Section 1: Basic Data

Awarding institution/body:	**UWE**
Teaching institution:	**UWE**
Faculty responsible for programme:	**FBE**
Programme accredited by:	**JBM**
Highest award title:	**BSc (Hons)/HND Civil Engineering**
Default award title:	
Interim award title:	**HND Civil Engineering (Part-time students)** **HNC Civil Engineering (PT students)** **DipHE/Cert HE Civil Engineering (Full-time students)** **BSc Built and Natural Environments**
Modular scheme title:	**Faculty of the Built Environment UG Modular Scheme**
UCAS codes:	**H200**
QAA subject benchmarking group(s):	**Engineering**
Valid until:	
Valid from:	**2003**
Authorised by:	**UG Modular Scheme Director** Date:
Version code:	**2**
Version year:	**2005**

Section 2: Educational aims of the programme

The award sets out to provide a sound intellectually demanding vocational experience to develop graduates who are:

1. Competent in carrying out technical duties; with the knowledge, skills and experience to allow graduates to develop as incorporated civil engineers;

2. Self-reliant with problem solving skills, independent technical judgement and an appreciation of management needs;

3. Able to play a leading role when dealing with current and emerging technologies;

4. Aware of environmental, social and professional issues relevant to their work as engineering;

5. Able to communicate effectively with other built environment professionals, clients and the public; with understanding and respect for the objectives and values of other stakeholders.

Section 3: Learning outcomes of the programme

A: Knowledge and understanding

By the end of the programme, the student should be able:	Teaching/learning methods and strategies
1) To demonstrate a technical and commercial awareness of the civil engineering profession. 2) To demonstrate an in-depth knowledge and understanding of structural engineering, both analysis and design and their applications. 3) To demonstrate an in-depth knowledge and understanding of ground engineering and its applications to practice. 4) To demonstrate an understanding of highways engineering. 5) To demonstrate a competence in fluid mechanics and hydrology. 6) To demonstrate an appreciation of operations and project management and its importance for their technical role. 7) To demonstrate an understanding of the role of the professional engineer within the broader social context and of environmental issues relating to their work as a incorporated engineer.	Acquisition of these outcomes will be primarily through lectures, laboratory work and formative work associated with each module. Candidates will consolidate their knowledge base through a variety of techniques including tutorial and studio work, the study of specified library texts and a variety of IT applications. Formative work will also be designed to consolidate students' learning. The approach will be to offer intensive technically based sessions in the subject-based modules and to integrate and apply the knowledge base in the project and experiential modules. The problems posed in the projects will require elements of engineering judgement in developing solutions to technical, implementation and management problems. Health and Safety issues will be integrated into all aspect of the course and put into practice in the laboratory and on the field course. Special emphasis will be placed on these issues in the management, professional issues and design modules. A 20 credit module will be devoted to mathematics in stage 1 (part time stage 1.1). Mathematics techniques will be applied in the core modules throughout the course (especially in modules dealing with surveying, materials, structures, geotechnics and fluids) **Assessment** The knowledge base is tested by examination, oral presentations, experimental work in the lab and assessed coursework including project case studies.

