Engineering Design
- Specialist Project

Year 2: History and Theory of Architecture (Introduction)

This module is designed to provide an introduction to Architectural History and Theory for students of Architecture and Architectural Technology as an integral part of a professional education. Through an understanding of the challenges faced, and modes of representation used in the past, students will begin to think critically about their own studio work. The module will begin by introducing students to Architecture as a visual language before rigorously accessing, in a chronological sequence, the major movements in western Architectural history spanning from Classical Greece to the present day. Each movement will be

considered in its historical context. Students will be required to study historical and theoretical texts to aid their understanding of architecture as cultural expression. Typically each teaching session will begin with a group presentation to tutors and peers, where students will present, using PowerPoint or similar, their academic research and understanding of a specified topic. This will be followed by open discussion on issues raised and/or workshops to aid the development of students' critical skills. Each seminar will be followed by a formal lecture where the subsequent topic will be introduced. Tutorials will also be given to the team presenting at the following session.

Year 2: Architecture and Planning Design Studio A

This module is designed for students of Architecture and Architectural Technology as an introduction to the creative processes embodied and the skills required within these related professions. The module complements the work undertaken in the associated module entitled; Architecture and Planning Design Studio B. Students will develop a range of graphic communication techniques, including freehand and technical drawing skills. The ability to understand and produce simple professional technical drawing will be refined, as well as developing an appreciation of the extent of information required in the process of planning, designing and constructing a building. The module will provide an introduction to and broadening of the basic concepts and techniques of architectural design applied to small scale buildings. Students will have the opportunity to investigate; space and form, materials, structure, construction and technology. Throughout this module drawing skills are developed and issues relating to scale, proportion and the human body are explored. The knowledge and skills required to successfully complete this module relate directly to the relevant professions. The module is project based with studio teaching and as such requires the student to develop the project work week on week over the entire trimester, in order that regular individual and group tutorials can occur. Students work individually and in interdisciplinary groups, reflecting the demands of the profession. There will be some formal lectures during the trimester; however teaching will be predominantly in the studio, where regular staff/student reviews and presentation will occur.

Year 2: Design Explorations

This module is designed for students of Architecture and related disciplines to provide a challenging, informative, inspiring and exhilarating immersion in the design process. Always mindful of the intellectual rigour of excellent design, students will be challenged to step outside the 'comfort zone' of their received impressions of architecture and construction. Architecture will be seen not in terms of the construction of conventional buildings, but as the creation of meaningful, exhilarating and comforting places for human inhabitation within a specific physical and cultural context - a exploration of how we can adapt our environment in order to dwell most appropriately and enjoyably. The design process will begin with an appreciation of the uniqueness of a given place. The tools for this will range from the methodology of site analysis which is common in architectural practice (studying boundaries, thresholds, axes, vistas, microclimatic and other tangible factors) as well as much less defined and subjective impressions, to arrive at a holistic understanding of a context. The modes of representation of this work will reflect its diversity: from prescribed analytical drawings (drawn in strictly specified media, to given scales) through to any form of drawing, collage, photograph, film, model, sculpture etc. deemed appropriate to capture the students' more subjective perceptions. In parallel with an understanding of a place, students will consider the very specific physical needs and aspirations of an individual occupier performing a defined, creative and/or intellectual task. The culmination of the module will entail situating this task within the studied context, and designing a structure or artefact to mediate between the essence of dwelling and working, and the wider environment. Students will receive regular tutorial support, initially in larger groups, with a greater emphasis on individual tuition as the design task progresses.

Year 2: Architecture and Planning Design Studio B

This module is designed for students of Architecture and Architectural Technology as an introduction to the creative processes embodied and the skills required within these related professions. The module complements the work undertaken in the associated module entitled; Architecture and Planning Design Studio A. Students will develop a range of graphic communication techniques, including freehand and technical drawing skills. The ability to understand and produce simple professional technical drawing will be refined, an appreciation of the extent of information required in the process of planning, designing and constructing a building will be developed. The module will provide an introduction to and broadening of the basic concepts and techniques of architectural design applied to small scale buildings and building elements. Students will have the opportunity to investigate; space and form, materials, structure, construction and technology. Throughout this module drawing skills are developed and issues relating to scale, proportion and the human body are explored. The knowledge and skills required to successfully complete this module relate directly to the relevant professions. The module is project based with studio teaching and as such requires the student to develop the project work week on week over the entire trimester. Students work

individually and in interdisciplinary groups, reflecting the demands of the profession. There will be some formal lectures during the trimester; however teaching will be predominantly in the studio, where regular staff/student reviews and presentation will occur.

