Heriot Watt Course Catalogue

School of Energy, Geoscience, Infrastructure, and Society including Civil, Structural and Architectural Engineering, Construction Management, Town and City Planning, and Geography

Full Course Descriptors available on request from Colin.Johnston@hw.ac.uk

Catalogue is correct at time of print but may be subject to change.

School: EGIS **Level 1** **Semester: Fall**
Course Code: D47BE **Course Title: Built Environment Economics**

Built Environment Economics provides an introduction to key concepts in micro and macroeconomics, and an understanding of the role of economics in everyday decision making. Students will learn to apply economic analysis to residential, commercial property markets and the built environment. Students will also be provided with an introduction to the economic analysis of planning, and how to use economics to provide an insight into policy issues related to property market and the Built Environment.

School: EGIS **Level 1** **Semester: Spring**
Course Code: D47HG **Course Title: Introduction to Human Geography**

Introduction to Human Geography aims to introduce students to key introductory concepts in human geography allowing them to develop a nuanced and critical perspective on place and space throughout their undergraduate programme. The course will ensure students will understand key theoretical approaches from human geography to understand place and space, as well as gaining an introductory knowledge of political geography, socio-economic geography, cultural geography, demographis and health geography.

School: EGIS **Level 1** **Semester: Fall**
Course Code: D27CA **Course Title: Civil Engineering Applications**

Civil Engineering Applications aims to use problem based learning to give the cohort an introduction to the Civil & Structural Engineering Progression. The students will gain transferrable skills (C&IT, research, presentation, report writing and group working) whilst completing assessments focussed on: the role of Chartered Civil & Structural Engineers in contemporary society, understanding the nature of the modern profession, the contribution the profession makes in the developing world, the responsibilities of chartered engineers – health & safety, leadership and moral, and understanding how civil engineers helped shape the modern world.

School: EGIS **Level 1** **Semester: Fall**
Course Code: D37CM **Course Title: Construction Modelling**

Construction Modelling aims to provide an insight into the representation of construction drawing as well as developing an understanding of 2D and 3D modelling and skills on using CAD systems for construction elements.

School: EGIS **Level 1** **Semester: Fall**
Course Code: D37TA **Course Title: Construction Technology**

Construction Technology introduces students to the construction process of a low rise domestic building. The aim is for students to have an understanding of the construction process commencing at foundation level, up to roof level for this building. More importantly, students will be made aware of the design process for each of the elements of a building. This design process is carried

throughout the whole building – why chose one material instead of another? The aim is to make students aware that there may be many ways of actually constructing a building but someone has to choose which way it actually has to be built. Additionally, the students must develop a sound understanding of construction detailing of the primary building elements and components, and communicate this graphically, as a result sketching and drawing is an integral component of the course

School: EGIS Level 1 Semester: Spring
Course Code: D17BG Course Title: Environment and Behaviour

Environment and Behaviour introduces the basic concepts of how humans perceive and interact with the environment. It also provides the students with an understanding of the rationale of behaviour studies and of the social, architectural and environmental issues that originated them and creates an awareness of the relevance of environmental behaviour in the design professions. Students will also be provided with a basic knowledge of research methods and their application in environment and behaviour research and basic statistical concepts applied to environmental research.

School: EGIS Level 1 Semester: Fall
Course Code: D17HH Course Title: History of the Built Environment

History of the Built Environment is designed to provide a background understanding of how the built environment of Western Europe has developed from Classical Greek times up to the present day, and to stimulate students to look anew at our heritage of urban developments, buildings and structures, both old and new, liked and disliked. At the end of the Course students should be able to recognise buildings and developments from the main historical architectural periods and be able to discuss how the Western European built environment evolved. In addition students should be able to give their own evaluation of the worth of historic developments to those living in the 21st century.

School: EGIS Level 1 Semester: Fall
Course Code: D17DE Course Title: Introduction to Design

Introduction to Design provides students with an understanding of basic key processes and principles used in the design of the built environment. Students will work on the design process in architecture, urban design and planning as well as architectural and urban design drawings & graphics and work on production of design briefs and method statements and health & safety risk assessments.

