

**Programme Specification**

**Title of Course: Civil and Infrastructure Engineering, BEng (Hons) Top-up Year**

**Date Specification Produced: May 2013**

**Date Specification Last Revised: June 2020**

This Programme Specification is designed for prospective students, current students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content of each module can be found in the Course Handbook and Module Descriptors.

**SECTION 1: GENERAL INFORMATION**

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| **Title:** | BEng(Hons) Civil and Infrastructure Engineering |
| **Awarding Institution:** | Kingston University |
| **Teaching Institution:** | ESOFT College of Engineering and Technology |
| **Location:** | Sri Lanka |
| **Programme Accredited by:** | Non-accredited programme |

**SECTION2: THE PROGRAMME**

**A. Programme Introduction**

The course is designed for Edexcel HND students who wish to study Civil Engineering to Honours Degree level at ESOFT College of Engineering and Technology (ECET). The BEng Civil and Infrastructure Engineering is offered as a level 6 honours top-up and is available on a full-time basis over a period of one academic year. The course embraces some of the recent developments in education and industry and the curriculum and teaching benefits from the research interests of the academic staff. The course design is based on the guidelines provided by the Engineering Council UK Standard for Professional Engineering Competence (UK-SPEC) and the Quality Assurance Agency (QAA) Subject Benchmark Statement for Engineering.

The Course is intended to broaden the knowledge and perspective of students wishing to become professional civil engineers or to pursue a career in related professional areas. The Course is intended to enhance the career opportunities and professional standing of civil engineers. The Course may provide entry into MSc programmes, in particular to Kingston courses ‘MSc Management in Construction with Civil Engineering’ and ‘MSc Management in Construction’ which are available in part-time and full-time modes.

The course aims to cultivate technical proficiency in Civil Engineering including the ability to tackle a wide variety of practical problems. The course emphasises the development of a professional attitude to design, maintenance, sustainability, quality and safety. Sustainability and ‘Health and Safety’ are threaded throughout the modules. During the duration of the course, students are supported by a Personal Tutor Scheme (PTS) in which they are allocated a member of staff on their first day of study, who through one-to-one meetings, will assist and encourage students in their academic learning for duration of their course.

**B. Aims of the Field/Course**

The general aims of the course are:

* To equip graduates with engineering science, design, management, business and interpersonal skills required to become a professional Civil Engineer, as well as to enable graduates to follow careers in other professional disciplines where clear, logical, numerate skills in combination with the ability to solve problems, communicate solutions and work in teams are valued.

More specific aims of the programme are:

* To produce graduates with the required breadth and depth of theoretical and practical knowledge of established technologies and methods in Civil Engineering;
* To enable graduates to develop analytical and problem-solving skills and to evaluate evidence and assumptions to reach sound judgements and communicate these effectively;
* To prepare graduates with a creative approach to the solution of civil engineering challenges and the requisite technical skills to realise these solutions with responsibility for project management;
* To equip graduates with the research skills required for postgraduate study and employability skills required for work in the engineering/construction fields;
* To furnish graduates with a firm grasp of Engineering Design, Sustainability and ‘Risk & Health and Safety’ principles.
* To provide graduates who have the reflective skills to recognise the need to continually develop themselves in order to exercise their Professional judgement.

**C. Intended Learning Outcomes**

The field/course provides opportunities for students to develop and demonstrate knowledge and understanding specific to the subject, key skills and graduate attributes in the following areas. The programme outcomes are referenced to the QAA subject benchmarks for Engineering (2015) and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008), and relate to the typical student.