B: Intellectual skills

By the end of the programme, the student should be able:	Teaching/learning methods and strategies
1) To apply theoretical knowledge to the solution of practical problems, to support current civil engineering practice: 2) To analyse situations and problems critically, objectively and logically and postulate and implement realistic solutions, integrating knowledge and skills from a range of modules. 3) To analyse and evaluate information from a range of sources and communicate quantitative information effectively and objectively. 4) To research topics which relate to the theory and practice of civil engineering, relating it to current literature, engineering principles and experimental methodology as appropriate. 5) To bring a broad ethical perspective to the profession including environmental and social awareness. The following QAA benchmark requirements are included in these learning outcomes: ability to select and apply appropriate mathematical methods for modelling and analysing engineering problems, use of scientific principles in the development of engineering solutions to practical problems, use of scientific principles in the modelling and analysis of engineering systems; processes and products, ability to select and apply appropriate computer based methods for modelling and analysing engineering problems, analysis of systems and processes requiring engineering solutions, creation of new processes through synthesis of ideas from a wide range of sources, commercial risk evaluation, ability to produce solutions to problems through the application of engineering knowledge and understanding, ability to undertake technical risk evaluation.	These skills are developed through project work, seminar discussions and individual tutoring for example, the dissertation and project modules. Analytical and evaluation skills are developed by using projects based on real life development sites or case studies with client briefs. Students will consider spatial, structural and servicing design and management options to meet clients' requirements and discuss their conclusions with tutors or in peer groups. Tutors provide feedback on formative work (via oral tutoring or written feedback based on criteria) and in group seminars. Research skills are also developed in the Project and Dissertation modules. Interdisciplinary projects develop students' awareness of the different objectives and values of the built environment professionals and give students the opportunity to evaluate issues and roles in small peer groups. **Assessment** A variety of assessment methods are used which test intellectual skills including examination but the use of oral presentations, research and project reports will be particularly important.

C: Subject, Professional and Practical Skills

By the end of the programme, the student should be able:

1) To apply mathematical concepts and principles to the solution of engineering problems

2) Competently to use technical equipment (including surveying and laboratory equipment) in practical engineering activities.

3) To employ laboratory based experimental methods to enhance their understanding of engineering principles.

4) To apply a range a range of ICT tools to the solution of engineering problems.

5) To apply a range of design techniques.

6) To communicate effectively using engineering sketches and drawings.

7) To identify the need to manage and organise at both a business and operational level to achieve engineering objectives.

8)To identify the role of the professional engineer and consider the present and future role of the engineering profession, in particularly the incorporated engineer.

9) To demonstrate a clear appreciation of the health and safety responsibilities for a professional engineer working in industry.

10) To undertake safety and environmental risk assessments.

The following QAA benchmark requirements are included in the above:

skill in the use of appropriate mathematical methods for modelling and analysing discipline-specific engineering problems, use of relevant test and measurement equipment, experimental laboratory work, use of engineering IT tools (including programming languages where appropriate), design of a system; component or process, practical testing of design ideas in laboratory or through simulation with technical analysis and critical evaluation of results research for information to develop ideas further, ability to apply engineering techniques taking account of industrial and commercial constraints of project management.

Teaching/learning methods and strategies

A number of practical skills can be learnt by the study of syllabus topic material and the completion of formative activities supported by feedback from staff. These include the effective use and manipulation of numbers and physical quantities, interpretation of plans and drawing of three dimensional objects, the use of surveying equipment, the use of laboratory equipment and experimental method, the appropriate use of Information & Communication Technology, the requirements needed for work in a professional environment, the production and evaluation of viable design solutions to technological problems.

Computer aided analysis tools will be used extensively throughout the course. Analysis using spreadsheets will be taught in the level 1 module, Mechanics and Materials, and developed throughout the course.

In order to deal with the wide range of technical drawing and CAD skills (some part time students are highly skilled) first year students will be set course work requiring these skills construction & highways and offered optional tutorials. Staff have specific research interests in CAD.

Within project modules at levels 1 and 2, students will be required to use a range of communication tools including web servers. They will be offered workshop sessions to help them develop the required skills. These skills will include simple programming techniques in JavaScript and Visual Basic.

Assessment

The assessment of the use of equipment and the application of experimental method is undertaken through laboratory experimental practicals and reports. The assessment of management and organisation is by group work and the module Feasibility Study.

The other skills are assessed through essays, observations of skills' demonstrations, examinations under controlled conditions and oral presentations.

