Course Specification

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Produced By:	Laura Clode
Status:	Validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Architecture and Built Environment		
Course Code(s):	CV012H01UV CV012H31UV	Full-time Part-time	3 Years 6 Years
Course Title:	BEng (Hons) Infrastructure Engineering and Management		
Hierarchy of Awards:	Bachelor of Engineering with Honours Infrastructure Engineering and Management Bachelor of Engineering Infrastructure Engineering and Management Diploma of Higher Education Infrastructure Engineering and Management Certificate of Higher Education Infrastructure Engineering and Management University Statement of Credit University Statement of Credit		
Language of Study:	English		
Date of DAG approval:	03/Mar/2017		
Last Review:	2016/7		
Course Specification valid from:	2016/7		
Course Specification valid to:	2022/3		

Academic Staff

Course Leader:	Dr Suresh Renukappa
Head of Department:	Mr Peter Mills

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Not delivered in partnership
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS

2017 Entry

- A Level minimum of BB or CCE
- BTEC QCF Extended Diploma grade MMP, BTEC QCF Diploma grade DM
- Access to HE Diploma full award (Pass of 60 credits - of which a minimum of 45 credits must be at level 3 including 18 at Merit or Distinction).
- Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or equivalent
- If you've got other qualifications or relevant experience, please contact The Gateway for further advice before applying.
- International entry requirements and application guidance can be found here
- Successful completion of the International Foundation Year in Science and Engineering guarantees entry on to this course

Other Requirements

Students must have studied a minimum of two years post GCSE level. However, it is expected that some applicants will be mature students with work experience, who wish to further their career development. These applicants will be processed through standard procedures, which may involve an interview as part of the process. Please see http://wlv.ac.uk/mature for further information.

Those who do not meet the entry requirements may be offered an alternative course.

Distinctive Features of the Course:

The BEng (Hons) Infrastructure Engineering and Management is a unique course in preparing graduates for the major challenges ahead globally in the infrastructure sector. By highlighting new frameworks and methodologies that bring risk and uncertainty into the milieu of decision-making for infrastructure development.

In addition, graduates from the BEng course will have the ability to integrate the critical areas of governance, finance, strategic infrastructure policy, and how sustainable development goals can and should be incorporated in future infrastructure development decisions. Therefore, the BEng programme offers a holistic approach to decision making and problem solving that lead to more robust, resilient and future proofing infrastructure assets.

Your final year group design project will culminate in the production of a working design for a given infrastructure project. The design will require the consideration of various options, the analysis of the chosen option and the production of an integrated solution covering technical, commercial, and sustainability aspects as well as a detailed programme of works and anticipated costs.

Your final year individual dissertation will pull together the information retrieval skills that have been developed in levels four and five. You will produce a research report containing original data and be expected to critically analyse the results obtained. A formal written document will be produced as well as an oral

presentation.

The BEng (Hons) Infrastructure Engineering and Management will be submitted for accreditation, by the professional bodies within the civil engineering community. This will enable graduates to work towards becoming Incorporated Engineers (IEng) and thereafter, with suitable further education (a Master's degree) be eligible for registration as Chartered Engineers (CEng).

Lecturers on this course are a blend of respected academics and experienced professionals.

The civil engineering team of staff have excellent links with local infrastructure companies as well as the local branches of the professional bodies, particularly the Institution of Civil Engineers.

Educational Aims of the Course:

The course will cover all the fundamental disciplines of civil engineering for the development of a skills portfolio that will equip you to seek a professional career. In addition, it aims to develop the ability to integrate the critical areas of governance, finance, strategic policy, and how sustainable development goals can and should be incorporated in future infrastructure developments. It offers a holistic approach to decision making and problem solving that lead to more robust, resilient and future proofed infrastructure assets. Thus the course will;

- Equip students with a wide range of analysis, conceptual, scheme and detailed design skills in structures, geotechnics, hydraulics, and materials.
- Enable students to adopt professional standards, recognising obligations to society, health and safety, the environment, and the profession.
- Address industry's demand for graduates who can understand a holistic approach to engineering design, management, decision making and problem solving that lead to more robust, resilient and future proofed infrastructure assets.
- Enable students to pursue professional careers in the infrastructure sector at a level which requires the exercise of sound judgement, initiative, and the ability to make informed decisions in complex circumstances that reflect a responsible, ethical and socially aware outlook.
- Provide a broadly based education of the infrastructure sector allowing scope for entry into a wide range of career paths within the construction and civil engineering field.