Year 2: Essential Skills for Architecture

This module is designed to develop the Essential skills required in the study and practice of Architecture.

Through the use of commercial software packages it allows students both to develop an appreciation of ICT skills for research, information management, presentation purposes and computer-based drawings. It encourages students to use contemporary ICT methods for research and for the production and presentation of reports, in a style suitable both for their university coursework requirements and in a commercial environment. Architectural Drawings will be produced and annotated using commercial CAD software and will be presented in a style appropriate to the student's course and a professional environment.

Students will develop skills in the broad area of communication, interpretation and working together: skills that are increasingly demanded for a professional contribution to the built environment. Techniques for various media are considered, together with process, purpose and audience.

Year 2: Folio Skills

The work of this module focuses on the traditional drawings and rendering skills that are important in the development of design and are crucial to a successful communication of architectural ideas and design. The module is delivered in the first trimester of their architectural studies stressing the transferable aspect of 2D and 3D representational skills but also as the foundation of architectural design. It starts with simple exercises on drawing on the right side of the brain and architectural lettering and progresses to recording the observed built and natural environment, human body proportions and paper architecture. In addition, the module introduces students to principles and skills of orthographic and metric projections.

Enhancement of observational drawings skills and rendering of drawings is at the core of this module. Emphasis will be placed on the use of the sketch book and the development of freehand drawing and modelling, collage and photography of students' work.

This module offers students the opportunity to improve various skills in recording the observed environment through appropriate drawing, rendering and modelling, which will be applied to other modules. It also tests the limitations of traditional representational skills, and reassess practices that are taken for granted in the field of architectural design.

Year 2: Building Technology

This module is designed for students of construction, surveying and architecture with little and/or no prior knowledge of building construction, services and material properties. Students will learn the common materials and methods of construction of both new and traditional housing, by considering in turn each of the main elements of the buildings' structure. They will also study the requirements of the internal environment, so as to understand how services installations contribute to user comfort. Other basic aspects such as the personnel involved, health and safety requirements and specialised terminology will be illustrated as appropriate to support this.

Employability skills Students will acquire knowledge related to domestic construction and be able to justify why different materials are used in the built environment. As well as improving their intellectual skills they will also develop communication skills.

Year 2: Elements of Construction Design

This module is designed for students of construction, surveying and architecture to introduce them to some of the basic analytical concepts and processes involved in the design of structures. Students will develop analytical skills which will allow them to carry out basic structural calculations

Students will also be introduced to basic 2D drafting techniques using industry standard software. This will allow them to effectively interpret technical drawing and give them the skills which can be applied to their specialist discipline area in later modules. Skills in this medium are highly sought after in the construction industry. BIM will be introduced to the student and students will gain an appreciation of technology and the role of the designer in the construction process and have an

understanding of the design process.

Year 3: Architectural Design Studies 1

This module, together with the module entitled, Architectural Design Studies II, has been designed to give students an opportunity to develop techniques of architectural design. This development will take place within the framework established through the introduction into the history and context of architecture provided by the module, History & Theory of Architecture (Introduction). Through the development of designs from an architectural brief of small contemporary buildings, underlying concepts related to the meaning of architecture, its language, order and form will be explored. Particular emphasis will be placed on investigating the implications of designing built form. Drawing skills will be related to the presentation of ideas as well as to the architectural form. Alternative design solutions will be developed and the materiality of them will be explored. There will be an emphasis toward structural and constructional solutions within viable economic constraints. Oral, as well as 2 and 3 dimensional presentation techniques will be developed related to the design solutions adopted. As for other studio centred modules, this module is project based on studio engagement, site visits as appropriate, and tutorial reviews. Students will work both in groups and individually. Joint staff and student critic and presentations occur. This module encourages the development of core employability skills especially those related to design development and presentation in the field of architecture practice.