D: Transferable skills and other attributes

By the end of the programme, the student should be able:	Teaching/learning methods and strategies
1) To communicate information and ideas clearly and coherently and influence the views of others through written, graphical and oral means, 2) To practice negotiation, team working and motivation of others. 3) To undertake self-appraisal and reflection and formulate plans for continuing professional development. 4) To identify, access, research and interpret data and information required to undertake engineering analysis. 5) To apply a range a range of ICT tools to the solution of engineering problems. The following QAA benchmark requirements are included in the above: Manipulation and sorting of data, presentation of data in a variety of ways, use of scientific evidence based methods in the solution of problems, use of general IT tools, use of creativity and innovation in problem solving, working with limited or contradictory information, effective communication, life long learning, the engineering approach to the solution of problems, time and resource management, teamwork and leadership.	Principles of ICT will be taught within core modules. IT applications are used throughout the course embedded in the modules starting with engineering analysis. Computing teaching and tutorials takes place in labs with dedicated software applications many of which have been specifically written. People management skills and team working are taught in interactive seminars using indicators, role play and simulation as well as discussion to interpret outcomes. All Interdisciplinary and some other projects have an element of group research, negotiation and oral presentation, some to a cross-Faculty and external audience. Individual research and creative thinking is (individually tutored) which is developed through final year dissertation and project work. Data collecting involves statistical, questionnaire and interviewing methodology which is introduced through the Interprofessional project or Project (CE) and applied through dissertation and projects. **Assessment** Dissertation and project reports provide the opportunity to assess clarity of written presentation and ideas which is steadily more rigorous at each level. Assessed oral presentations and group work are used at all levels. Group team work is assessed in the group project and interdisciplinary modules. The use of general IT tools will be formally assessed in the module Materials and Mechanics and in the Project (CE)module. The use of IT will indirectly influence the quality of assessed work elsewhere but will not be used as a distinct assessment criteria.

Section 4: Programme structure

FIGURE 1: AWARD STRUCTURE DIAGRAM

BSc(Hons) CIVIL ENGINEERING

Recommended Routeway for Full-Time Students

YEAR 1

SEM 1	Engineering Maths 1 UFQEFH-20-1	Civil Engineering Construction & Highways UBCLBU-20-1	Civil Engineering Surveying UBCLBV-10-1	Process of Development UBIL75-10-1	Site Management & Contracts UBCLD4-20-2	Structures & Ground Engineering A UBCLCX-20-2	Materials & Mechanics UBCLDM-20-1
SEM 2							

YEAR 2

SEM 1	Structural Design UBCLCV-20-2	Structures & Ground Engineering B UBCLCY-20-2	Fluid Mechanics UBCLCL-20-2	Civil Engineering Management UBCL4Y-20-3	Environmental Assessment UBGLDH-10-3	Shared Elective	
SEM 2						Shared Elective	Inter-professional Development Project UBIL76-10-2

