The Knowledge Hub
International University Institution of Egypt

partnered with
Coventry University

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The Knowledge Hub Universities Egypt

Course Specification A

BEng (Hons) Civil Engineering

TKHU027

School of Engineering

Academic Year: 2023/2024

Please note: This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided.

We regularly review our course content, to make it relevant and current for the benefit of our students. For these reasons, course modules may be updated.

The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education. Changes have only been made where an aspect of the provision at Coventry University is not relevant to the delivery at TKH or where specific information relevant to the delivery of this course in Egypt must be introduced, e.g. entry requirements, course management.

Section A. 1 - Level 3
BEng (Hons) Civil Engineering

Section A .1. List of Contents

Section A.1 – Civil Engineering (Level 3)

1 Introduction

There is a global shortage of engineers, computing scientists and construction professionals and employment opportunities remain extremely buoyant.

Level 3 is designed to create opportunities for students who have completed at least 12 years of schooling to enrol onto a 4-year degree programme in an engineering or computing discipline and prepare them to successfully complete that course of study and thus avail themselves of the opportunity to pursue a graduate level career in a relevant profession.

Civil Engineering Level 3

This document outlines level 3 of the BEng (Hons) Civil Engineering, and should be considered as part of the main Civil Engineering course specification. Levels 4, 5 and 6 of the courses are described later in this document.

Level 3 is the first year of a 4-year programme in Civil Engineering. The students are co-taught and assessed on modules studied by other students in engineering and computing at The Knowledge Hub. Students who successfully complete Level 3 will be entitled to progress to one or more course at Level 4.

The modules will normally introduce Coventry University international students who have completed their schooling and whose English is not their first language to the key concepts in mathematics, engineering and computing as well as the academic study skills and language they will need to operate effectively at degree level.

Sections 2-11
Basic Course Information can be found in Part A.2.

12 Outline and Educational Aims of Level 3

This Level 3 year of study precedes studies at levels 4, 5 and 6. It aims to develop knowledge and skills that can be applied to solving scientific and technical problems and during level 3 students will:

- Become familiar with the key concepts in engineering and computing relevant to the study of civil engineering at a higher level.
- Develop the language and subject-specific academic study skills necessary to study at degree level.
- Manage their own learning and acquire transferable skills such as communication, initiative and problem solving that equips and orientates students for higher education.

The studies are designed to foster a critical, analytical and experiential approach to embedded study skills and subject-specific academic English. The educational experience also aims to develop students' intellectual and personal skills. A student will study a portfolio of applied science and engineering, mathematics, and study skills and English language.

Level 3 in Civil Engineering provides opportunities for students to:

- Acquire a broad knowledge of mathematical concepts and physical science theories relevant to science and its' technological, environmental, cultural, economic and social context;
- Develop practical skills appropriate to construction;
- Strengthen study skills and academic English language skills, specific to the subject areas;
- Become an independent learner and acquire transferable skills such as communication, presentation, visual and digital fluency, critical reflection, initiative and problem solving;
- Recognise and respond appropriately to ethical values, the public interest and professional standards;
- Develop appropriate skills, understanding and experience to prepare students for successful

transition into further and higher education in civil engineering.

Level 3 consists of 40 credits of applied science and engineering, 40 credits of mathematics and 40 credits of academic English skills modules. The course will be fully taught in English with specialist English-language and study skills training embedded into the year of study to prepare students for higher-level undergraduate studies on Coventry University degree courses at The Knowledge Hub.

The mathematics modules cover algebra, descriptive and inferential statistics, trigonometry, vectors and vector operations, differential and integral calculus, some simple solution methods for various types of differential equations and methods to characterise and handle uncertainty.

The Applied Science and Engineering modules aim to develop a student's working knowledge of the scientific theories that underpin the engineering disciplines. The first develops students' scientific knowledge and laboratory skills. The second module develops the theory and introduces the application of theory through the use of design, including the concept of prototyping and the use of computer aided design.

Successful completion of this year of study enables a student to progress to Level 4 of a Civil Engineering course.