School: EGIS Level 1 Semester: Fall
Course Code: D27MA Course Title: Mechanics A

Mechanics A introduces the basic concepts of Newtonian mechanics through statics of rigid bodies and hydrostatics. The course will develop familiarity with Newton's Laws and their application to equilibrium and explain the concepts of forces, equilibrium, statically determinate structures. Familiarity with the concept of hydrostatic pressure and its variation within a fluid at rest, how

pressure measurement devices work, and with Archimedes principle will also be developed.

School: EGIS Level 1 Semester: Fall
Course Code: D47PP Course Title: Property, Development and Planning 1

Property, Development and Planning 1 gives understanding of the dynamics shaping change in the built environment and develops the skills to research and interpret the urban environment around student and its changing forms while evaluating processes of urban change from a range of different perspectives. Students will also learn to understand how those different perspectives shape different perceptions of urban environments and to further explore how professionals contribute to processes of change to the built environment.

School: EGIS Level 1 Semester: Spring
Course Code: D27CT Course Title: Construction Technology and Processes

Construction Technology and Processes introduces students to the construction process of a modest scale engineered building. The aim is for students to have an understanding of the construction process commencing at foundation level, up to roof level for this building. More importantly, students will be made aware of the design process for each of the elements of a building. This design process is carried throughout the whole building and will address matters including selection of materials and construction techniques. The aim is to make students aware that there may be many achievable ways of actually constructing a building but that some will not be viable for technical, process, economic or other reasons, and that someone has to choose which way it actually has to be built. Additionally, the students must develop a sound understanding of construction detailing of the primary building elements and components, and communicate this graphically.

School: EGIS Level 1 Semester: Spring
Course Code: D37CC Course Title: Cost Control Principles

Cost Control Principles introduces the principles and establish competency in basic pre-contract cost forecasting and post-contract cost control. Students must be able interpret outline design proposals and use historical data to accurately predict the construction costs at the building element level. In the post-contract phase, students must also be able to monitor and control expenditure with reference to building elements to ensure the client's budget is achieved and variations in the work can be afforded.

School: EGIS Level 1 Semester: Spring
Course Code: D47IP Course Title: Integrative Project

Integrative Project sets up intensive interdisciplinary design groups with students from CMS and Urban Studies disciplines within the School, and challenges teams to explore professional roles and collaboration within a design context. The course allows students to understand the definition of BE professionals and of the role and responsibilities of BE professionals as well as how to adopt and deploy the responsibilities of their own profession within a group conceptual design project.

School: EGIS **Level 1** **Semester: Fall**
Course Code: D27CB **Course Title: Introduction to Engineering Design**

Introduction to Engineering Design aims to raise students awareness and critical understanding of the engineering fabric around them and to introduce students to the principles underlying the design process in Civil Engineering, whilst developing a professional attitude to work both as individuals and as group members and promoting improved communication through engineering vocabulary.

School: EGIS **Level 1** **Semester: Spring**
Course Code: D47IE **Course Title: Introduction to the Environment**

Introduction to the Environment introduces students to the scope of the global environment, illustrate the extent and nature of interdependencies in global and built environment systems and make students aware of the global issues and environmental factors related to human activities that affect the Earth's environment. The course also reviews the interaction between people, buildings and the environment and to establish the need for policy responses to the problems posed.

School: EGIS **Level 1** **Semester: Spring**
Course Code: D27IM **Course Title: Introduction to the Materials**

Introduction to the Materials aims to provide an introduction to materials relevant to the civil engineer. Focus is placed on fundamental material structure (e.g. atomic, molecular, aggregate) and associated classifications/descriptors applied to each material. Materials include soils, concrete, metals, timbers, and polymers. The course also includes practical work on the manufacture/production and/or testing of materials

School: EGIS **Level 1** **Semester: Spring**
Course Code: D37MP **Course Title: Management Practice in Construction**

Management Practice in Construction introduces the basic principles of management, relating this to roles/responsibilities of construction professionals and organisational strategy. The course also includes an introduction to social sustainability aspects of construction.