Year 3: Site Studies and Planning

The module has been designed to compliment the module entitled, Site Studies and Design, providing an understanding of the inseparable nature of the place and its context - a 'sense of place', and how this affects the design for new buildings and placemaking that are to contribute to the built environment. Apart from examining the influences of the primary elements that form the physical environment in its historic, present and future context, the relative legal and planning constraints that affect the built environment will be studied. Students will have the opportunity to survey, study, investigate and evaluate a site and will learn how to develop an ability to analyse and evaluate elements of townscape. In particular the design elements that contribute to urban form and place shaping will be explored. As part of this process, students will be expected to develop/enhance their drawing and sketching skills, providing an enhanced understanding of the place, spaces between buildings, and the urban environment. Design procedures and processes will be examined and a development brief/proposal will be developed to suit a particular site. The proposed development will be for a new building(s) and place within the context of the existing townscape. 'Sense of Place' will be explored with contextual investigations of design proposals. Planning policy and guidance and the way in which they are implemented will be explored. The importance and implications of environmental criteria and financial targets will also be considered. The module is project based with introductory lectures, site visits, and tutorial teaching. Students will work both in groups and individually. Joint staff and student critic and presentations occur. The knowledge and skills required to successfully complete this module are core employability skills for professionals engaged in architecture and architectural technology.

Year 3: Site Studies and Design

The module has been designed to compliment the module entitled, Site Studies and Planning, providing students with an understanding the design of buildings, spaces and structures within their context and how this affects the design for new buildings within their setting, contributing to the built environment. Apart from examining the design of buildings and their fabric, the historic, present and future context will also be examined together with the relative legal and planning constraints that affect the built environment. Students will have the opportunity to survey, study, investigate and evaluate a site/building and will learn how to develop an ability to analyse and evaluate the elements of design and built form. In particular the design of buildings will be explored and how design affects setting. As part of this process, students will be expected to develop/enhance their drawing and sketching skills, providing an enhanced understanding of design analysis and the affect of design on the built/historic environment through visual media. Design procedures and processes will be examined in the context of design and a brief/proposal will be examined relative a particular site. A proposed alternative design will be for an element of a building/place within the context of the existing environment. Contextual investigations of design proposals will also be appraised. The analysis of design, planning policy and guidance and the way in which they are implemented will be explored. The importance and implications of environmental criteria will also be considered. The module is project based on studio engagement, site visits, and tutorial reviews. Students will work both in groups and individually. Joint staff and student critic and presentations occur. The knowledge and skills required to successfully complete this module are core employability skills for professionals engaged with architecture and architectural technology.

Year 3: Architectural Design Studies 2

This module, together with the module entitled, Architectural Design Studies I, has been designed to give students an opportunity to develop techniques of architectural design. This development will take place within the framework established through the introduction into the history and context of architecture provided by the module, History and Theory of Architecture (Introduction). Through the development of designs from an architectural brief of small contemporary buildings, underlying concepts related to the meaning of architecture, its language, order and form will be explored. Particular emphasis will be placed on investigating the implications of designing built form. Drawing skills will be related to the presentation of ideas as well as to the architectural form. Alternative design solutions will be developed and the materiality of them will be explored. There will be an emphasis toward structural and constructional solutions within viable economic constraints. Oral, as well as 2 and 3 dimensional presentation techniques will be developed related to the design solutions adopted. As for other studio centred modules, this module is project based on studio engagement, site visits as appropriate, and tutorial reviews. Students will work both in groups and individually. Joint staff and student critic and presentations occur. This module encourages the development of core employability skills especially those related to design development and presentation in the field of architecture practice.