13 Level 3 Learning Outcomes

A student who successfully completes the course will have achieved the following learning outcomes and be able to:

1. demonstrate an understanding of the relevant mathematical and scientific principles ;
2. apply fundamental design and analysis methods to investigate and propose solutions to scientific problems;
3. apply knowledge of physical sciences to computing issues;
4. apply the necessary study and research skills in support of written, oral and group assessments ;
5. contribute effectively to a team and implement the necessary planning to achieve objectives ;
6. clearly communicate research, concepts, solutions and recommendations .

14 Course Structure and Requirements, Levels, Modules, Credits and Awards

Modules within level 3 of the course and their credit value is identified in Table 1. All modules are mandatory.

Table 1: Module structure for Level 3

Module Credit Level	Module Code	Module Title	Credit Value	Course Learning Outcomes	Semester
3	KH3123CEM	Applicable Mathematics	20	1,2	1
3	KH3125EXQ	Foundation Physics	20	1,2,3	1
3	KH3111HUM	Foundation Academic English 1 for Engineering and Computing	20	4,5,6	1
3	KH3129CEM	Applied and Computational Mathematics	20	1,2	2
3	KH3126EXQ	Applied Science and Engineering	20	1,2,3	2
3	KH3112HUM	Foundation Academic English 2 for Engineering and Computing	20	4,5,6	2

Progression to Level 4 Civil Engineering

Level 3 is a qualifying year for the BEng (Hons) Civil Engineering course at Level 4. To progress to Level 4 of the Civil Engineering course a student must have passed or been credited with **all** the modules at Level 3.

Level 3 does not contribute to the final award.

Sections 15–18

See the BEng (Hons) Civil Engineering Course Specification for levels 4, 5 and 6 later in this document.

Section A. 2 - Levels 4, 5 & 6
BEng (Hons) Civil Engineering

Section A2. List of Contents

Section A.2 – BEng (Hons) Civil Engineering (Levels 4, 5 and 6)

The Educational Aims, Learning Outcomes, Courses Structure, Modules and Credits, Criteria for Admission, Academic Regulations and Quality Enhancement for Levels 4, 5 and 6 for the BEng (Hons) Civil Engineering are described in section A.2.

1. Introduction

Civil Engineers are involved in the planning, design, construction and maintenance of domestic, social and commercial infrastructure. The need for such infrastructure is heavily linked to population growth which is set to continue to increase at a significant rate for the foreseeable future. Therefore, the global demand for Civil Engineers capable of providing infrastructure development while minimising the environment and climate impact will continue to be high for many years to come.

The Civil Engineering course is aimed at students who aspire to become professionally qualified engineers and wish to study Civil Engineering with an emphasis on engineering practice and its role within construction, in the UK and aboard. Students will gain an insight into the full breadth of design and construction disciplines that collaborate in the multi-disciplinary construction industry. Coventry University and The Knowledge Hub are committed to preparing our graduates to work in a global multi-disciplinary and multi-cultural environment. Students will gain experience in an international field course and potentially visit a foreign university, to work alongside their students and to learn their local design and construction practice. Distinguishing features of our courses include:

- Practical activities and application of knowledge through project led learning in design project modules.
- Several optional modules available at level 6 to allow students to tailor their course to their specific interests.
- Progress to study at Coventry University to complete your qualification or study for an MSc.
- Study at Coventry University for one or two semesters as part of your degree.
- Site visits and other opportunities to enhance professional and intercultural competences.
- Group project work.

Coventry University and The Knowledge Hub have an established reputation for the teaching of Civil Engineering. Teaching is highly practical with a strong emphasis on application of engineering theory in a project context. It often draws on real-life projects or case studies and students will use industry-standard software as is widely used by design consultants.

The course team has excellent links with a wide range of Civil Engineering employers, many of whom provide direct input into course development as members of the Industrial Advisory Board. They ensure that our course remains relevant and that graduates have the knowledge, skills and behaviours to overcome anticipated future challenges within the industry. Our industry contacts often provide guest lectures, mentoring support, and industrial placement opportunities to our students.

Graduates from the Civil Engineering course will be well-suited to working in a range of Civil Engineering consultancies, contractors or client organisations and they will have a sound base to ultimately become professionally recognised Civil Engineers.