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| **Programme Learning Outcomes** | | | | | |
|  | **Knowledge and Understanding**  On completion of the course students will be able to: |  | **Intellectual Skills**  On completion of the course students will be able to: |  | **Subject Practical Skills**  On completion of the course students will be able to: |
| A1 | Demonstrate knowledge and understanding of the core civil engineering subjects of materials, structures and geotechnics to apply existing and emerging technology | B1 | Apply fundamental theoretical scientific and mathematical principles that underpin engineering and specifically civil engineering | C1 | Use safely laboratory and workshop equipment for experimental investigation and evaluate data to produce practically valuable results |
| A2 | Demonstrate knowledge and understanding of hydraulics, surveying, water, highway, transportation and environmental engineering | B2 | Use mathematics as a tool for solving complex problems, communicating results, concepts and ideas | C2 | Undertake fieldwork and analyse the data obtained for use in planning and design |
| A3 | Demonstrate knowledge and appreciation of broader technical and non-technical engineering subjects | B3 | Think creatively and imaginatively to solve design problems and *manage* continuous improvement through quality management | C3 | Use a range of complex technical equipment and instruments, gaining a basic understanding of the underlying technology |
| A4 | Relate management and business applications to civil engineering | B4 | Manage projects, people, resources and time taking account of legal and statutory requirements, risk, safety, quality and reliability | C4 | Use computer technology to assist with information retrieval, management and communication |
| A5 | Demonstrate understanding of the importance of Risk and Health and Safety in the engineering industry | B5 | Demonstrate a positive attitude to learning that encourages continuing professional development throughout their careers | C5 | Comply with Health and Safety regulation and procedure in practical engineering situations |
| A6 | Relate all their studies to a knowledge and holistic understanding of sustainability and environmental assessment | B6 | Recognise the importance of professional bodies and develop the professional conduct expected of Professional Engineers | C6 | Work independently or as part of a team to initiate, investigate, plan, manage and drive projects to a successful conclusion and produce the associated documentation (proposals, plans, reports, presentations). |

In addition to the programme learning outcomes identified overleaf, the programme of study defined in this programme specification will allow students to develop a range of Key Skills as follows:

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| **Key Skills** | | | | | | |
| **Self Awareness Skills** | **Communication Skills** | **Interpersonal Skills** | **Research and information Literacy Skills** | **Numeracy Skills** | **Management & Leadership Skills** | **Creativity and Problem Solving Skills** |
| Take responsibility for own learning and plan for and record own personal development | Express ideas clearly and unambiguously in writing and the spoken work | Work well with others in a group or team | Search for and select relevant sources of information | Collect data from primary and secondary sources and use appropriate methods to manipulate and analyse this data | Determine the scope of a task (or project) | Apply scientific and other knowledge to analyse and evaluate information and data and to find solutions to problems |
| Recognise own academic strengths and weaknesses, reflect on performance and progress and respond to feedback | Present, challenge and defend ideas and results effectively orally and in writing | Work flexibly and respond to change | Critically evaluate information and use it appropriately | Present and record data in appropriate formats | Identify resources needed to undertake the task (or project) and to schedule and manage the resources | Work with complex ideas and justify judgements made through effective use of evidence |
| Organise self effectively, agreeing and setting realistic targets, accessing support where appropriate and managing time to achieve targets | Actively listen and respond appropriately to ideas of others | Discuss and debate with others and make concession to reach agreement | Apply the ethical and legal requirements in both the access and use of information | Interpret and evaluate data to inform and justify arguments | Evidence ability to successfully complete and evaluate a task (or project), revising the plan where necessary |  |
| Work effectively with limited supervision in unfamiliar contexts |  | Give, accept and respond to constructive feedback | Accurately cite and reference information sources | Be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data | Motivate and direct others to enable an effective contribution from all participants |  |
|  |  | Show sensitivity and respect for diverse values and beliefs | Use software and IT technology as appropriate |  |  |  |

**D. Entry Requirements**

The minimum entry qualifications for the programme are: From:

Edexcel HND Levels: A pass in the relevant HND to include a pass in the twenty units listed in Table 1 below (or their equivalent) and the achievement of an overall score of 300 credit points of which 150 would be at Level 5

English requirement: minimum grade C of GCE O Level English Language or ESOFT English for Academic Purposes in Reading, Writing, Listening and Speaking

N.B. *All applications will be subject to the Kingston University Accreditation of Prior*

*Learning (APL) rules and regulations applicable at the time of application. Students wishing to undertake the programme at Kingston University will have to meet standard entry requirement including English Language.*

**Table 1:** HND in Construction and Built Environment (Civil Engineering)

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| --- | --- | --- | --- |
| **Units** | **Unit name** | **RCF Level** | **Credits** |
| 1 | Individual Project | 4 | 15 |
| 2 | Construction Technology | 4 | 15 |
| 3 | Science and Materials | 4 | 15 |
| 4 | Construction Practice and Management | 4 | 15 |
| 6 | Construction Information | 4 | 15 |
| 7 | Surveying, Measuring and Setting Out | 4 | 15 |
| 8 | Mathematics for Construction | 4 | 15 |
| 13 | Tender and Procurement | 4 | 15 |
| 20 | Principles of Structural Design | 4 | 15 |
| 21 | Site Supervision and Operations | 4 | 15 |
| 22 | Group Project | 5 | 30 |
| 28 | Further Mathematics for Construction | 5 | 15 |
| 29 | Geotechnics and Soil Mechanics | 5 | 15 |
| 30 | Advanced Structural Design | 5 | 15 |
| 35 | Alternative Methods of Construction | 5 | 15 |
| 43 | Hydraulics | 5 | 15 |
| 44 | Advanced Surveying and Measurement | 5 | 15 |
| 45 | Maintenance and Operation | 5 | 15 |
| 46 | Advanced Materials | 5 | 15 |