Year 3: Advanced Construction Technology

This advanced technology module is designed to develop students' technical knowledge and the skills to apply that knowledge in the context of both new build and refurbishment work. The focus of this module leads on from domestic construction and provides a broad understanding of the way we build commercial and industrial buildings. The module will consider the functional requirements of single-storey industrial sheds and multi-storey framed structures in concrete and steel. In addition, the effects of the latest legislation in relation to fire and health & safety on the construction process are examined. A great deal of guidance is given to students on skill development. The application of Building Regulations and the associated Approved Documents to both commercial and industrial buildings will be explored. Students will compare different construction methods, and analyse suitable applications for each method. In particular, frames, cladding systems, internal walls, structural flooring and roofing will form key areas of the module.

Environmental performance is a central part of this module and students will investigate how to ensure high levels of environmental performance through using insulation, maintaining airtightness and the installation of building services and controls. Students will have the opportunity to compare the installation requirements of natural and forced ventilation systems and different methods of heating and cooling commercial and industrial buildings. The provision of high quality IT and communications infrastructure systems will also be investigated.

Year 3: Environmental Building Performance

This module has been designed to give the students an insight into the scientific basis of the environmental performance and construction of buildings and their services. The main focus is on the introduction of modelling tools that can be used to simulate a building's performance and its effect on the environment. The main approach adopted is a scientific one, focusing on the analysis of a problem or set of problems, followed by the synthesis of a solution. Considerable emphasis is placed on the use of environmental criteria to assess a building's thermal, visual and aural performance. A number of scientific methods are explored and there will be a limited amount of practical experiment-based work. Various technical solutions for lighting, heating, ventilation and air conditioning a building will be explored. The passive design features of a building are also explored.

Students will be introduced to standard methods of assessing and measuring the environmental performance of buildings, such as Pasivhaus and BREEAM.

This module makes extensive use of Canvas to develop students understanding of the core module material and to provide formative assessment opportunities.

Year 3: Modernism and Beyond

This module focuses on modern, post-modern and contemporary trends in architecture approached in a chronological perspective; hence it continues the introduction to architectural history and theory started in the first-year. The content focuses on a more in-depth knowledge of the cultural, economic and critical debates that have permeated the production of architecture in the 20th and 21st centuries. It introduces students to a series of themes and concepts; such as Expressionism, Abstraction, Functionalism, semiotics, irony and historicism. The module provides students with the opportunity to address the theme of the architect as writer and reader by paying attention to the manifestoes that dominated the theory of architecture until the 20th century. Students will be expected to be able to analyse such texts within the broad cultural context.

The module is delivered over one trimester as a combination of lectures, seminars, debates, and informal presentations. The lectures are constructed around a selection of key themes, setting out the historical and intellectual contexts from which they emerged. The lectures are followed by a student-led seminar, in which key architectural texts and manifestos, are presented and debated. Once students are able to identify the major influences on architecture and place key themes within a broad cultural context, they will be asked to discuss/write their own manifestos. Besides exercising critical thinking, reading and writing skills, students will be able to develop their own capacity to locate their own interests and develop their own critical position for the final year dissertation project.

Year 4: Project Evaluation and Development

The module provides the student with the opportunity to explore the various issues that need to be evaluated when considering a building development from inception until final completion and retention and / or disposal of the building. The context and content of this module integrates knowledge and skills obtained from previous management and design modules. It examines them in a holistic manner and explores their complex inter-relationships. Issues related to the client, the site, planning, financial appraisal, design technology, legal, health and safety and environment will all be examined within a theoretical and practical framework. The module develops the student's ability to comprehend the totality and implications of the development process and to make reasoned value judgements as to its potential feasibility. This is achieved by a detailed examination of local planning policies for the site coupled with a financial analysis of the proposed scheme by use of traditional and modern forms of valuation techniques. The module also focuses on project appraisal, pre construction processes, construction and post construction processes, marketing disposal and evaluation. The module is project based with studio teaching which is undertaken by various strategies such as formal group lectures, group seminars and individual tutorials. Site visits are arranged where appropriate to underpin student knowledge and understanding of practical issues. Joint staff and student criticisms and presentations occur throughout the delivery. Employability skills Students will assess a site for future development opportunities in a manner that satisfies a potential client's need in terms of financial reward, design, procurement, management and cost in use or final disposal of the completed project. Students will improve their communication skills both in terms of report writing and oral presentations to their peers and tutors. Analytical skills will be developed through employment of financial appraisal and risk management strategies.