2 Available Award(s) and Modes of Study

Title of Award	Mode of attendance	FHEQ Level
BEng (Hons) Civil Engineering BSc Civil Engineering Studies DipHE Civil Engineering Studies Cert HE Civil Engineering Studies	FT 3 years,	6

3 Awarding Institution/Body	Coventry University
4 Collaboration	Autonomous Franchise
5 Teaching Institution and Location of delivery	Coventry University Branch at TKH The Knowledge Hub Universities Campus New Administrative Capital, Residential Area 7, R7, Cairo Governorate
6 Internal Approval/Review Dates	Date of approval 2019 Date for next review: Academic year 2025/26
7 Course Accredited by	N/A
8 Accreditation Date and Duration	N/A
9 QAA Subject Benchmark Statement(s) and/or other external factors	The relevant QAA Subject Benchmark statement is "Engineering". The current revision of the QAA Engineering Benchmark Statement is based on the UK Standard for Professional Engineering Competence 4th Ed. (UK-SPEC 4). The Engineering Council sets the output standards in terms of learning outcomes in the Accreditation of Higher Education Programmes 4th Ed. (AHEP4), in line with the UK-SPEC 4. The courses in this document have been mapped onto the appropriate learning outcomes in AHEP4 and the modules in which each of the learning outcomes are achieved have been identified.
10 Date of Course Specification	May 2023
11 Course Director	The Knowledge Hub – Dr Mohamed El Shafey PhD PEng Coventry University Link tutor – Dr Shervin Motamedi PhD CEng FIHE

12 Outline and Educational Aims of the Course

The aim of Civil Engineering education is to achieve excellence in the provision of courses which provide graduates with a technical and professional skills base for a successful career as a professionally recognised Civil Engineer. "Chartered engineers develop solutions to complex engineering problems using new or existing technologies, and through innovation, creativity and technical analysis." (UK-SPEC 4)

The structure of the provision allows students to experience the breadth and interdisciplinary nature of the construction industry. The course mainly cover the subjects of Structures, Materials and Geotechnics (compulsory core subjects required by Joint Board of Moderators (JBM)), and Construction Management and Highways and Transport Engineering (nominated core subjects required JBM). The course also includes appropriate Hydraulics and Surveying content.

Graduates with a BEng are expected to undertake 'further learning' in order to practice professionally as defined by the UK Engineering Council. One of the distinct features of the course is to provide opportunities to students who demonstrate the required academic ability with a view to ultimately achieving professionally recognised Engineering status.

The aims of the BEng course are that graduates will have the ability to:

- Work collaboratively with other construction disciplines in the development of engineering solutions through critical evaluation and reflection, and effectively communicate proposals using a variety of media to suit different audiences;
- Demonstrate awareness of the conflicting demands of clients, stakeholders and other construction professionals in the planning and execution of appropriate inter-disciplinary design solutions;
- Recognise and respond to social, environmental, economic, security and ethical considerations in an international context;
- Undertake interdisciplinary team work in a respectful and inclusive manner and effective self-management and development;
- Conduct independent thinking, critical reflection, and individual initiative as the basis for research, innovation and lifelong professional learning to enhance their skills and knowledge throughout their careers;
- Identify, analyse and solve engineering problems and apply their knowledge, technical and practical skills creatively and effectively as required for a successful career as a professionally recognised Civil Engineer;

13 Course Learning Outcomes

A BEng (Hons) Civil Engineering student who successfully completes the course will have achieved the following Learning Outcomes:

1. A comprehensive knowledge and understanding of the scientific and mathematical principles and methods, relevant for an accredited Civil Engineering Degree course. This covers a mix of skills and knowledge, including fundamental topics such as Design, Sustainability, Inclusivity, Health and Safety and Construction issues, providing the educational base to eventually become registered as a professionally qualified Civil Engineer.
2. The ability to utilise these principles and methods, together with their knowledge of components and materials, for the creative and effective solution of real engineering problems, validated by simulation methods or by practical construction of models at conceptual and detailed levels. This includes the ability to tackle problems with uncertain or incomplete data or specifications.
3. The ability to plan a suitable physical or computational experiment or a piece of research to tackle problems of unfamiliar situations, to conduct, record and analyse the research accurately and to work independently with initiative, within given time and resource constraints.
4. Proficiency with the use of modern IT and computer technologies for planning, designing, managing and executing appropriate engineering solutions and for communicating with clients and stakeholders, and to create and deliver high quality concise oral and written reports.
5. The ability to work effectively and constructively as part of a team which may be multi-disciplinary or multi-cultural, to learn from reflecting on own performance and managing own personal development.
6. A knowledge and understanding of the business context in which civil engineering and construction operates and of their professional and ethical responsibilities in dealing with environmental and engineering problems while ensuring sustainable development in line with the UN Sustainable Development Goals.