**E. Field/Course Structure**

This programme is offered in full-time and part-time mode, and leads to the award of BEng (Hons) Civil and Infrastructure Engineering. Entry is normally at Level 6 with HND level qualifications (See section D). Transfer from a similar course is possible with passes in comparable modules – but is at the discretion of the course team. Intake is normally in September.

**E1. Professional and Statutory Regulatory Bodies**

This course does not have official professional accreditation

**E2. Work-based learning, including sandwich courses**

Not applicable

**E3. Outline Programme Structure**

Level 6 comprises of four modules each worth 30 credits points. A student must complete all four modules (total 120 credits). All students will be provided with the University Regulations. Full details of each module will be provided in the module descriptors.

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| --- | --- | --- | --- | --- |
| Level 6 (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** |
| Structural Engineering 2 and Geotechnical Engineering 2 | CE6611 | 30 | 6 | 1&2 |
| Sustainable Infrastructure and Environment | CE6012 | 30 | 6 | 1&2 |
| Individual Project | CE6014 | 30 | 6 | 1&2 |
| Business Management and Group Project | EG6023\* | 30 | 6 | 1&2 |

\*\*EG modules are common with Mechanical and Aerospace Engineering disciplines

Completion of Level 6 requires passes in all four modules to give 120 credits and qualify for BEng (Hons) Civil and Infrastructure Engineering top up.

**F. Principles of Teaching, Learning and Assessment**

This Course is part of the BEng (Hons) Civil and Infrastructure Engineering top up programme delivered at ECET following Kingston University Curriculum Design Principles to help develop student learning from dependent to independent learning and encourage lifelong learners.

**Development of Independent learning through the course**

The learning, teaching and assessment strategy of the course is aimed at supporting progression in curriculum content and skills development through the levels of study. At level 6 students will be expected to take greater ownership of their independent study with academics taking on more of a supervisory role of student independent study, this is exemplified in the group and individual project modules **EG6023 Business Management Group Project and, CE6014** **Individual Project.**

Module guides set out clear expectations for guided independent learning. Students will be directed to reading and Technology Enhanced Learning (TEL) packages to prepare for individual topics or sessions and also to problem sets or exercises to consolidate and test their learning afterwards. The Virtual Learning Environment (VLE) at Kingston will support learning throughout the course through a variety of TEL objects such videos, screencasts, on-line MCQs, discussion boards and interactive teaching packages.

It will also deliver teaching material such as lecture notes/presentations, problems sets and worked examples.

A feature of the learning, teaching and assessment strategy in ECET, adopted from the School of Engineering and the Environment is that many instructional lectures have been replaced by collaborative, problem solving or enquiry-based learning workshops and tutorials. These require students to prepare for, and participate in, the classroom activities, rather than passively listening to the lecturer. Students are expected to engage with the guided learning to prepare for these teaching sessions and consolidate their learning after the session. These interactive sessions also provide students with opportunities for peer learning, group work and presentation practice. Examples of interactive sessions can be found in all CE modules at all levels where students are offered a highly interactive enquiry-based environment to solve realistic civil engineering problems. In these sessions the lecturer facilitates learning by supporting students in creating their own knowledge and understanding. Lecturers may also introduce and summarize key concepts with short mini-lectures. Project based Learning (PBjL) is introduced in **EG6023** **Business Management and Group Project**. These collaborative activities encourage students to draw on their own set of experiences and cultural backgrounds when tackling real world challenges.

Active and collaborative learning is also incorporated in traditional lectures which may have question-and-answer sessions, brief student discussions, clicker activities integrated into the lecture. These methods ensure that valuable contact time is focussed on the application and critical analysis of knowledge and the development of key skills such as problem solving, communication, and group-work.

The high percentage use of active learning sessions in the teaching hours is aimed at improving student engagement, creativity, confidence and self-reliance. The course endeavours to further secure student engagement by making students feel part of a community and increasing their sense of belonging which is supports to improved retention and progression. This is achieved by providing opportunities to interact with staff and students both socially and academically. In addition, to the active learning sessions and group work, this is achieved through: the personal tutoring scheme, field work, industrial visits, extra-curricular seminars, research internships, course representative system, student ambassador work, peer mentoring and outreach opportunities.