School: EGIS **Level 1** **Semester: Spring**
Course Code: D27MB **Course Title: Mechanics B**

Mechanics B aims to give knowledge and understanding of the concept of hydrostatic pressure and its variation within a fluid at rest, as well as how pressure measurement devices work and Archimedes Principle. The course also conveys the knowledge of how to calculate hydrostatic pressure in fluids and underpressure balances in order to analyse pressure measurement devices. Students will also examine the equilibrium of floating and submerged objects.

School: EGIS **Level 1** **Semester: Spring**
Course Code: D47PQ **Course Title: Property, Development and Planning 2**

Property, Development and Planning 2 aims to achieve a basic understanding of, and critically reflect upon the roles and functions of property and planning professionals and other stakeholders in the development process along with key political and ethical debates about how the 'public interest' can be realised through development. An understanding of the framework of rights and responsibilities within property development takes place should also be developed.

School: EGIS Level 1 Semester: Spring
Course Code: D47ST Course Title: Statistics and Data Analysis

Statistics and Data Analysis aims to develop knowledge of statistics and an understanding of its implications for research and analysis of the built environment. The emphasis is on practical presentation, analysis of data used in the study of built environment, and the formational of research questions. It involves the use of small samples of data from various official and research sources.

School: EGIS Level 2 Semester: Spring
Course Code: D48CL Course Title: City Life and Difference

City Life and Difference aims to use Edinburgh, and its diverse neighbourhoods and people, as a living laboratory for students to fully understand the differences in experiences of the city and how the concentration and multiplicity of difference in our cities changes them. The course will deveop an understanding of how cities have become increasingly diverse through wider socio-economic and cultural changes in local, national and global societies. Students will also receive a theoretical and practical understanding of how social, economic and cultural difference impact on our cities.

School: EGIS Level 2 Semester: Spring
Course Code: D18BT Course Title: Building Services Technology

Building Services Technology aims to give students an understanding of the range of services that need to be incorporated in modern buildings; to provide an understanding of how these services impact construction technology; and, to give students a practical understanding of the construction processes involved in incorporating services within buildings

School: EGIS Level 2 Semester: Fall
Course Code: D38TA Course Title: Construction Technology 2

Construction Technology 2 aims to begin a complete understanding of construction technology on medium span, and low-rise commercial buildings for students. This will include detailed knowledge of the main materials and structural systems used in buildings, the basics of construction vocabulary and the ability to interpret construction drawings.

School: EGIS Level 2 Semester: Fall
Course Code: D48DV Course Title: Development Planning

Development Planning generates visionary and imaginative responses to spatial planning challenges that are realistic and derive from substantial investigation and analysis of relevant data and other evidence, while articulating such responses through coherent and integrated strategies, plans or

programmes that take account of relevant institutional frameworks and combine creative direction for the future with credible means of implementation. The course evaluates the case for and against spatial planning and particular forms of spatial planning and assesses what can be learnt from past experiences of spatial planning in different socio-economic, cultural and political contexts. Students will develop an understanding of the relationship between market processes, built form, different development models and patterns of movement, evaluate the economic and financial implications of alternative development strategies and consider how best to generate and capture added value for both particular interests and the wider community.

School: EGIS Level 2 Semester: Fall
Course Code: D18EP Course Title: Energy Principles and Applications

Energy Principles and Applications introduces basic energy principles with particular reference to the Built Environment and sustainability and revises heat transfer and fluid flow principles, with particular emphasis on mass and energy flow in buildings. The course also introduces the principles and practical realisation of heating systems for buildings as well as the design process and methods of calculating heating, ventilation and cooling requirements.