Year 4: Architectural Design Studies 3

This module examines 20th Century architecture; it's context and historical development. It develops skills of critical argument, which are applied within the context of an architectural design of a medium complexity building. Critical appraisals and appreciation of theoretical issues such as quality in building are explored. The architectural design developed within the module not only has a theoretical base related to context, historical development and critical argument but also emphasises practical solution. The design brief is based on a multi-storey public building of medium complexity. Although the building must be functional in its planning and its construction, particular emphasis will be placed on the buildings sense of place and its architectural development. Design issues, design generators and concepts must be declared. The students' ability for architectural design is developed with an emphasis on technical solution, building technology and internal planning and management. The Module requires continual development of design by the student directed through regular weekly studio teaching sessions. Teaching is by studio tutorials supported by lectures. Key employability skills will be evidenced within the process and the presentation of this project.

Year 4: Architectural Design Studies 4 (Dissertation)

This module aims to develop design and technical skills approximating to those require by practise as closely as possible. Students select a client, site and project, which is developed to scheme design with selected aspects explored more fully. The students' ability for architectural design is also developed with emphasis on the integration of the technical solution and its building technology. The contextual success of the design will be examined as will its internal planning and management. To complete this module successfully the student must demonstrate a confident familiarity, detailed knowledge and appropriate application of design processes and the technologies required to realise built form. The communication of the project should likewise be confident and clear. Teaching is by studio tutorials supported by lectures. The Module requires continual development of design by the student directed through regular weekly studio teaching sessions.

Year 4: Conversion and Adaptation of Buildings

The key aim of studies in this module will be to develop an understanding of user needs in relation to economic re-use of existing buildings by extending, adapting, altering and conserving buildings. This module has been designed to enable students to use a

typical building to demonstrate principles and criteria to be applied to achieve a holistic approach to the future treatment of a building over its whole life-cycle; enhancement and/or conservation of built environment; appropriate and creative technology and specialist economic appraisals. Students complete an in-depth case study either individually or as a group. The student will need to be aware of the concepts of extension, conversion and adaptation of existing buildings, and maximisation of economic viability of buildings together to enhance user needs, modern design concepts, landscaping, environmental and green issues together with low energy issues and sustainability. Students will need to study aspects of architectural periods and types of building including components and materials of construction commonly used in the types of building under study and life-cycle options. It will be important for students to acquire a range of analytical skills to enable them to measure existing and proposed building performance from a number of standpoints and be in a position to select a range of re-use options which can be employed by a building owner. Ancillary to this aim will be the acquisition of a critical awareness of the construction options available to a building owner seeking to maximise the economic viability of a building and be aware from detailed reading and research how new works, alteration and adaptation can enhance use of an existing building.

Year 4: Construction Technology and Innovation

This module has been designed for stage 3 students, so as to capitalise on previous technology modules. It will consist of a series of lectures together with structured tutorial sessions. The lectures will focus on a particular topic whist the tutorial sessions will be used to allow the students to work in small groups. These tutorial meetings will be formally conducted within accepted procedures, and their content will be properly recorded in minutes. In the lecture sessions the focus will be on current construction issues and trends of a technological nature. Methods of special construction will be critically reviewed. The module culminates in a formal presentation, during which the students are encouraged to use a variety of illustrative methods to support their work. This is backed up by written proposals containing elements of both group and individual work. Employability skills Students will acquire knowledge related to current construction issues and special forms of construction. They will also demonstrate an understanding of alternative forms of construction. The module will improve their communication, team building and intellectual skills as well as developing professional awareness.