**Developments of employability skills**

The progressive development of a range key employability skills is another feature of the course as exemplified in teamwork/group work discussed above. Employability skills are enhanced at level 6 with modules **CE6611 and CE6012,** which include lab reports, presentations and group discussions. In the Individual Project module **CE6014** students will be taught how to synthesise and critical review information from a variety of sources and report this and their research results in a formal research report and an oral presentation.

**Information Technology skills** are developed through a variety of mechanisms, including library and internet searches, use of the KU virtual learning environment (Canvas) and specific training in Windows based packages, but also some other proprietary packages. This includes some packages developed in-house at Kingston, for example, in Surveying and Geotechnics. Specific skills, such as graph drawing in excel, are taught as part of their laboratory report write up. Within the Sustainable Infrastructure module, AutoTrack is utilised as part of the coursework. Structural design and analysis software SuperSTRESS, commercial software used widely in practice, is taught in Level 6 modules and as well as some of the final year individual projects. Some project and risk management tools are used by students at Level 6 (Primavera Risk and MS Project, EG6023).

Also at level 6, students use proprietary (Concrete Centre / Steel Construction Institute) Structural Design Spreadsheets and Software. Kingston also offers a wide range of IT training and support facilities, to suit to the varying needs of individual students. Thus, students will be taught how to use IT to synthesise and critical review information from a variety of sources and report this and their research results in a formal research report and an oral presentation.

**Hands-on Practical work**

A hand on practical experience in workshops and laboratories is fundamental in developing practical skills as well as enhancing data collection and analysis skills. Students will have the opportunity to work in laboratories and workshops as well as field trips in most of their modules. Practical work is closely related to the taught content to provide context for the theoretical work. At level 6 students and expected to select and apply requisite practical skills in their own independent research work in **CE6014** the individual project module.

**Research Informed Teaching**

The majority of the course team are either engineering research active or are involved in industry related professional activities, through KTPs or other direct involvement with industry. These activities played a major part in informing the course design and content.

Students are encouraged to develop their own research skills which are a fundamental part of the curriculum throughout all levels of the programme. They are often encouraged, through project work, to work with research active staff on elements of live projects, and these research skills enable students to determine, distinguish and present appropriate evidence in an argument, which is of great value to employers.

Academic staff are also engaged widely with the research and development of ideas in teaching and learning in Higher Education and into wider pedagogic issues which will then feed through to support learning in lectures and other forms of student engagement the programme, both formal and extra-curricular. As parts of pedagogic research computing resources in fundamental subjects such as Maths and Mechanics/Physics have been developed and been embedded into VLE system. The use of an Electronic Voting System in the class room for summative and formative assessments is another example of pedagogic research undertaken by the teaching staff. This reflective, evidence-based professional practice by academic staff serves as exemplar to students in their future professional practice

**Assessment for Learning**

The assessment strategy has been designed to help students to learn and prepare them for employment, rather than just a tool to measure their learning. The assessment is designed to be authentic, inclusive and transparent. The assessment tasks focus on the real world engineering activities that enhance students’ employability. All CE module assessments are related to real world problems. **CE6012** (hydrology report of infrastructure). All modules have explicit formative assessments to provide opportunities for practice and the chance to use ‘feed forward’ to help students improve their work in subsequent summative assessments. For example in **CE6012**, formative assessment is provided in the form of quick, regular and detailed feedback on laboratory reports facilitating improvement of these reports throughout the academic year. Examinations are still used as they are an effective way of assessing basic knowledge and understanding, and professional bodies expect to see examination covering key curriculum content. However, the strategy recognises that other assessment methods are better suited to assessing higher level problem solving skills. The use of a well-balanced range of assessment methods is key part to of our inclusive assessment strategy. Group and teamwork assessment is instrumental in developing and recognising this important employability skill. This demonstrates progressive skills and competences development – thus preparing employment ready graduates

**Engineering Curriculum**

**CE6611** is a core module in structures and geotechnics building on knowledge and skills attained at level 5. Students will learn how to analyse and design structural frames made of elements in steel and concrete which they learned at level 5. The design of advanced elements such as in pre-stressed concrete are introduced together with state-of-the-art computer-based analysis and design techniques such as Finite Elements for both structural and geotechnical problems. The geotechnics part of the module includes slope stability, deep foundations and elements of coastal engineering. Opportunities to link structures with geotechnics i.e. the soil and foundations supporting them are provided throughout.