School: EGIS Level 2 Semester: Fall
Course Code: D28HA Course Title: Hydraulics and Hydrology A

Hydraulics and Hydrology A introduces students to the physics of fluid mechanics and the hydraulic principles underlying the design of pipeline systems and open channels and to foster an awareness of the social context and purpose of hydraulic design in terms of flood control, water supply and sewerage. The course also introduces students to the principles of hydrology, including the hydrological cycle and its impact on water resources availability, catchment water balance, measurement of catchment rainfall and its analysis, measurement of flow in natural river channels

School: EGIS Level 2 Semester: Fall
Course Code: D48VA Course Title: Principles of Property Valuation

Principles of Property Valuation aims to establish the economic context for the creation of value, introduce the principles for the assessment of value in property markets, develop a clear understanding of the valuation process and appropriately apply the principal valuation methods (conventional and contemporary) to a range of property types and interests.

School: EGIS Level 2 Semester: Spring
Course Code: D18AB Course Title: Acoustics and Architectural Design

Acoustics and Architectural Design aims to introduce basic concepts of acoustics to students, giving an overview of environmental noise issues and introducing students to room acoustics, sound insulation design and noise control in building services. Teaching methods include the use of case studies as examples of how to deal with acoustic design issues and develops the laboratory skills of students (measurement of noise and room acoustics parameters).

School: EGIS **Level 2** **Semester: Fall**
Course Code: D28DS **Course Title: Analysis of Determinate Structures**

Analysis of Determinate Structures gives the learner an understanding of the internal structural actions in tension and compression structures while providing the techniques necessary to calculate the internal forces (stress resultants) in cable structures, arch structures and walls. The student will also gain an understanding of the internal structural actions in statically determinate beams and frames and learn the techniques necessary to calculate reactions and internal actions in statically determinate beams and frames. Students should develop the ability to draw axial force, shear force and bending moment diagrams and to sketch the deflected shape of simple beams and frames under action of applied loads. The course also equips the learner with the skill and knowledge that is required to analyse simple structural frameworks using commercial structural analysis software.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D18AD **Course Title: Architectural Design Project**

Architectural Design Project is a studio-based course which aims to widen perception of architecture and generate the interpretation and solution of a series of wide ranging design problems while familiarising students with professional architectural drawings in order to generate the interpretation and solution of a series of wide ranging design problems. Students will also develop the skills to interpret and contribute to the architectural design process; and provide the opportunity for the demonstration of that understanding as an essential component of practical architectural design as well as using these skills to design a building.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D28MA **Course Title: Civil Engineering Materials**

Civil Engineering Materials aims to introduce students to a range of Civil Engineering materials in the classroom and laboratory. The Course will discuss those properties of materials which are of importance to the Engineer – both technical and environmental. Construction materials will be introduced in terms of their manufacture/production, mechanical properties, in-service behaviour (including durability), carbon footprint and relevant Eurocodes andstandards appropriate to each material.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D38CM **Course Title: Cost Modelling and Measurement**

Cost Modelling and Measurement aims to introduce the principles of measurement and establish basic competency. As conditions of contract will generally nominate a set of rules of measurement to be used to describe the work, students will develop an understanding as to how to interpret these rules correctly and be able to use them to produce unambiguous and repeatable sets of measurements describing and quantifying the work to be constructed or already in place.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D48DP **Course Title: Design of Place**

Design of Place aims to enable the learner to develop an understanding of urban and landscape design, including the importance of people and process; to further develop an appreciation of the main principles of design in the built environment, including sustainability as a key aim and to understand how different professions can creatively influence the design of development.

School: EGIS Level 2 Semester: Fall
Course Code: D18PA Course Title: Design Project A

Design Project A provides students with the opportunity to apply the theory and principles developed in the taught building services engineering courses to the design of basic systems for a small house. The course also gives students the opportunity analyse the building services requirements of a small building and an appreciation of the practical problems associated with providing services.

School: EGIS Level 2 Semester: Spring
Course Code: D18DP Course Title: Design Project B

Design Project B is a studio-based course which aims to enhance perception of architecture and interaction of building with climate. Students will work on their abilty to produce professional quality drawings, and their interpretation and solution of a series of wide ranging design problems. The course also provides students with the opportunity to apply the theory and principles developed in the taught building services engineering courses to the design of basic systems

School: EGIS Level 2 Semester: Spring
Course Code: D28DE Course Title: Design Studies A - Problem Solving

Design Studies A - Problem Solving offers students experience in taking design decisions within a broad engineering environment. The course also sets up an environment in which students are required to identify and respond to a wide range of competing design criteria such as engineering soundness; and architectural firmness, commodity and delight.

