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**Programme Specification**

**Title of Course:** MSc Management in Construction

(ESOFT College of Engineering and Technology, Sri Lanka)

**Date Specification Produced:** March 2019

**Date Specification Last Revised:** May 2019

This Programme Specification is designed for prospective students, current students, academic staff and potential employers at *the Esoft College of Engineering and Technology in Sri Lanka*. 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 Student Handbooks and Module Descriptors.

**SECTION 1: GENERAL INFORMATION**

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| **Title:** | MSc Management in Construction |
| **Awarding Institution:** | Kingston University |
| **Teaching Institution:** | ESOFT College of Engineering and Technology |
| **Location:** | Sri Lanka |
| **Programme Accredited by:** | Non-accredited programme |

**SECTION 2: THE PROGRAMME**

1. **Programme Introduction**

This level 7 postgraduate course is designed for graduates with backgrounds in the built environment who are interested in developing their careers in building and construction and aspire to move into senior management positions in industry with either clients, contractors or consultants. It is a unique course both in terms of its delivery, in that it effectively accommodates the needs and demands made upon part-time students who are in employment, and in its diverse combination of subject areas that enhance the employment opportunities in a consultancy or contracting organisation within the construction industry.

The course is also ideal for graduate construction managers, civil/structural engineers and surveyors starting their career in the construction industry as it would enhance their employability potential. It is also suitable for more mature students who wish to build upon their existing knowledge of the industry.

The course provides a strategic overview of construction management issues as well as a deep and broad knowledge of advanced project management strategies and techniques. The management content includes the financial, legal and contractual problems associated with the construction process and, application of management theory and contract administration practice in the supervision of construction projects.

The research thesis enables students to conduct a sustained, in-depth, original research related to complex theoretical arguments within any field of the construction industry.

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

The programme aims to:

* Produce graduates with a detailed advanced knowledge and understanding of management practices and procedures relating to the successful delivery construction projects.
* Allow graduates to acquire interpersonal, problem-solving & subject-specific skills and, the ability to analyse, evaluate and reflect upon issues in the management of construction projects
* Develop graduates with research and investigative skills and a critical and research-oriented approach to the study of management techniques related to the construction industry
* Produce graduates with a deep and wide postgraduate qualification that significantly enhances their career opportunities
* Provide an opportunity to those in full-time employment to study on a part-time basis
* Offer an opportunity to graduates for life-long learning and continuing professional development that meets current and future market demands
* Create a unique and dynamic educational environment that seeks to benefit from the practical experience of both mature and part-time students
1. **Intended Learning Outcome**

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, cognitive skills and subject practical skills as outlined in the following table. The learning 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)

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| **Programme Learning Outcomes** |
|  | **Knowledge and Understanding****On completion of the course, students will be able to demonstrate an in-depth knowledge and understanding of:** |  | **Intellectual skills** **On completion of the course, students will have demonstrated the ability to:** |  | **Subject Practical skills** **On completion of the course, students will have demonstrated the ability to:** |
| A1 | Financial management practices including budgeting, accounting, project appraisal and cash flow forecasting | B1 | Submit areas studied to critical analysis and evaluation | C1 | Carry out investment appraisals, interpret company accounts, prepare cash flow statements, understand principles of taxation regimes |
| A2 | The application of criminal, contract and tort law and its importance and relevance to both construction contracts and managerial responsibilities in the execution of projects | B2 | Analyse problems and issues, taking due account of any incompleteness of data or information, and arrive at well-reasoned and supportable conclusions  | C2 | Analyse the legal and contractual duties of the various parties to the construction contract, advise and provide recommendations on contractual situations |
| A3 | Leadership skills including communication, time management, motivation, planning and programming of work, setting of market strategies | B3 | Carry out independent data collection and synthesise it so as to resolve problems/issues | C3 | Manage a business, identify problems, needs or challenges and apply the appropriate skills and solutions to maximise profits |
| A4 | Procurement strategies, estimating & tendering procedures and controlling cost of projects  | B4 | Think originally, creatively and imaginatively to solve problems  | C4 | Advise on the appropriate procurement route, the evaluation of tender returns and the conversion of an estimate into a tender |
| A5 | Project management tools and techniques including risk, health & safety and quality management | B5 | Carry out a critical literature review and, design & develop a programme of independent research and data collection/analysis | C5 | Use project management tools and techniques to assess risk and control quality |

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 |  |  |  |

1. **Entry Requirements**

The minimum entry qualification for the programme is a good honours degree (not less than 2.2) or academic equivalent in a construction related discipline, and/or suitable industrial experience. The requirement of an honours degree may be waived for exceptional applicants with substantial industrial experience in related subject areas. Overseas students are required to satisfy the Admissions Officer that they have reached an equivalent academic standard as those required for home students.