**CE6012** is a core module in sustainable infrastructure and environment that follows elements learned at level 5. Sustainable solutions to problems in water engineering and infrastructure such as water management and treatment or highway design are covered.

In **EG6023** Business Management and Group Project module students are taught about various key aspects of project planning and management before engaging in a group project based in the aerospace field and drawing on knowledge and experience gained previously. It will consist of substantial Project-Based Learning (PjBL) driven by the students with supervisor/facilitators encourage professionalism and leadership in a group activity support. It provides students with an understanding of the process of project planning and an opportunity to put theory into practice in a virtual industrial project. The module encourages professionalism and leadership in a collaborative group setting in which sustainability and ethicsare embeddedwithin the project context.

**CE6014** the Individual Project module combines the technical and academic facets of the programme and provides students with an opportunity to complete a capstone project applying the knowledge and skills learnt during the programme to achieve agreed deliverables. It enables students to develop their research skills using and applying information from the technical literature

**Inclusive Teaching Practice**

The university is strongly committed to the Inclusive Curriculum. Students will be encouraged to see themselves as belonging to a professional community. A set of employability criteria will be identified using insight from employers and the Employability Team. Skills will be identified that employers think are needed from graduates using alumni or the Professional Engineering Institutions. Personal Tutors will enhance student engagement with these opportunities. Learning and teaching staff will highlight opportunities within their sessions that enable students to acquire the employability skills. Students will develop a CPD record in VLE to draw upon in applications and interviews. Personal Tutors include employability criteria and reflective questions in first meeting and record on system.

Student Voice Committees and Boards of Study provide opportunities for student to make suggestion on how to develop a more inclusive curriculum by taking into account the specific circumstances of the student body. The variety of teaching activities also takes account of the student’s different learning preferences and experiences and there is a careful balance of individual and group based activities.

Marking criteria are provided for all assessments as part of the assessment booklet at the beginning of the year for each module and care is taken to ensure that the language used is clear**.** Assessment and marking criteria for all substantial assessments are discussed in class so all students have an opportunity to interrogate the criteria.

In the programme, various **methods of teaching and learning** are used throughout, but not exclusively, as follows:

*Lectures*

Lectures are formal staff-led sessions designed to introduce new topics and material or provide an overview of a topic for further student study. Lectures make use of various media, supplemented by material uploaded to the University’s virtual learning environment. The School and ECET academics are convinced that students learn better through active participation and hence lectures would generally overlap with tutorials in expecting students to be actively involved in sketching, designing and calculating.

*Tutorials*

Academic tutorials are provided where lecturers assist students in solving design problems and in discussing lecture material. In many modules the tutorials and lectures will be integrated as described above.

*Design workshops*

Workshops may be staff-led or student-led where students participate in group design work emphasising the need for effective oral communication and planning. Design classes, case studies and workshops often integrate material from different academic areas and would include a practical real-world emphasis.

*Practical sessions*

Practical sessions in the laboratories are designed to enable students to acquire practical and analytical skills through the application of theory. Sessions are run throughout the course utilising the full range of laboratories: hydraulic, geotechnical, structural and materials. Each session includes some form of data collection, analysis, presentation and reporting. Practical work will generally be carried out in small groups where students are encouraged to cooperate and assist their fellow students. The outcome of the practical work is formative assessment or summative assessment based on individual or group reports depending on the nature of the activity. The overarching aim is that a student’s ability in carrying out practical work and producing technical reports will improve throughout the study.

*Technology enhance learning (TEL)*

Computer aided practical sessions are also a fundamental part of the programme, enabling students to apply the design process through practical application and offering another form for communicating ideas. Throughout the three levels of study students are given computer based training in design and analysis of specific real world problems. TEL is also offered during the course through the use of video as a tool for presentation; clickers for immediate formative feedback; wiki/group discussion as an online platform for groups to provide and receive feedback from peers; smart pen and tablet to show step-by-step tutorial questions; computer software for structures and highway engineering.

*Fieldwork/Site visits*

Academics are committed to practical fieldwork, encouraging students to acquire fieldwork skills, including health and safety, group coordination and management. Site visits are arranged for groups of students whenever possible and are important in understanding the practical application of their academic work, as well as an appreciation of the students’ employability prospects.