Intakes:

September

Major Source of Funding:

Office for Students (OFS)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2020/1	H	Full Time / Sandwich	£9250.00
2020/1	Overseas	Full Time / Sandwich	£12250.00
2020/1	H	Part Time	£3050.00
2020/1	Overseas	Part Time	£6125.00

PSRB:

None

Course Structure:

September (Full-time)

Year 1

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
4CV002	Mechanics of Materials	20	SEM1	Core
4CV005	Professional Skills and Management	20	SEM1	Core
4CV001	Fundamentals of Geotechnics	20	SEM2	Core
4CV009	Site Surveying	20	SEM2	Core
4CV003	Principles of Design	20	YEAR	Core
4MA007	Engineering Mathematics	20	YEAR	Core

September (Full-time)

Year 2

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
5CV001	Structural Applications	20	SEM1	Core
5CV019	Infrastructure Planning and Management	20	SEM1	Core
5CV018	Sustainability and Infrastructure	20	SEM2	Core
5CV009	Geotechnical Applications	20	SEM2	Core
5CV005	Hydraulics	20	YEAR	Core
5CN022	Construction Law	20	YEAR	Core

September (Full-time)

Year 3

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
6CN017	Construction Planning and Programming	20	SEM1	Core
6CN020	Commercial Management - Civil Engineering	20	SEM1	Core
6CV003	Water Resources and Supply	20	SEM2	Core
6CV008	Civil Engineering Design Project	20	SEM2	Core
6CV024	Infrastructure Asset Management	20	YEAR	Core
6CV013	Civil and Transportation Engineering Dissertation	20	YEAR	Core

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, to create the best learning experience.

Learning, Teaching and Assessment

Academic Regulations Exemption:

Section 4.4.4 - Exemption in accordance with Professional Body (Engineering Council) requirements. Compensation will be limited to no more than 20 credits overall with no additional third attempts (repeats will be allowed).

APPROVED by AFRSC on 16/5/2019.

Reference Points:

- The Accreditation of Higher Education Programmes, UK Standard for Professional Engineering Competence, Third edition, 2014, (AHEP3).
- Joint Board of Moderators Accreditation Guidance and Documentation.
- Cognisance made of Engineering Council UK-Spec 2013.
- QAA National Qualifications Framework
- QAA Subject Benchmark Statement for Engineering
- School E&D policy
- Equality Act (2010)

Learning Outcomes:

CertHE Course Learning Outcome 1 (CHECLO1)

Demonstrate knowledge of the underlying concepts and principles associated with your area(s) of study, and an ability to evaluate and interpret these within the context of that area of study

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CertHE Course Learning Outcome 2 (CHECLO2)

Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of your subject(s) of study.

CertHE Course Learning Outcome 3 (CHECLO3)

Evaluate the appropriateness of different approaches to solving problems related to your area(s) of study and/or work

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CertHE Course Learning Outcome 4 (CHECLO4)

Communicate the results of your study/work accurately and reliably, and with structured and coherent arguments

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CertHE Course Learning Outcome 5 (CHECLO5)

Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility

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DipHE Course Learning Outcome 1 (DHECLO1)

Demonstrate knowledge and critical understanding of the well-established principles of your area(s) of study, and of the way in which those principles have developed with an understanding of the limits of your knowledge, and how this influences analyses and interpretations based on that knowledge.

DipHE Course Learning Outcome 2 (DHECLO2)

Demonstrate the ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context

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DipHE Course Learning Outcome 3 (DHECLO3)

Demonstrate knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study

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DipHE Course Learning Outcome 4 (DHECLO4)

Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis

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DipHE Course Learning Outcome 5 (DHECLO5)

Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively

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DipHE Course Learning Outcome 6 (DHECLO6)

Demonstrate the qualities and transferable skills necessary for employment, requiring the exercise of personal responsibility and decision-making and undertake further training, developing existing skills and acquire new competences that will enable them to assume significant responsibility within organisations.

Ordinary Course Learning Outcome 1 (ORDCLO1)

Demonstrate substantial knowledge of science and mathematics necessary to support application of key civil engineering principles.

Ordinary Course Learning Outcome 2 (ORDCLO2)

Display the ability to successfully undertake engineering analysis by applying concepts and tools to the solution of infrastructure engineering problems.

Ordinary Course Learning Outcome 3 (ORDCLO3)

Synthesize infrastructure engineering and management knowledge and skills for the solution of real

problems.

Ordinary Course Learning Outcome 4 (ORDCLO4)

Manage activities and appreciate various legal and ethical constraints under which an infrastructure engineer needs to operate in order to have a positive impact on the environment, on commerce, on society and on individuals.

Ordinary Course Learning Outcome 5 (ORDCLO5)

Practice engineering by applying and combining theory and experience, supported by other relevant knowledge and skills.

Ordinary Course Learning Outcome 6 (ORDCLO6)

Develop transferable skills, additional to those set out in specialist infrastructure engineering and management subject areas, that will be of value in a wide range of situations.

Honours Course Learning Outcome 1 (DEGCLO1)

Demonstrate knowledge of science and mathematics necessary to support application of key infrastructure engineering and management principles required by an Incorporated Engineer.

Honours Course Learning Outcome 2 (DEGCLO2)

Display the ability to successfully undertake infrastructure engineering and management analysis by applying concepts and tools to the solution of infrastructure problems.

Honours Course Learning Outcome 3 (DEGCLO3)

Create and develop infrastructure designs that meet defined needs and realise an economically viable product, process or system through integration of infrastructure engineering and management related knowledge and skills to the solution of real problems. As part of the design process you will be able to minimise risk issues, including health & safety, environmental and commercial risk.