A minimum International English Language Testing System (IELTS) score of 6.5 overall with 6.0 in Writing and 5.5 in Reading, Listening and Speaking or equivalent is required for those for whom English is not their first language.

**E. Field/Course Structure**

This course is part of the University’s Postgraduate Credit Framework (PCF). Courses in the PCF are made up of modules that are designated at level 7. The course comprises four taught modules worth 30 credits each and a thesis worth 60 credits. The thesis comprises research methods, a research proposal, an oral presentation and the final dissertation. The minimum requirement for an MSc is 180 credits i.e. the successful completion of the four 30-credit modules and the thesis. The minimum requirement for a PgDip is 120 credits i.e. the completion of the four 30-credit modules. The minimum requirement for a PgCert is the successful completion of 60 credits. The course offers the PG Certificate as an exit award only and is based on the student passing any coherent subset of the taught modules. All students will be provided with the PCF regulations in the student handbook.

The Courses are offered as 1 year full-time, and normally 2 years part-time basis only. Students are able to commence the programme in September or January each year. Taught module lectures and tutorials will be held from September to May each academic year. Students will work on their dissertation between May and the following September. Part-time students will normally complete their taught modules over the course of the two years and complete their dissertation between May and September of their second year.

Normally, each module will include approximately 60 hours contact time, followed by directed learning resulting in a total of 300 hours of student effort. The thesis is the equivalent of two modules and requires 600 hours of student effort.

**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**

All students will be provided with the University Regulations and specific additions that are sometimes required for accreditation by professional bodies. Full details of each module will be provided in module descriptors and student module guides.

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| **MSc Management in Construction (all core)** |
| **Compulsory modules** | **Module code** | **Credit** **Value** | **Level**  | **Teaching Block** |
| Management of Project Risk, Quality and Safety | CE7011 | 30 | 7 | 1 |
| Business in Practice | CI7600 | 30 | 7 | 1 |
| Estimating, Tendering and Procurement | CE7013 | 30 | 7 | 2 |
| Legal Obligations and Conditions of Contract | CE7012 | 30 | 7 | 2 |
| Dissertation | CE7016 | 60 | 7 | 3 |

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

This Course 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 and design classes are used to enhance the lecture material.

The teaching and learning strategies are formulated to promote and develop key transferable skills which are considered central to academic, vocational and personal development. These skills underpin how students learn, their ability to recognise their own achievements and the ability to review and evaluate that achievement and identify future learning requirements. The Course is devised to encourage and develop students with confident interpersonal and communication skills, as well as emphasising group work, data analysis and ICT skills.

*Technology enhanced learning (TEL)*

Computer aided practical sessions are a fundamental part of the course, enabling students to apply the design process through practical application and offering another form for communicating ideas. Technology enhanced learning is used throughout many of the modules in the course.  Examples in structures modules include Computer Aided Learning packages for steel and concrete design.  In a number of Management modules the use of different software tools has a direct connection to the students’ employability skills when suitably developed.

**Teaching and Learning Strategies: Taught Modules**

Module Guides, which are issued to students before the start of each module, provide guidance to students on the scope, aims, outcomes and demands of each module and of the preparatory reading and reflection required for each seminar. It is intended that lectures and tutorials be used to provide an opportunity for the student to develop and practise the skills required for the module assessment (such as the analysis of problem scenarios, the critical evaluation of rules, ideas and opinions, group work etc), to give guidance on private study and to provide an opportunity for the exchange and development of ideas by means of group interaction.

In general, there is no regulatory attendance requirement for the taught modules. However, a student cannot submit the Research Proposal and the Dissertation without having first attended the Research Methods.