*Group work*

Good team-working skills are an essential skill for graduates aspiring to work in the construction industry; hence, teamwork plays an important role in the academic development of a Civil Engineering undergraduate. Group work projects throughout all three levels illustrate the value of team work, developing interpersonal skills and fostering cooperation and supportive peer relationships. In general group membership is selected by the students and group activities are student-led with staff monitoring progress. Where group work is assessed summatively a peer assessment form is submitted indicating the contribution of each member. This exercise of peer assessment is well recognised as an essential employability skill.

*Individual project*

A fundamental element of level 6 is the individual capstone project allowing students to integrate material from their course in an independent study of a research topic. A student’s research skills will be developed with the assistance of targeted lectures, as well as an assigned supervisor, encouraging students to work effectively independently, communicating their findings clearly and succinctly through oral and written presentation. The expertise of the academic team members and their research activities are commonly utilised by students during this final year project.

**Assessment**

The programme is designed to develop the students’ academic and technical knowledge and understanding, their academic and professional skills, and their personal qualities, and ultimately prepare them for employment. The assessment strategy has been designed in the same way: to develop the students rather than simply assess them to make sure they satisfy learning outcomes. The assessment is designed to be authentic, engaging and transparent that contributes to helping students to learn and develop effective attributes. The assessment tasks focus on the real world-engineering activities that enhance students’ employability.

Assessment and feedback are regarded as integral parts of learning and teaching strategy and incorporated in all modules. Assessment methods are adopted in each module to enable students to demonstrate their acquisition of knowledge and skills as outlined in the module learning outcomes. The assessment regime for each module has been designed to provide ample formative opportunities that allow students to improve their performance, following feedback, in preparation for summative assessment. For example, a number of modules utilise a portfolio of work where typically short pieces of work are required, but final grades selected from the best. The development of skills is threaded through the programme and assessed both formatively and summatively. A wide range of assessment methods is used to ensure that students with diverse backgrounds are not disadvantaged for example individual coursework and project themes are selected to fit individual backgrounds. The methods of assessment have been selected so as to be most appropriate for the nature of the subject area, teaching style and learning outcomes in each module and priority is given to authentic assessments based on real world engineering challenges

In the programme as a whole, the following components are used in the assessment of the various modules:

* Practical exercises: to assess students’ understanding and technical competence
* Individual and group-based case project work: to assess ability to understand requirements, to provide solutions to realistic problems and to interact and work effectively with others as a contributing member of a team. The outcomes can be:
* Written reports, where the ability to communicate the relevant concepts, methods, results and conclusions effectively will be assessed.
* Oral presentations, where the ability to summarise accurately and communicate clearly the key points from the work in a brief presentation will be assessed.
* Video, which may replicate features of oral presentations but allows advance preparation away from the audience (which may suit some students better).
* Multiple choice or short answer questions: to assess competence in basic techniques and understanding of concepts.
* Long answer structured questions in coursework assignments: to assess ability to apply learned techniques to solve simple to medium problems and which may include a limited investigative component
* Long answer structured questions in end-of-module examinations: to assess overall breadth of knowledge and technical competence to provide concise and accurate solutions within restricted time
* Project: The individual project module represents an opportunity for students to draw together different aspects of their learning on the programme and to apply the techniques learned in an extended study. As such the assessment here will place a greater emphasis on ability to plan work, manage time effectively, and research background information, culminating in a written report and interview.
* Individual and group practical laboratory reports
* Posters: The group project is presented in posters to and assessed by academic staff as well as members of the industrial advisory board.
* Model building: in the first year, where students make a structure with little wooden sticks and tape e.g. a small bridge and load it to breaking point.
* Short in-class tests and on-line assessments: throughout a number of modules.

At the beginning of each academic year deadlines for submission and feedback are planned carefully and a full **assessment timeline calendar** is constructed to ensure that there is no summative assessment bunching and thus student workloads are managed. In addition, this calendar offers a synchronised and coherent delivery of the programme that is clearly understood by staff and students who can appreciate the integrated nature of their learning emanating from various module assessments.

**Employability**

Initially students are guided towards learning about employability skills and career pathways, but as they move through the programme they are expected to become more independent and take ownership of their career development by engaging with classes provided by Career Service, including; Professional Communication, Time and Self-Management and Identifying and Articulating Skills. There are also opportunities to perfect skills required to gain employment such as; CV writing, Psychometric Test and Using LinkedIn. A student’s development and career options are discussed in personal tutor meetings and guidance given as appropriate. This is in liaison with the Careers Service.