Honours Course Learning Outcome 4 (DEGCLO4)

Manage activities and appreciate various legal and ethical constraints within which an infrastructure professional needs to operate in order to have a positive impact on the environment, commerce, society and individuals.

Honours Course Learning Outcome 5 (DEGCLO5)

Practice infrastructure engineering and management by applying and combining theory and experience related to governance, finance, strategic policy, supported by other relevant knowledge and skills.

Honours Course Learning Outcome 6 (DEGCLO6)

Develop transferable skills, additional to those set out in specialist infrastructure engineering and management subject areas, that will be of value in a wide range of situations.

Overview of Assessment:

Module	Title	Course Learning Outcomes
4CV001	Fundamentals of Geotechnics	CHECLO1, CHECLO2
4CV002	Mechanics of Materials	CHECLO1
4CV003	Principles of Design	CHECLO1, CHECLO3, CHECLO4
4CV005	Professional Skills and Management	CHECLO4, CHECLO5
4CV009	Site Surveying	CHECLO1, CHECLO2
4MA007	Engineering Mathematics	CHECLO1
5CN022	Construction Law	DHECLO3
5CV001	Structural Applications	DHECLO2
5CV005	Hydraulics	DHECLO2, DHECLO4
5CV009	Geotechnical Applications	DHECLO1, DHECLO5
5CV018	Sustainability and Infrastructure	DHECLO3
5CV019	Infrastructure Planning and Management	DHECLO1, DHECLO6
6CN017	Construction Planning and Programming	DEGCLO3, DEGCLO5, ORDCLO3, ORDCLO5
6CN020	Commercial Management - Civil Engineering	DEGCLO3, DEGCLO5, ORDCLO3, ORDCLO5
6CV003	Water Resources and Supply	DEGCLO1, DEGCLO4, ORDCLO1, ORDCLO4
6CV008	Civil Engineering Design Project	DEGCLO1, DEGCLO3, DEGCLO6, ORDCLO1, ORDCLO3, ORDCLO6
6CV013	Civil and Transportation Engineering Dissertation	DEGCLO2, DEGCLO4, DEGCLO6, ORDCLO2, ORDCLO4, ORDCLO6
6CV024	Infrastructure Asset Management	DEGCLO2, DEGCLO4, DEGCLO5, ORDCLO2, ORDCLO4, ORDCLO5

Teaching, Learning and Assessment:

Learning Activities

- Attending, taking notes and asking questions in lectures,
- Using audio-visual learning materials
- Carrying out supervised practical work
- Discussing with fellow students and academic staff in seminars and workshops
- Discussing with academic staff in tutorials
- Reading articles, chapters and books
- Accessing appropriate sites on the internet
- Field trips to towns or cities, visiting buildings, construction sites and observing work in progress
- Interact with industry and industry professionals
- Interaction with the professional body
- Preparing appropriate documentation, to industry standards, including plans, specifications, cost information, based on realistic construction projects
- Performing group exercises and projects
- Making oral presentations
- Preparation of professional standard reports
- Supervised practical work such as surveying and laboratory tests
- Engaging in discussion with academic staff and fellow students in seminars, workshops and tutorials
- Preparing for examinations
- Using computer software for analysis and design
- Problem solving exercises, closed and open ended problems
- Information retrieval from articles, books and journals for assessment
- Critical examination of data.

Assessment Methods:

At the University of Wolverhampton, a variety of modes of assessment will be used to support and test your learning and progress and to help you develop capabilities that are valued beyond your University studies and into your working life. Your course may include a variety of assessment activities:

Written examinations (including online examinations, open and closed book examinations and quizzes)
Coursework (for example, essays, reports, portfolios, project proposals and briefs, CVs, poster presentation)
Practical (for example, oral and video presentations, laboratory work, performances, practical skills assessment)

In the final year of your undergraduate degree, and at the end of your postgraduate degree, you are likely to be expected to write an extended piece of work or research, such as a dissertation or a practice-based piece of research.

Student Support:

Support for Learning

Enhanced learning support is provided in the following areas:

1. Support for mathematics and analytic based modules

2. Report writing and oral/presentation communications skills

3. Learning centre – literature searches and information searches

4. Practical/lab/experimental activities and reporting

5. Promotion of *independent learning* during tutorials, face-to-face sessions

6. Formative assessment opportunities

7. Face-to-face tutorial sessions.

The University complements this by supporting your learning through the provision of generic study skills including communication and how to write academic assignments. In addition, there will be opportunities to develop your information seeking and information management skills. These may be in the form of seminars or workshops delivered by LIS staff and embedded into the curriculum or by following the programme of "InfoBite" workshops available in the Learning Centres.

Employability in the Curriculum:

The BEng (Hons) Infrastructure Engineering and Management is a unique course in preparing graduates for the major challenges ahead globally in the infrastructure sector. By highlighting new frameworks and methodologies that bring risk and uncertainty into the milieu of decision-making for infrastructure development.

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