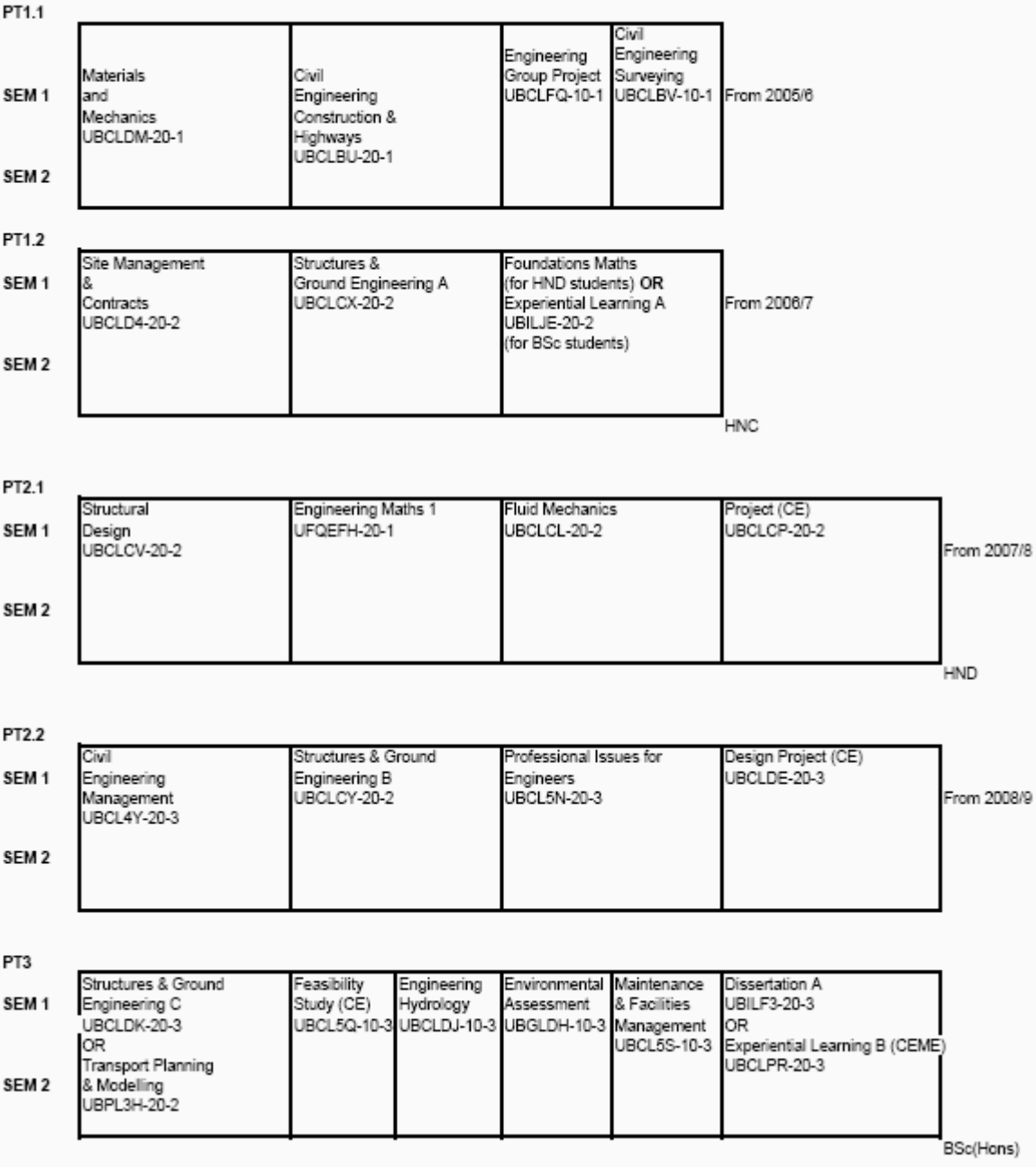
Sandwich Year recommended

YEAR 3

SEM 1	Structures and Ground Eng C UBCLDK-20-3 OR	Design Project UBCLDE-20-3	Engineering Hydrology UBCLDJ-10-3	Maintenance and Facilities Management UBCL5S-10-3	Dissertation A UBILF3-20-3	Professional Issues for Engineers UBCL5N-20-3	Feasibility Study (CE) UBCL5Q-10-3	Inter-disciplinary Issues UBIL4N-10-3
SEM 2	Transport Planning and Modelling UBPL3H-20-2							

Definitive - 2005-6 (for those starting in 1.1)

Recommended Routeway for Part Time Day Release Students



The programme is available to full-time students and to part-time students on a day release basis.

The course is designed as a BSc Honours degree, following practice now common and recommended for Incorporated Engineering programmes. Part-time students also have the option to exit with an HND in Civil Engineering (200 credits) after three years part-time study; or an HNC (120 credits) after two years.

Diagrams for the full-time programme and the options for part-time students are attached.

The programme develops over three years full time, four years sandwich or for part-time students, five years.