Table 2 maps the course learning outcomes to the modules in each award.

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14 Course Structure, Modules, Credits and Progression and Award Requirements

The level 3 course structure is outlined in section A.1 (Table 1).

Modules within levels 4, 5 and 6 of the course, their status (whether mandatory or optional), the levels at which they are studied, and their credit value is identified in Table 2.

The Civil Engineering courses may be studied via the following modes of attendance: full-time

The course provides sufficient coverage of Structures, Materials and Geotechnics (JBM compulsory core subjects) and Construction Management and Environmental Engineering (JBM nominated subjects and this

has been carefully considered in course design. Assessment methods have been designed to improve students' problem-solving ability where information is ambiguous or incomplete, which was identified as desirable by Industrial Advisory Board members.

Table 2: Module structure

Credit level	Module Code	Title	Learn-ing Credit	Assess-ment credit	M / O	Sem	Course Learning Outcomes
4	KH4004ECE	Geotechnics and Construction Materials	20	20	M	1	1
4	KH4010ECE	Surveying and Transportation Engineering	20	20	M	1	1
4	KH4002ECE	Construction Project	20	20	M	1	6
4	KH4008ECE	Structural Analysis and Mathematics	20	20	M	2	1
4	KH4009ECE	Structural Engineering Design Project	20	20	M	2	2, 4
4	KH4007ECE	Sustainable Environments	20	20	M	2	3, 5, 6
5	KH5007ECE	Hydraulics and Transportation Engineering	20	20	M	1	1
5	KH5010ECE	Structural Analysis and Design	20	20	M	1	1, 2
5	KH5005ECE	Civil Engineering Design Project	20	20	M	1	2, 4
5	KH5009ECE	Soil Mechanics and Materials	20	20	M	2	1
5	KH5008ECE	Project, Finance and Contract Management	20	20	M	2	6
5	KH5004ECE	Sustainable Environments in Society: Developing Solutions	20	20	M	2	3, 5, 6
6	KH6003ECE	Interdisciplinary Project	20	20	M	1	2, 4, 5, 6
6	KH6006ECE	Computational Methods in Civil Engineering	20	20	O*	1	2, 4
6	KH6009ECE	Strategic Construction Project Management	20	20	O*	1	5, 6
6	KH6010ECE	Structural Design	20	20	O*	1	2, 4
6	KH6005ECE	Research Dissertation	20	20	M	2	3
6	KH6007ECE	Engineering Analysis	20	20	M	2	1
6	KH6011ECE	Transport Infrastructure	20	20	O^	2	2, 6
6	KH6008ECE	Engineering Hydrology	20	20	O^	2	2, 6
Direct Entry Level 4 students for the purposes of Engineering Council Recognition ONLY must study the additional following modules							
6	KH6035MAA	Business Simulation	20	20			
6	KH6082MAA	Project Management	20	20			
6	KH6039MAA	New Product Development Strategies	20	20			

* Choose two from three available options
^ Choose one from two available options
The delivery pattern is indicative and is subject to change.

14.1 Progression requirements

To progress from one level to the next, students should normally pass all modules. Students who fail to pass sufficient modules to progress will be considered according to the Academic Regulations. The outcome will be at the discretion of the Programme Assessment Board (PAB). The criteria to progress from Level 3 to Level 4 is described earlier in this document.

14.2 Semester/Year of Study / at Coventry University (Optional)

The course structure and timing of delivery at The Knowledge Hub shall be aligned with the equivalent course at Coventry University to enable a student to complete a semester of study/one academic year at Coventry University as part of their studies. The marks achieved at Coventry University will be used in the assessment of the student's performance at the end of each level and used in the calculation of the final degree classification.