The majority of the learning time of the student in relation to the taught modules will be spent in independent study, consisting of:

* Some directed learning, giving the student specific tasks in preparation for, and in support of, class-based programmes, for example, the preparation of oral or written presentations, case analysis etc.
* Private learning time, comprising the preparation of material for seminars and workshops, reviewing of ideas introduced during contact time and directed research and development through reading, using recommended reading as a starting point.
* Preparation of assessed work.

**Teaching and Learning Strategies: Dissertation**

*The Research Methods*

The Research Methods (which will comprise the equivalent of three days of seminars) aims to equip students with the knowledge and skills sufficient to plan and complete the Dissertation.

*The Research Proposal and Dissertation*

This will involve preparation of a proposal, an evolving discussion of that proposal between student and supervisor, data collection (if appropriate), literature search, analysis and conclusions. The precise subject-matter of the dissertation must be connected with a subject related to the programme.

**Assessment Strategies**

The overall aims of the assessment strategies are to enable the student to demonstrate that they have met the aims and outcomes of each individual module, to help facilitate the achievement of the overall course aims, to enable the student to measure their level of achievement at each stage of the programme, to highlight individual strengths and weaknesses of the student and to accurately reflect the student’s abilities in determining the award to be made to the student.

A combination of assessment methods will be used throughout the course. These elements include module assignments, module examinations, in-class tests, experiment reports, industrial visit reports, seminars, oral presentations and the project dissertation. Each module leader is responsible for ensuring that the method of assessment reflects the aims and learning objectives of the module, is demanding and stimulating and at the appropriate Masters level

**Research Informed Teaching**

In many of the modules guest lectures are given by professionals from industry who are expert in their field and active researchers in respective fields. The use of guest lecturers provides students with up-to-date information on current industry practices. Existing KU staff members are also invited to provide lectures, when visiting ECET, on their area of research where it is relevant to the taught programme.

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

Students are supported by:

* A Module Leader for each module
* A Programme Director to help students understand their programme structure and provide academic support
* A Personal Tutor to provide academic and personal support
* A Student Support Officer who provides additional pastoral and practical advice and support, especially to students with difficulties
* A dedicated Postgraduate Course Administrator
* An induction programme and study skills sessions at the start of each academic year
* KU Canvas – a versatile on-line interactive intranet and learning environment accessible both on-site and remotely
* A Staff Student Consultative Committee with student Course Representatives for each level
* ECET Careers and Employability Service
* The Students’ Union
* An Academic Team that seek to maintain an open door policy in the spirit of supporting students.

**Personal Tutor Scheme (PTS)**

The following provides the aims and structure of the Personal Tutor Scheme (PTS) for the ESOFT College of Engineering and Technology (ECET) adopted from the Department of Civil Engineering, Surveying and Construction Management at Kingston University.  It is intended that the PTS is embedded within the provision of the MSc 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 at Kingston, while monitoring their progress, helping to identify individual needs and referring students to other ESOFT, as well as Kingston University 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 explore students’ research aspirations
* To reflect on how to use feedback  at Masters level, and also contribute to, and learn from constructive peer review
* To encourage students to reflect learning relates to a wider context and their professional career development

**Allocation of Personal Tutors**

* Personal tutors will be allocated during induction week on a course basis
* Students will keep the same tutor throughout their course of study

The PTS is embedded in core curriculum modules in each MSc course as follows:

**September start students**

* Management in Construction – CE7011 Management of Project Risk, Quality and Safety.

**January start students**

* Management in Construction – CE7014 Estimating, Tendering and Procurement

There are specific aims and outcomes for each course that will be assessed, as the PTS is a progressive and cumulative scheme building on the skills developed at undergraduate levels. Formative assessment will be provided in the form of regular feedback during meetings when the student will be able to put forward draft work for evaluation. Reference to the PTS is also included in the standard agenda on SSCCs, with the purpose of promoting a two-way conversation between students and staff.

**Specific aims of PTS at Level 7: Getting the most out of the Masters Course**

* To help students to make the transition to Masters level study and understand how to use feedback on the postgraduate course
* To encourage students to be proactive in making links between their course and their professional and/or academic aspirations
* To explore students’ research aspirations
* To help students gain confidence in contributing to, and learning from, constructive peer review
* To encourage students to become part of a wider disciplinary and/or professional community
* To help students to prepare for the dynamics of supervision

**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 the 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 work or may work in the future. The use of expert guest lecturers from industry is the important assets for students attending the programme.