School: EGIS Level 2 Semester: Spring
Course Code: D48DM Course Title: Development Management

Development Management develops an understanding of the basic features of development management as it operates in Scotland and the rest of the UK, its relationship to legislative and policy frameworks. The course also builds skills in identifying, interpreting and weighing conflicting arguments about development proposals, and in making planning judgements; as well as developing professional attitudes in interpreting and applying planning law, procedures and criteria.

School: EGIS Level 2 Semester: Spring
Course Code: D38EC Course Title: eConstruction

eConstruction aims to provide an insight into the use of information systems in construction industry as well as developing an understanding of data/information handling within construction processes while introducing the concept of collaborative work environment to provide co-ordinated construction data using BIM technology.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D38FM **Course Title: Facilities Management Principles**

Facilities Management Principles covers four key topics. These are: the Origins and Definitions of Facilities Management; the Scope and Role of Facilities Management; Asset Maintenance Management; and Facilities Management and Sustainability.

School: EGIS **Level 2** **Semester: Fall**
Course Code: D48GW **Course Title: Governance and Participation**

Governance and Participation aims to enable learners to develop understanding of the social and political context within which built environments are created and used, and the scope for involving diverse stakeholders in the governance and planning of the built environment. It also aims to deepen knowledge and understanding of the cost and benefit of user participation in the development and delivery of services.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D48IV **Course Title: Introduction to Investment**

Introduction to Investment aims to introduce the key concepts and fundamental principles of investment and finance and develop an understanding of investment markets.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D28SA **Course Title: Stress Analysis and Element Strength**

Stress Analysis and Element Strength introduces the student to the concept of elastic instability in struts and the rigid body assemblages and gives an insight in to the role of structural analysis and stress analysis in the design process. The student will also gain an understanding of direct stress and strain, shear stress and strain, the elastic constants and the relationship between them, and provides the tools needed to determine elastic stresses in and strains in simple structures given the extant stress resultants.

School: EGIS **Level 2** **Semester: Fall**
Course Code: D28SM **Course Title: Surveying and Monitoring in the Built and Natural Environment**

Surveying and Monitoring in the Built and Natural Environment introduces students to some fundamental principles underlying measurement in the built and natural environment. This includes an introduction to general measurement (inc land surveying for engineers) as well as looking at: Maps and plans; Linear surveying; Levelling Traverse surveys and computations. A survey camp will be held in Week 1 of the Easter Holiday Break.

School: EGIS **Level 2** **Semester: Spring**
Course Code: D48UE **Course Title: Urban and Real Estate Economics**

Urban and Real Estate Economics aims to give an understanding of the economic underpinnings to the pattern of urban land uses and the operation of the property market, and the role and impact of planning. Various models of land use and valuation are introduced as well as exploring the various links and relationships between economics and construction.

School: EGIS Level 2 Semester: Spring
Course Code: D48UP Course Title: Urban Political Economy

Urban Political Economy provides students with grounded multidisciplinary knowledge in urban political economy which reflects how social relations define our built environment.

The interconnected topics of politics, economics and philosophy will be applied to our globalised world, examining links between the state, the economy, people and the

environment in capitalist society today.

School: EGIS Level 3 Semester: Fall
Course Code: D39AM Course Title: Asset Maintenance Management

Asset Maintenance Management introduces students to the concepts of Asset Maintenance Management – AMM attempts to maximise the use of assets by keeping them in good condition, the primary objective is to enable an organisation to meet its service delivery objectives efficiently and effectively.

School: EGIS Level 3 Semester: Fall
Course Code: D39BI Course Title: Building Pathology and Inspection

Building Pathology and Inspection introduces students to the systematic investigation of properties and building problems, and to develop their appropriate technical skills involved in this core activity of Building Surveying.

