

**Programme Specification**

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

**Date Specification Produced: May 2013**

**Date Specification Last Revised: July 2018**

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 BSc Civil 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. 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 the engineering science, design, management, business

and personal skills required to become a professional Civil Engineer, as well as enabling graduates to follow careers in professional disciplines where clear, logical, numerate skills are valued as well as the ability to solve problems and work in teams.

More specific aims of the course are:

 To produce graduates with a breadth and depth of knowledge and a comprehension of the key aspects of Civil Engineering

 To allow graduates to communicate effectively orally and in writing and to use sketches and diagrams to convey engineering ideas and concepts

 To develop graduates with an aptitude for applying technology to engineering problems

 To prepare graduates with an ability to solve design problems and the technical skills needed to realise these solutions.

 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 sustainability and ‘Health and Safety’

principles

**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 of the core  civil engineering subjects of  materials, structures and geotechnics | B1 | Apply the basic 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 of hydraulics, surveying, construction,  transportation and environmental engineering | B2 | Use mathematics as a tool for solving civil engineering problems and  communicating results | C2 | Undertake fieldwork and analyse the data obtained for use in planning and design |
| A3 | Show a knowledge of broader technical and non-technical engineering subjects | B3 | Solve standard practical engineering design problems | C3 | Use a range of equipment, gaining a basic appreciation of the application of the 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 appropriate industry-standard computer software in the solution of practical problems |
| A5 | Demonstrate their understanding of the importance of 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 the professional conduct expected of  Incorporated Engineers |  |  |

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

140 would be at Level 5

A minimum International English Language Testing System (IELTS) overall score of 6.0 (min

5.5 in Speaking, Writing, Listening and Reading) or equivalent, is required for those for whom English is not their first language.

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.*

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

**Subject Details QCF Level**

**Credit**

**Value**

Unit 1: Design Principles and Application for Construction and the Built

Environment 4 15

Unit 2: Science and Materials for Construction and the Built Environment 4 15

Unit 3: Applied Mathematics for Construction and the Built Environment 4 15

Unit 4: Management Principles and Application for Construction and the Built

Environment 5 15

Unit 5: Group Project in the Construction Industry 5 20

Unit 6: Health, Safety and Welfare for Construction and the Built Environment 4 15

Unit 9: Law and Contract for Construction and the Built Environment 4 15

Unit 16: Measuring, Tendering and Estimating for Construction and the Built

Environment 4 15

Unit 17: Project Management for Construction and the Built Environment 5 15

Unit 27: Site Surveying Procedures for Construction and the Built Environment 4 15

Unit 28: IT Application for Construction 4 15

Unit 30: Work-based Learning and Assessments in Construction and the Built

Environment 5 15

Unit 31: Work-based Training and Development in Construction and the Built

Environment

5 15

Unit 32: Engineering Geology and Solid Mechanics 4 15

Unit 33: Civil Engineering Technology 4 15

Unit 34: Structural Analysis and Design 5 15

Unit 36: Applied Mathematics for Complex Engineering Problems 5 15

Unit 37: Advanced Civil Engineering 5 15

Unit 38: Hydraulic Principles and Applications 5 15

Unit 60: Personal and Professional Development 5 15

**E. Field/Course Structure**

This programme is offered in full-time and part-time mode, and leads to the award of BSc (Hons) Civil 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.

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| **E1.** | **Professional and Statutory Regulatory Bodies**  The Course does not have official professional accreditation. |  |
| **E2.** | **Work-based learning, including sandwich courses**  Not applicable. |  |
| **E3.** | **Outline Programme Structure**  Level 6 comprises four modules each worth 30 credit points. | A student must |

complete all 120 credits. All students will be provided with the University Regulations.

Full details of each module are provided in module descriptors and student module guides.

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| --- | --- | --- | --- | --- |
| **Level 6** (all core) | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **Teaching Block** |
| Civil Engineering Design | CE6111 | 30 | 6 | 1&2 |
| Sustainable Infrastructure and  Environment | CE6012 | 30 | 6 | 1&2 |
| Building and Environmental  Engineering | CE6113 | 30 | 6 | 1&2 |
| Individual Project and Research  Methods | CE6014 | 30 | 6 | 1&2 |

Completion of Level 6 requires passes in all four modules to give 120 credits and qualify for BSc

(Hons)