**G. Support for Students and their Learning**

Student support recognises that the student experience is unique to each student. A key part of our approach to an inclusive curriculum is that we acknowledge and where possible accommodate their individual circumstances. The personal tutor scheme is central to the efforts to provide a personalised learning experience. (See PTS section of programme specification below). These cover the whole curriculum for a particular level. Students are required to work through these formative assessment problems as they cover the relevant curriculum. This allows students to test their learning and measure their progress. Discussion of progress on these problem sets will be a key part of the personal tutor scheme. Students are required to upload their progress on these activities onto the **Learning Log** created on the University VLE system. The Learning Log will be available to the relevant personal tutors for further discussion during one-to-one meetings. There will be milestones for students to meet at every level, and it will be one of the personal tutor’s roles to monitor the students’ progress and give appropriate advice. Where difficulties are encountered PTs will be able to help or direct students to available support including peer mentoring schemes, Maths aid and on-line resources etc.

Students are supported by:

* A **Module Leader** for each module
* A **Course Leader** to help students understand their programme structure and provide academic support
* A **Personal Tutor** (PT) to provide academic support
* **Student Support and Engagement Officers** provide additional pastoral and practical advice and support, especially to students encountering difficulties
* A dedicated **Course Administrator**
* An **induction programme** and study skills sessions at the start of each academic year
* **Academic Success Centre** is a one-to-one drop-in Study Skills session for students every weekday. Help is available on a range of academic skills from writing reports, note-taking, to exam revision, referencing, programming and mathematical skills.
* **Virtual Learning Environment** – a versatile on-line interactive intranet and learning environment accessible both at the university and remotely. Canvas, the University’s virtual learning environment, is used extensively in all modules as a communication tool and means of dissemination of learning and reference materials, formative worksheets, assignments, links, videos and lecturer-annotated slides. In this way it acts as a dynamic study guide in each module and going further it provides a structured learning space to support students for independent study, facilitate discussion, and in addition, for formative and summative tests and surveys.
* **Student Voice Committee with student Course Representatives** for each level
* **Careers and Employability Service** support systems including the provision of advice on finance, regulations, legal matters, accommodation, international student support, disability and equality support.
* **An Academic Team** that seeks to maintain an open door policy in the spirit of supporting students.
* **Union of Kingston Students**

**Personal Tutor Scheme (PTS)**

The following provides the aims and structure of the Personal Tutor Scheme (PTS) for the ECET adopted from the School of Engineering and the Environment at Kingston University. It is intended that the PTS is embedded within the modular provision of the BEng Programme.

**Aims**

* To build a rapport between staff and students and contribute to personalising students’ experience within the ECET
* To support students in the development of their academic skills providing appropriate advice and guidance to students throughout their time at Kingston, while monitoring their progress, helping to identify individual needs and referring students to other ECET, as well as Kingston services as appropriate
* To help students to develop the ability to be self-reliant and confident self-reflective learners who use feedback to their best advantage
* To encourage students to reflect on how their learning relates to a wider context and their personal career progression

**Allocation of Personal Tutors**

* Personal tutors will be allocated during induction week
* Tutors will be allocated on a course basis where appropriate with student numbers being equally divided amongst the staff within ECET
* Students will keep the same tutor throughout their course of study
* If they change discipline at the end of teaching block one a change of PT is likely to occur to allow comprehensive support through the programme.

**Assessment**

The PTS is embedded in core curriculum modules at each level of undergraduate study:

Level 6 – EG6023 Business Management and Group Project

There are specific aims and outcomes for each level that will be assessed, as the PTS is a progressive and cumulative scheme building on the skills developed in previous levels. Formative assessment will be provided in the form of regular feedback during meetings when the student will be able to put forward draft assignments for evaluation. The summative assessment will comprise 30 credits at each level.

**Level 6: Maximising success and moving on**

**Aims and Learning Outcomes**

* To support students with the planning necessary to maximise success in their final undergraduate year
* To encourage students to reflect on the employability skills they have developed and be proactive in moving towards a professional life and/or further study
* To help students to make best use of the feedback they have received so that they can build on their strengths and take steps to address any weaknesses

**Contact:**

* One-to-one meeting in week 1
* Email contact at the end of teaching block 1
* Individual ‘wrap up’ email at end of academic year