School: EGIS Level 3 Semester: Fall
Course Code: D39TA Course Title: Construction Technology 3

Construction Technology 3 aims to provide students with an understanding of Modern Methods of Construction (MMC). The Course emphasis is on providing students with basic knowledge on the range of technologies available for the construction of commercial and industrial buildings including the construction of substructure, Superstructure, in addition to off-site production.

School: EGIS Level 3 Semester: Fall
Course Code: D19CX Course Title: Critical Architectural Studies

Critical Architectural Studies develops skills in understanding the impact of various aspects of built environment design through analysis of simple building case studies, and an ability to propose engineering solutions that are integrated with spatial design.

School: EGIS **Level 3** **Semester: Fall**
Course Code: D39CC **Course Title: Design for Cost Planning**

Design for Cost Planning aims to build upon and develop the principles of cost management introduced in earlier stages of the programme and will again focus upon Pre-Contract and Post Contract activities. At the pre-contract stage - cost planning and the link between design and cost will be explored. At the post-contract stage - understanding between the work that is undertaken on site and its associated cost and value will be developed.

School: EGIS **Level 3** **Semester: Fall**
Course Code: D29SE **Course Title: Design of Steel Elements**

Design of Steel Elements introduces students to the process to be followed in the detailed design of elements in structural steelwork focusing on structural steelwork properties and steelwork element failure modes, tension, compression and flexural members, as well as combined stress.

School: EGIS **Level 3** **Semester: Fall**
Course Code: D19EL **Course Title: Electrical and Lighting Services for Buildings**

Electrical and Lighting Services for Buildings introduces students to the engineering of electrical and lighting services within buildings. The Course introduces the theory of generation and distribution of electricity in both domestic and commercial settings. Students will gain an understanding of load estimation, system design and equipment specification for installations alongside an understanding of the main electrical plant items and their applications. Students will also cover safety engineering in electrical system design and will receive an insight into the provision of artificial lighting in and around buildings.

School: EGIS **Level 3** **Semester: Fall**
Course Code: D29GS **Course Title: Geology and Soil Properties**

Geology and Soil Properties introduces geotechnical engineering and highlight the importance of the fundamentals of soil mechanics in a Civil Engineering context.; and develops an understanding of geology relevant to Civil Engineering. There is some emphasis on Quaternary geology and geomorphology in view of its major importance for foundation engineering, georesources and environmental protection.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D29GA **Course Title: Geotechnics A - Introduction to Soil Mechanics**

Geotechnics A - Introduction to Soil Mechanics enables students to understand the role of soil mechanics within geotechnical engineering and the practical relevance of geotechnics within the context of civil engineering. Students should also gain knowledge of the fundamental principles of soil mechanics – compaction, water movement in soils and the principle of effective stress

School: EGIS **Level 3** **Semester: Fall**
Course Code: D49PT **Course Title: Planning Theory**

Planning Theory explores the main debates in planning theory and to interpret their relevance to current debates about planning practice. Topics covered include: policy implementation, ethics, the public interest, participation and inclusion, modernism, post-modernism and sustainable development.

School: EGIS Level 3 Semester: Fall
Course Code: D39PZ Course Title: Procurement and Contracts

Procurement and Contracts provides an overview of the principles and methods of construction project procurement and an understanding of the principles of contract law in this area and its practices . The course also provides a thorough understanding of key processes used to administer a contract during the post-contract stage of the project life cycle, as well as an appreciation of the importance of appropriate standards of behaviour of the modern construction professional.

School: EGIS Level 3 Semester: Spring
Course Code: D49RD Course Title: Real Estate Development

Real Estate Development provides an understanding of the structure and functioning of the contemporary real estate market and of the factors influencing the development decision. Students will also achieve an understanding of different techniques of development appraisal and the ability to address particular development appraisal problems within a wider urban and planning context. In addition, they will develop an understanding of cash-flow generation and real estate development finance over the development period and gain the ability to construct appropriate financing packages.

School: EGIS Level 3 Semester: Fall
Course Code: D49RI Course Title: Real Estate Investment

Real Estate Investment aims to introduce property as an investment and to enable learners to develop an in-depth understanding of property as an investment medium and its place in the multi-asset portfolio and to enable learners to understand the role of financial institutions in the real estate market.