Year 4: Professionalism, Values and Ethics

Built Environments affect and concern everyone in society. Built Environment is both a public and private matter. All facets of Built Environment - ecological, aesthetic, technological, economic, historical etc - need to be evaluated in terms of values and ethics, so that what is 'good' and 'right' can be judged. The conceptual basis of value-systems and ethics is debated. This module relates mainly modern - but some older - building scenarios to some ways of values/ethics analysis and thought. There is much emphasis on discussion, in which students' own views are welcome and can be tested against both theory and the experiences of others. Building scenarios such as special projects (eg those related to the Olympics or to the millennium), development plans for areas such as Chelmsford, and historical conservation, are subjected to scrutiny: who is doing this, why, for whose benefit, to whose disadvantage? This scrutiny is in terms of ecological, aesthetic, technological, economic, historical and similar factors. Justification of choices made in planning, architecture and design are discussed in terms of goals, actions and outcomes. Underlying values/ethics are explored: is what is being done 'good' or 'right' in terms of practical results, fundamental principles, or other objective criteria? This leads on to developing one's own views on Built Environment values/ethics, both as a person and as a future professional.

Optional Modules

(Subject to availability)

Year 3: Study of European Practice

This module uses a comparative method to examine key characteristics of Architecture, Planning or Architectural Technology, relevant to the students' particular field of study. This comparison is drawn between a European country and the UK, and a visit to a selected European city forms an integral element of the module. Students are expected to engage in student-led academic research to gain an understanding of the factors which contributed to the shaping of the chosen city ranging from its planning to its architectural language. Group tutorials with teaching staff will be provided during the study visit, and classroom activities culminate in individual presentations to staff and peers. Wider cultural, social and environmental issues are considered and the responses manifested in the chosen city are examined and discussed. The residential study visit is invaluable to examine the phenomenological aspects of architecture and to motivate students' continuing appreciation of architecture and its impact on its physical and social context. Where applicable, this knowledge will enhance students' design work. Again using a comparative

method, students analyse the professional practice in their particular field and the legal, legislative systems and trends which affect development both in the chosen country and the UK. An awareness of different practice methods beyond the UK enhances students' employability. Where possible, links are forged with other universities in the chosen city and joint teaching sessions and workshop activities organised to facilitate cross-cultural academic and intellectual exchange.

Year 3: Architectural CAD

This module is intended to give students and built environment practitioners an appreciation of the growing importance of advanced three-dimensional Computer Aided Design (CAD) and Building Information Modelling (BIM). It will give hands-on training in some of the most up-to-date software complying with the latest British and European Standards. Many companies are now realising the benefits of developing a "single model" of individual building projects within their CAD environment. This allows them to generate working drawings from the model - plans, sections and elevations - and to coordinate the construction in a 3D environment. They can then develop and refine the model over the life of the building, not only through the design and construction phases but also into the management phase. This leads to an increased level of data re-use and resolution of cross-disciplinary design and coordination issues at a much earlier stage. Recent developments in software have allowed building geometry to be represented by intelligent "objects", making the goal of a single model environment all the more attainable. Instead of drawing a wall as a series of lines and inserting a graphic symbol to represent a door, this new technology allows users to draw 3D walls directly and to insert a component such as a door, which will automatically create a structural opening in the wall. In this module, intelligent object-orientated design methods will be employed to create a virtual building model. Students will gain an appreciation of the substantial benefits such systems can offer in terms of client visualisation and design flexibility.

Year 3: Modelling Sustainable Architecture

This module has been designed to give students an insight into some of the issues and design processes associated with the design of sustainable architecture. Students will have the opportunity to work as a member of a design team working on a number of modelling tools to simulate the environmental performance of buildings. The module is based of the Building Research Establishment's BREEAM approach to the design of responsible architecture; considering the effects a building has on local resources and global warming. Aspects of heating and electrical energy use, pollution, occupancy comfort, transport, and embodies energy are investigated and combined to produce a building design that will have the minimum impact on the natural world. The work focuses on low energy low impact passive design solutions to environmental problems. Both the passive and active design features are explored and exploited to produce an environmentally friendly building design. It is strongly recommended that you have studied the module Environmental Services and Construction Technology in which much of the background theory and concepts are introduced, before attempting this module. The module is delivered by blended learning via LMS, so good access to the internet is essential.