**Embedded Module: EG6023** Business Management and Group Project

|  |  |
| --- | --- |
| **Outcome:** | **Assessment** |
| To support students with the planning necessary to maximise success in their final undergraduate year | Formative (one to one meetings) |
| To encourage students to reflect on the employability skills they have developed and be proactive in moving towards a professional life and/or further study | Formative and Summative  (one to one meetings, along with the preparation and oral presentation of their Individual Project) |
| To help students to make best use of the feedback they have received so that they can build on their strengths and take steps to address any weaknesses | Formative (one to one meetings) |

**H. Ensuring and Enhancing the Quality of the Course**

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

* External examiners
* Boards of study with student representation
* Annual review and development
* Periodic review undertaken at subject level
* Student evaluation
* Moderation policies

**I. Employability Statement**

This curriculum embeds the development of employability skills throughout the course and is designed to equip students with the ability to relate the knowledge and skills that they have learnt to real world contexts in which they may work in the future.

Most graduates will aspire to careers in the engineering/construction industry. Graduates develop careers in all branches of the Civil Engineering industry, in the Sri Lanka and throughout the world; as contractors and consulting engineers, and within local authorities, water authorities, government organisations and the defence industry. The academic and key skills developed/ broadened during the engineering course allow graduates to follow careers in other professions such as ICT, finance, accountancy and teaching. In addition, a number of graduates will progress to MSc courses in Civil Engineering and related specialist areas or other fields before continuing their career in industry or research.

Professional practice is embedded into the curriculum and ensures that the curriculum is industry driven, the students are industry ready and academic staff are engaged in professional practice of their discipline. Professional practice is introduced in **EG6023** Business Management and Group Project and **CE6014** Individual project.

**J. Approved Variants from the Undergraduate Regulations**

**Compensation**

Compensation is not permitted, to meet PSRB requirements, for the following modules:

CE6014 Individual Project

EG6023 Group Design Project

**Reassessment of Level 6 modules**

Reassessment of CE6014 or EG6023, will normally be by repeat only with a new project brief unless the student have achieved a grade of FM in which case a retake in the form re-writing the dissertation will be allowed.

**K. Other sources of information that you may wish to consult**

Engineering subject benchmark:

<http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-engineering-15.pdf?sfvrsn=f99df781_10>

Professional bodies: [www.ice.org.uk/](http://www.ice.org.uk/) [www.istructe.org/](http://www.istructe.org/) [www.](http://www/)[theihe.org/](http://theihe.org/)

[www.ciht.org.uk/](http://www.ciht.org.uk/)

Professional accreditation:

[www.jbm.org.uk/](http://www.jbm.org.uk/)

School Website:

<https://www.kingston.ac.uk/faculties/science-engineering-and-computing/about/schools/engineering/>

**Development of Programme Learning Outcomes in Modules**

This map identifies where the programme learning outcomes are summatively assessed across the modules for this programme. It provides an aid to academic staff in understanding how individual modules contribute to the programme aims, a means to help students monitor their own learning, personal and professional development as the programme progresses and a checklist for quality assurance purposes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Module code** | | **Level 6** | | | |
| CE6611 | CE6012 | CE6014 | EG6023 |
| **Knowledge & Understanding** | A1 | S | F | S |  |
| A2 | S | S | S |  |
| A3 | S | F | S | S |
| A4 | S | F | S | S |
| A5 | S |  | S | S |
| A6 | S | S | S |  |
| **Intellectual Skills** | B1 | S | F | F |  |
| B2 | S | F | F |  |
| B3 | S | S | S | S |
| B4 | F | S | F | S |
| B5 | F | S | S | S |
| B6 | FS | F | F |  |
| **Practical Skills** | C1 | S | F | F |  |
| C2 | S |  | F |  |
| C3 | F | F | F |  |
| C4 | S | F | S |  |
| C5 | S | F | S | S |

**S**  indicates where a summative assessment occurs.

**Students will be provided with formative assessment opportunities throughout the programme to practise and develop their proficiency in the range of assessment methods utilised.**

**Technical Annex**

**Final Award(s):** BEng (Hons) Civil and Infrastructure Engineering

**Intermediate Award(s):** BEng Civil and Infrastructure Engineering

**Minimum period of registration:** FT – 1 year

**Maximum period of registration:** FT – 2 years

**FHEQ Level for the Final Award:** Level 6

**QAA Subject Benchmark:** Engineering **Modes of Delivery:** Full time **Language of Delivery:** English

**Faculty:** Science, Engineering and Computing

**School:** Engineering and the Environment

**Department:** Civil Engineering, Surveying and Construction

**JACS code:** H200

**UCAS Code:** H202 (full time)

**Course/Route Code:** UFCIE1CIE22