School: EGIS Level 3 Semester: Fall
Course Code: D39MS Course Title: Safety Management and Site Establishment

Safety Management and Site Establishment aims at training students on the key aspects of 'safety management and site establishment' to achieve a positive safety culture in construction and effective setting up and running a site. The Course first focuses on the health & safety problems associated with the construction industry and then make students aware of the safety law in the UK and the theory and practice of safety management in the construction industry. Secondly, factors involved in effective establishment and running of a construction site are reviewed followed by the factors involved in providing temporary facilities on site and the selection and management of plant.

School: EGIS Level 3 Semester: Fall
Course Code: D49ST Course Title: Statistics and Data Analysis

Statistics and Data Analysis aims to develop knowledge of statistics and an understanding of its implications for research and analysis of the built environment. The emphasis is on practical presentation, analysis of data used in the study of built environment, and the formational of research questions. It involves the use of small samples of data from various official and research sources.

School: EGIS Level 3 Semester: Spring
Course Code: D19TP Course Title: Thermal Performance Studies

Thermal Performance Studies aims to extend upon previous knowledge of heat and to gain deeper understanding on interaction between a human body and indoor thermal conditions. Students should also develop an overview of common modelling methods in building design and how to review and analyse these techniques in relation to the design process.

School: EGIS Level 3 Semester: Fall
Course Code: D29TA Course Title: Transportation Engineering A

Transportation Engineering A develops the students' knowledge and understanding of the operation and modelling of transport systems. The emphasis is on integrated transport and sustainable transport systems including forecasting transport demand and the related environmental impacts. The course will look at light rail and metro systems in depth in relation to these areas.

School: EGIS Level 3 Semester: Fall
Course Code: D49UD Course Title: Urban Design Theory and Practice

Urban Design Theory and Practice aims to enable learners to gain an in-depth understanding of urban design principles and processes and develop in-depth skills of critical design analysis. Students will also gain a critical understanding of urban design theories and the literature while developing a penetrating and creative eye when studying the physical environment.

School: EGIS Level 3 Semester: Spring
Course Code: D39BR Course Title: Building Refurbishment and Maintenance

Building Refurbishment and Maintenance examines the various methods of adapting and maintaining buildings and to develop appropriate technical and design skills involved in such works.

School: EGIS Level 3 Semester: Spring
Course Code: D49CP Course Title: Comparative Planning and Real Estate Management

Comparative Planning and Real Estate Management aims to introduce students to comparative aspects of planning across nation-states and to synthesise planning material from a range of sources. Students will also learn to critically compare planning systems in other countries with the UK and analyse real estate markets in an international context while gaining the ability to assess the internationalisation of real estate market activity.

School: EGIS Level 3 Semester: Fall
Course Code: D49CA Course Title: Contemporary Appraisal

Contemporary Appraisal aims to develop a critical evaluation of valuation and appraisal methods and provide an opportunity to develop an in-depth knowledge of advanced methods of valuation and appraisal for land and property markets.

School: EGIS Level 3 Semester: Spring
Course Code: D39IQ Course Title: Decision Making for Management Applications in Construction

Decision Making for Management Applications in Construction develops intelligent skills in utilising different analytical techniques in management science to solve decision problems while allowing students to translate a wide range of realistic construction problems into formal decision models. The course encourages a more disciplined thinking process, especially when decisions are made in groups and ensure students develop practical IT skills in solving decision making problems.

School: EGIS Level 3 Semester: Spring
Course Code: D39DC Course Title: Design for Construction

Design for Construction aims to introduce students to the challenges that arise from the interactions between design and construction including a mix of both taught material and group project work. The mix of teaching methods allows for a developed understanding of the application of construction technology solutions to a given project scenario alongside the ability to work with other construction professionals.

School: EGIS Level 3 Semester: Spring
Course Code: D19DI Course Title: Design Issues

Design Issues aims to produce students who understand the influence of climate on the detailed design of a number of services to buildings, including heating, ventilation, cooling, electrical and water supply and drainage services, and are able to take these factors into account when designing systems. The impact of safety on design and implementation is also explored.