14.3 Conditions for the award of an honours degree

The award of BEng degree from this course requires:

- a pass or exemption given in all mandatory modules; and
- the minimum number of module passes required for the award as indicated by the Academic Regulations.

The classification calculation is detailed in the Academic Regulations.

14.5 Conditions for the fallback award of BSc Civil Engineering Studies

An unclassified "BSc Civil Engineering Studies" award is given to students who fail to pass sufficient mandatory modules to be awarded their BEng Honours degree but who meet the minimum credit requirement stipulated in the Academic Regulations for an unclassified degree. This fallback award is not accredited by any professional institution. For other fallback awards, the minimum number of credits required is indicated in the Academic Regulations.

Cascade of Awards:

BEng (Hons) Civil Engineering
↓
BSc Civil Engineering Studies
↓
Diploma of Higher Education Civil Engineering Studies
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Certificate of Higher Education Civil Engineering Studies

14.6 Direct Entry Students seeking Engineering Council Recognition

Direct entry Level 4 students wishing to gain Engineering Council recognition must study the additional modules identified within the table below. These additional modules are not part of the Coventry University award.

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15 Criteria for Admission and Selection Procedure

15.1 Entry to Level 3 Civil Engineering course

1 AS Level grade D and 5 GCSEs (including English Language, Mathematics and Science) at A*- C or 9 - 4 in the new GSCE grading structure OR 8 GCSEs (including English Language, Mathematics and Science)

at A*- C or 9 - 4 in the new GSCE grading structure) OR Tawjihiya/General Secondary School certificate with minimum 60% OR Pass grades in IB Diploma.

In the case of applicants whose first language is not English, an adequate proficiency in English must be demonstrated. This would normally be a minimum IELTS score of 5.5 (with no less than 5.0 in each component) or equivalent.

All equivalent qualifications are welcome, as are mature students with alternative experience.

15.2 Direct entry to level 4

A-level: BBC to include Mathematics. Excludes General Studies

OR

IB Diploma 29 points to include Mathematics at Higher Level.

An applicant possessing evidence of prior learning in Civil Engineering (or equivalent) from another institution; and/or evidence of successful completion and/or academic prior learning from another institution that would be considered comparable to a TKH level 3 cognate study package (detailed in section A.1.14 of this document), normally evidenced by qualification or official transcript, may be considered for direct entry to level 4 of BEng (Hons) Civil Engineering. They will be considered on a case-by-case basis (i.e., academic merits and academic prior learning records), by the Coventry University Link Tutor for Civil Engineering course (commonly a Chartered Engineer (CEng) registered with UK Engineering Council) by applying professional judgement and knowledge of the academic course structure and relevant academic regulation. Applicants who do not hold a relevant qualification may still be considered on their individual merits where alternative and additional evidence of aptitude, such as extensive practical experience, is evident.

15.3 Direct entry to Level 5

An applicant possessing evidence of prior learning in Civil Engineering or equivalent from another institution, normally evidenced by qualification or official transcript, may be considered for direct entry to level 5 of BEng (Hons) Civil Engineering. They will be considered on a case-by-case basis (i.e., academic merits and academic prior learning records), by the Coventry University Link Tutor for Civil Engineering course (commonly a Chartered Engineer (CEng) registered with UK Engineering Council) by applying professional judgement and knowledge of the academic course structure and relevant academic regulation. Applicants who do not hold a relevant qualification may still be considered on their individual merits where alternative and additional evidence of aptitude, such as extensive practical experience, is evident.

16 Academic Regulations and Regulations of Assessment

This Course conforms to the Regulations for the delivery of Coventry University Undergraduate awards at the Coventry University Branch at The Knowledge Hub, Egypt.

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17 Indicators of Quality Enhancement

The Knowledge Hub is a new higher education institution developed by El Sewedy Education with substantial guidance from Coventry University in the design of curricula, facilities, academic regulations and staff resources. El Sewedy Education is an Egyptian education investment and management company owned by the El Sewedy family who also own Elsewedy Electric. The Elsewedy Electric Group was

founded in 1938 in Egypt and operates in the engineering, energy and telecommunications sectors throughout the Middle East and Africa.