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

This Course is part of 3-year BSc (Hons) Civil Engineering programme delivered at Kingston and has been designed taking into account the Kingston University Curriculum Design Principles to help develop student learning from dependent to independent learning and encourage lifelong learners. A wide range of teaching and learning methods is utilised, allowing students to be fully engaged throughout the Course. Teaching, learning and assessment methods are constructed to suit the learning outcomes and syllabus content of the modules. The assessment regime of a module is designed to provide formative opportunities that allow students to improve their performance following feedback in preparation for later summative assessment. Key skills are developed throughout the Course, which are assessed formatively and summatively. Generally the Course will be delivered by instructional lectures whilst associated tutorials, site visits and design classes are used to enhance the lecture material. The Course is devised to encourage and develop students with confident interpersonal and communication skills, as well as emphasising group work, and data analysis. The contact hours associated with a module depends on the module type, but typically a module would comprise four hours per week lecture/tutorial and one hour per week for a design/practical session.

The teaching and learning strategies utilised in this Course are formulated to cultivate key transferable skills considered central to academic, vocational and personal development. These skills underpin how students learn, their ability to recognise their own achievement and ability to review and evaluate that achievement and identify future learning requirements.

*Lectures*

Lectures are formal staff-led sessions designed to introduce new topics and materials or provide an overview of a topic for further student study. Lectures would make use of various media, supplemented by material uploaded to the University’s virtual learning environment, Canvas. The 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. 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.

*Technology enhance learning (TEL)*

Computer aided practical sessions are also a fundamental part of the course, enabling students to apply the design process through practical application and offering another form for communicating ideas. During the course 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; computer software for structures and highway engineering.

*Site visits*

The 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, important in understanding the

practical application of their academic work and in the enhancement of students’

employability.

*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 at Level 6 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*

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 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 course and assessed both formatively and summatively. The methods of assessment used comprise:

 Report writing

 Individual and group project reports

 Individual and group designs

 Investigation of case studies

 Online assessments

 Computer software and output analysis

 Unseen and seen formal written examinations

 Individual and group practical laboratory reports

 Individual and group oral presentations

 Posters / Portfolio

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

Students are supported by:

 A Module Leader for each module

 A Field Leader to help students understand their programme structure and provide academic support

 A Personal Tutor (PT) to provide academic and personal support

 A Student Support Officer (SSO) who provides additional pastoral and practical advice and support, especially to students with difficulties

 A dedicated Undergraduate Course Administrator

 An induction programme and study skills sessions at the start of each academic year

 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.

 A Staff Student Consultative Committee with student Course Representatives for each level

 A Careers and Employability Service

 An Academic Team that seek 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 Civil Engineering and Construction at Kingston University. It is intended that the PTS is embedded within the provision of the BSc course.

**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 on Kingston course, 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 the ECET

 Students will keep the same tutor throughout their course of study

**Assessment**

The PTS is embedded in core curriculum modules within the final top-up year of undergraduate study:

Level 6 – CE6014 Individual Project and Research Methods

There are specific aims and outcomes for level 6 that will be assessed, as the PTS is a progressive and cumulative scheme building on the skills developed in previous studies. 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 3 credits.

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

**Aims and Learning Outcomes**

 To support students with the planning necessary to maximise success in their final top-up 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: CE6014 Individual Project and Research Methods**

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| **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.

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

Compensation

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

 CE6014 Individual Project and Research Methods.

Reassessment of Level 6 modules

Reassessment of CE6014 will normally be by

 Repeat only with a new project brief unless the students have achieved a grade of

MF (marks of 35-39) in which case a retake in the form re-wrtting 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 Field/Course Learning Outcomes in Modules**

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

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|  | | | **Level 6** | | | |
|  | **Module Code** |  | CE6111 | CE6012 | CE6113 | CE6014 |
| **Programme Learning Outcomes** | **Knowledge & Understanding** | A1 | SF |  | F | SF |
| A2 | F | F | SF | SF |
| A3 | F | SF | SF | SF |
| A4 | F | F | SF | F |
| A5 | SF | F | SF | F |
| A6 | SF | SF | SF | SF |
| **Intellectual Skills** | B1 | S | F | SF | F |
| B2 | F | F | F | F |
| B3 | SF | SF | SF | SF |
| B4 | SF | SF |  | F |
| B5 | F | SF | SF | F |
| B6 | SF | F | F | F |
| **Practical Skills** | C1 | F | F | F | F |
| C2 |  |  |  | F |
| C3 | F | F | F | F |
| C4 | SF | F | SF | F |
| C5 | SF | F | SF | F |

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

**F** where formative assessment/feedback occurs.

**Students will be provided with formative assessment opportunities throughout the course 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

**Department:** Civil Engineering

**JACS code:** H200

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

**Course/Route Code:** UFCEE1CEE01