School: EGIS Level 3 Semester: Spring
Course Code: D29DC Course Title: Design of Concrete Elements

Design of Concrete Elements introduces students to the process to be followed in the detailed design of structural concrete elements including focus on concrete and reinforcement properties, including stress/strain relationships, and durability and fire resistance. There are both theory and follow up practical elements to this course.

School: EGIS Level 3 Semester: Fall
Course Code: D19SO Course Title: Design Software Applications

Design Software Applications provides students with knowledge of commercially available computer models used in the design of architectural engineering systems (with links to sustainable building design and performance).

School: EGIS **Level 3** **Semester: Spring**
Course Code: D19EB **Course Title: Energy and Buildings**

Energy and Buildings provides students with an understanding of the way in which energy is distributed & utilised, to introduce energy consumption within a Built Environment context and to examine the principles behind passive, renewable and new technologies. The course also brings together the knowledge the student has gained from other parts of the course concerning energy supply and use of energy in buildings, in a design context.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D29EV **Course Title: Environment Engineering A**

Environment Engineering A introduces students to the principles underlying the design of water and wastewater treatment systems, solid waste containment facilities, air pollution control equipment, and environmental noise control; and to foster an awareness of the social context and purpose of environmental engineering in terms of sustainable development. The need for the development of renewable energy technology will be examined and the potential solutions introduced to the students.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D29HB **Course Title: Hydraulics and Hydrology B**

Hydraulics and Hydrology B develops students' knowledge and understanding of the engineering principles of water distribution systems, open-channel hydraulics and engineering hydrology and provides the opportunity for students to apply their knowledge to real world hydraulic and hydrology related applications. The course also fosters an awareness of the social and environmental issues in the sustainable hydraulic design of flood control schemes, water supply networks and urban drainage.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D49IM **Course Title: International Property Market Analysis**

International Property Market Analysis provides an introduction to internationalisation of property markets and the knowledge to analyse these markets, and then make an assessment on the internationalisation of property market activity. Students will also learn to investigate international political economy as a context for understanding land and property markets and how to analyse specific national property markets at different stages of development.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D39MC **Course Title: Measurement and Cost Evaluation**

Measurement and Cost Evaluation extends the students’ skills in interpretation of rules of measurement by study of several measurement methods. The course also extends the students’ skills in recognising items of work in place by the use of more complex forms of construction, particularly temporary works such as formwork and work which when drawn uses complex symbolism such as reinforcement and structural steel work.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D49PP **Course Title: Professional Project**

Professional Project aims to provide a platform to integrate and apply a variety of subject areas and to synthesise market and planning material from a wide range of sources. Students should then be able to critically compare spatial planning systems and property markets in other countries with the UK. This course involves a week long field trip to Europe.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D39IP **Course Title: Project Planning and Implementation**

Project Planning and Implementation trains students on the core aspects of Construction Project Planning and Control for achieving project success. Therefore, the course first focuses on the analysis of the factors that impact project success. Then, students are empowered with core techniques used to effectively and efficiently plan (i.e. pre-project) successful projects are detailed. Finally, corresponding techniques used to effectively and efficiently control (i.e. during project) successful projects are reviewed. A case study is used to demonstrate all the above processes and methods.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D49RS **Course Title: Regional and Strategic Planning**

Regional and Strategic Planning aims to enable learners to develop knowledge and understanding of the historical development of regional and strategic planning theory and practice, its contemporary importance and purpose and the practical formulation of regional and strategic plans.

School: EGIS **Level 3** **Semester: Spring**
Course Code: D49SD **Course Title: Sustainable Environments**

Sustainable Environments primarily aims to provide a platform for students to revisit the principles of sustainable development and to confront the challenges of applying them to producing sustainable environments, in order that they may carry the concepts forward into their Honours work. The course also aims to provide a platform, within a built environment programme orientated towards settlements, for considering the drivers of change and development in the countryside, and their impacts on the natural heritage.