Most graduates already will aspire to have careers in the construction industry and to becoming Professional Engineers. Graduates develop careers in all branches of the civil engineering industry, both 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.

This programme will also prepare graduates for senior technical and managerial positions such as Civil/ Structural Engineer, Technical Manager, Designer/ Consultant, Project Engineer, Construction Engineer, Construction Manager, Engineering Consultant, Project Manager.

1. **Approved Variants from the PCF**

There are no variants to the PCF.

1. **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-masters.pdf?sfvrsn=fb91f681_16>

Professional bodies:

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

[www.istructe.org/](http://www.istructe.org/)

www.[theihe.org/](http://theihe.org/)

[www.ciht.org.uk/](http://www.ciht.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 table maps where the programme learning outcomes are assessed across the five masters modules. 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 and personal and professional development as the programme progresses, as well as a checklist for quality assurance purposes.

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| --- | --- | --- | --- |
|  |  |  | **MSc** |
|  | **Module Code** |  | CE7011 | CI7600 | CE7012 | CE7013 | CE7016 |
| **Programme Learning Outcomes** | **Knowledge & Understanding** | A1 |  | SF |  |  | SF |
| A2 |  |  | SF |  | SF |
| A3 |  | SF |  |  | SF |
| A4 |  |  |  | SF | SF |
| A5 | SF |  |  |  | SF |
| **Intellectual Skills** | B1 | SF | SF | SF | SF | SF |
| B2 | SF | SF | SF | SF | SF |
| B3 | SF | SF | SF | SF | SF |
| B4 | SF | SF | SF | SF | SF |
| B5 |  |  |  |  | SF |
| **Practical Skills** | C1 |  | SF |  |  | SF |
| C2 |  |  | SF |  | SF |
| C3 |  | SF |  |  | SF |
| C4 |  |  |  | SF | SF |
| C5 | SF |  |  |  | SF |

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

**F** where formative assessment/feedback occurs

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | **MSc** |
|  | **Module Code** |  | CE7011 | CE7012 | CI7600 | CE7013 | CE7016 |
| **Programme Learning Outcomes (Key Skills)** | **Self Awareness** | AK1 | SF | SF | SF | SF | SF |
| AK2 | SF | SF | SF | SF | SF |
| AK3 | SF | SF | SF | SF | SF |
| AK4 | SF | SF | SF | SF | SF |
| **Communication** | BK1 | SF | SF | SF | S | SF |
| BK2 | SF | SF | SF | S | SF |
| BK3 | SF | SF | SF | SF | SF |
| BK4 | SF | SF | SF | SF | SF |
| **Interpersonal** | CK1 | F | F | SF | SF |  |
| CK2 | SF | SF | SF | SF | SF |
| CK3 | SF | SF | SF | SF |  |
| CK4 | SF | SF | SF | SF | SF |
| CK5 | SF | SF | SF | SF | SF |
| **Research and Information Literacy** | DK1 | SF | SF | SF | SF | SF |
| DK2 | SF | SF | SF | SF | SF |
| DK3 | SF | SF | SF | SF | SF |
| DK4 | SF | SF | SF | SF | SF |
| DK5 | SF | SF | SF | SF | SF |
| **Numeracy** | EK1 | SF |  | SF | SF | SF |
| EK2 | SF |  | SF | SF | SF |
| EK3 | SF |  | SF | SF | SF |
| EK4 | SF |  | SF | SF | SF |
| **Management and Leadership** | FK1 | SF | SF | SF | SF | SF |
| FK2 | SF | SF | SF | SF | SF |
| FK3 | SF | SF | SF | SF | SF |
| FK4 | SF | SF | SF | SF | SF |
| **Creativity and Problem Solving** | GK1 | SF | SF | SF | SF | SF |
| GK2 | SF | SF | SF | SF | SF |