El Sewedy Education runs El Sewedy Technical Academy in Cairo and is committed to creating a sustainable world-class model of knowledge and technology transfer. El Sewedy Education aims to achieve this by providing high quality education at The Knowledge Hub in partnership with internationally recognised institutions. El Sewedy Education is particularly well-placed to engage with the private sector to offer practical experiences by providing real-life case studies, fieldwork assignments, internships and workshops to increase students' employability.

On 2 August 2018 the Egyptian Parliament enacted Law No. 162 of 2018 on the Establishment and Organization of International Branch Campuses Within the Arab Republic of Egypt and University Institutions. Subsequently El Sewedy Education received a Presidential decree to establish a higher education institution in partnership with Coventry University. Coventry University's quality procedures were confirmed by a QAA Higher Education Review in 2015, including its' support for transnational education.

Key academic staff, including Heads of Schools and Course Directors have been appointed under the guidance of Coventry University and specialist lecturing staff are being appointed by The Knowledge Hub with the support of Coventry academic staff.

New laboratories for Civil Engineering will be built to support studies in structures, materials, geotechnical engineering and hydraulics.

A new library and computing facilities in the School of Engineering provide access to academic materials.

The following are key indicators of quality and standards for the equivalent courses at Coventry University. It follows that the course at The Knowledge Hub inherits the benefits of the first indicator and the relationship with El Sewedy Electric Group will facilitate access to local employers (key indicator 3).

1. The course has been designed in accordance with the QAA Subject Benchmark Statement for Engineering (October 2019), UK-Spec (AHEP3) of Engineering Council and the guidance of Joint Board of Moderators representing the Institution of Civil Engineers, Institution of Structural Engineers, Chartered Institute of Highways Engineers and Institute of Highways and Transportation.

2. All staff who teach on the course are active in scholarship and/or research and have a range of professional experience in civil engineering and construction practice. A number of staff also have experience of working at universities in the Middle East, Europe and north America.

3. The Knowledge Hub is building excellent links with local employers and will establish a Civil Engineering Industry Advisory Board. These local employers provide input to course management, delivery and development.

The equivalent courses delivered at Coventry University (main campus in the UK) are accredited by the Joint Board of Moderators (JBM) on behalf of the UK Engineering Council, representing the Institution of Civil Engineers, the Institution of Structural Engineers, the Chartered Institution of Highways and Transportation and the Institute of Highway Engineers. This accreditation confirms that:

- The BEng (Hons) Civil Engineering fully satisfies the academic base for Incorporated Engineer and partially satisfies the academic base for Chartered Engineer.

The courses described in this document are not accredited by a professional body in Egypt or the UK. Opportunities to gain relevant professional accreditation will be considered at the earliest opportunity and no later than the next course review.

The course is managed by the School of Engineering Board of Study of The Knowledge Hub.

The Programme Assessment Board (PAB) for The Knowledge Hub is responsible for considering the progress of all students and making awards in accordance with both the University and course-specific regulations.

The assurance of the quality of modules is the responsibility of the Boards of Study which contribute modules to the course. This activity will be performed in partnership with Coventry University, UK.

External Examiners have the opportunity to moderate all assessment tasks and a sample of assessed work for each module. They will report annually on the course and/or constituent modules and their views are considered as part of the Collaborative Course Quality Enhancement Monitoring (C-CQEM). Details of the C-CQEM process can be found on The Knowledge Hub's web site.

Students are represented on the Student Forum and Board of Study, all of which normally meet two or three times per year. They are also represented at the branch board which happens once every year.

Students are represented on the Student Forum, Board of Study and School Board, all of which normally meet two or three times per year.

Student views are also sought through module and course evaluation questionnaires.

The QAA's Higher Education Review undertaken in February 2015 confirmed that Coventry University meets the UK expectations regarding the:

- Setting and maintenance of the academic standards of awards
- Quality of student learning opportunities
- Quality of the information about learning opportunities
- Enhancement of student learning opportunities

18 Additional Information

Enrolled students have access to additional, key sources of information about the course and student support including,

- Academic Course Director(s) are responsible for particular activities across the course and are able to provide advice and support to students in course-related matters;
- Student Handbook;
- Module Descriptors;
- CCQEM Reports;
- The Knowledge Hub Study Support Information.