**Technical Annex**

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| **Final Award(s):** | MSc Management in Construction |
| **Intermediate Award(s):** | Postgraduate Diploma (PgDip)Postgraduate Certificate (PgCert) – as an exit award only |
| **Minimum period of registration:** | Full-time = 1 years Part-time = 2 years |
| **Maximum period of registration:** | Full-time = 2 years Part-time = 4 years |
| **FHEQ Level for the Final Award:****Credit rating by level:** | Masters180 credits @ level 7 |
| **QAA Subject Benchmark:** | N/A |
| **Modes of Delivery:** | Full-time and Part-time |
| **Language of Delivery:** | English |
| **Faculty:** | Science Engineering and Computing |
| **School:** | Engineering and the Environment |
| **JACS code:** | H200   |
| **UCAS Code:** | N/A |
| **Course Code: FT**  **PT** | PFMAC1MAC02 PPMGE1MGE01  |
| **Route Code: AS ABOVE** |  |
|  |  |

**Engineering Council: Applicability of Output Standards to Masters degrees other than the integrated MEng**

Contribution of Module Learning Outcomes (numbered) to the specific Learning Outcomes listed in the above document @

<http://www.jbm.org.uk/uploads/EngC_AccreditationofMastersDegreesOtherthanMEng.pdf>

**TO BE READ IN CONJUCTION WITH THE ABOVE DOCUMENT**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Learning Outcome** | **CE7011** | **CE7112** | **CI7600** | **CE7013** | **CE7016** |
| **General Learning Outcomes** | The ability to develop, monitor and update a plan... | 1,2,3,5 | 1,2,3,4,5 | 1,3,4,5 | 1,4,5 | 1,2,3,4,5,6 |
| The ability to monitor and adjust a personal programme... | 1,2,3,4,5,6 | 1,2,3,4,5,6 | 1,2,3,4,5 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |
| The ability to exercise initiative and personal responsibility... | 1,2,3,4,5,6 | 1,2,3,4,5,6 | 1,2,3,4,5 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |
| The ability to learn new theories, concepts, methods, etc... | 1,2,3,4,5,6 | 1,2,3,4,5,6 | 1,2,3,4,5 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |
| **Specific Learning Outcomes** | **Underpinning Science and Maths** | A comprehensive understanding of the relevant scientific... | 1,3,4,6 | 1,2,3,4,5,6 | 1,3 | 2,4,5,6 | 1,2,3,4,5,6 |
| A critical awareness of current problems and/or new... | 1,3,4,6 | 1,2,3,4,5,6 | 1,3,4,5 | 1,2,4,5,6 | 1,2,3,4,5,6 |
| An understanding of concepts relevant to the discipline... | 1,3,4,6 | 1,2,3,4,5,6 | 1,2,3,4,5 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |
| **Engineering Analysis** | The ability to use fundamental knowledge to investigate... | 1,2,3,5 | 1,2,3,4,5,6 | 3,5 | 1,2,3,4,6 | 1,2,3,4,5,6 |
| The ability to apply appropriate models for solving... | 2,5 | 1,2,3,4,5,6 | 3,5 | 4,5 | 1,2,3,4,5,6 |
| The ability to collect and analyse research data... | 1,2,3,5 | 2,3,4,5 | 1 | 1,4,5 | 1,2,3,4,5,6 |
| **Design** | The ability to apply original thought to the development... | 1,3 | 1,2,3,4,5,6 | 3,4,5 | 2,4,5 | 1,2,3,4,5,6 |
| **Economic, Social Environmental** | Knowledge and understanding of management... | 1,2,3,5 | 3,4 | 1,2,3,4,5 | 1,2,3,4,5,6 | 1,2,3,4,5,6 |
| The ability to make general evaluations of risks... | 1,3 | 1,2,3,4,5,6 | 1,2,3,4,5 | 1,2,4,5 | 1,2,3,4,5,6 |
| **Engineering Practice** | A thorough understanding of current practice... | 1,3,5 | 1,2,3,4,5,6 | 3,4,5 | 1,2,4,5 | 1,2,3,4,5,6 |
| Advanced level knowledge and understanding of a wide... | 1,3 | 1,2,3,4,5,6 | 3 | 4,5 | 1,2,3,4,5,6 |
| The ability to apply engineering techniques... | 1,2,3,5 | 1,2,3,4,5,6 | 2,3,4 | 1,4,5 | 1,2,3,4,5,6 |