There is a strong project based learning element throughout the course beginning with the Materials and Mechanics module and either the Group Project or the Process of Development module at level 1. This continues with work associated with the field course in Structures and Ground Engineering B, Feasibility Study, Inter-professional Development Project, Design Project and the Environmental Assessment modules.

Health, Safety and Environment issues are covered in a range of modules at different level, namely:

Civil engineering construction & highways
Site management & contracts
Civil engineering management
Professional Issues for Engineers
Environmental Assessment

Full time Year 1 and part time Years 1.1 and 1.2
The modules provide a basis of theory and practice. Theory is introduced in Materials and Mechanics and Engineering Mathematics Practice is established within the Construction and Highways and Surveying modules. The design theme is introduced in Structures and Ground Engineering A and the management strand in the Site Management and Contracts modules.

Group project work begins in the Materials and Mechanics module. For Part time students there is a group project module in Year 1.2 while full time students have an opportunity to work with students from other disciplines in the inter-professional module Process of Development.
Materials and Mechanics has a significant IT element while technical drawing and CAD skills are assessed in Construction and Highways.

Full time Year 2
Year 2 strongly reinforces the design theme through the modules Structural Design, Structures and Ground Engineering B and Feasibility study. The management and inter-professional themes are also extended in the modules Civil Engineering Management and the Inter-professional Development Project.

Structures and Ground Engineering B includes a four day field course during which students complete a preliminary site investigation for a proposed road, port, tunnel and refinery complex.

Full time Year 3
Year 3 broadens the course outlook through the modules Engineering Hydrology, Environmental Assessment, Maintenance and Facilities Management, Professional Issues and Inter-displinary Issues. Students may also specialise in structure or transport by selecting from Structures and Ground Engineering (C) or Transport Planning and Modelling. The design project focuses on the systems rather than components and includes an individual design project. Research and investigation skills are developed further through the dissertation.

Part-time Year 2.1
This has a strong design element through three modules. The first is Structural Design, which focuses on structural elements. The second is Structures & Ground Engineering B which deals with the analysis of determinate structures, engineering geology and some 2D stress analysis. The third is Fluid Mechanics. Research, communication and ICT skills are developed in the Project (C.E.) module.

Part-time Year 2.2
Students may choose either Structures and Ground Engineering (C) or Transport Planning and Modelling. The design theme culminates in the design project which focuses on the systems rather than components and includes and an individual design project.Environmental issues are introduced in the Engineering Hydrology, and Environmental Assessment module. The business context is covered in the Experiential Learning module.

Part-time Year 3.0
Professional and environmental issues are covered in Feasibility Study, Maintenance and Facilities Management, Professional Issues. The design theme is continued in the Feasibility Study. Research and investigation skills are developed further through the dissertation. The business context is extended by the modules Civil Engineering Management and Experiential Learning modules.

Students progress through the award subject to pre and co-requisite requirements.

Core modules

Level 1
UBCLBU-20-1: Civil Engineering Construction & Highways (20)
UBCLBV-10-1: Civil Engineering Surveying (10)
UFQEFH-20-1: Engineering Maths 1 (20)
UBCLDM-20-1: Materials and Mechanics (20)
Level 2
UBCLCL-20-2: Fluid Mechanics (20)
UBCLD4-20-2: Site Management and Contracts (20)
UBCLCV-20-2: Structural Design (20)
UBCLCX-20-2: Structures and Ground Engineering A (20)
UBCLCY-20-2: Structures and Ground Engineering B (20)
Level 3
UBCL4Y-20-3: Civil Engineering Management (20)
UBCLDE-20-3: Design Project (CE) (20)
UBCLDJ-10-3: Engineering Hydrology (10)
UBGLDH-10-3: Environmental Assessment (10)
UBCL5Q-10-3: Feasibility Study (CE) (10)
UBCL5S-10-3: Maintenance & Facilities Management (10)
UBCL5N-20-3: Professional Issues for Engineers (20)

Optional modules

Students must take 10 credits from the following modules:
UBCLFQ-10-1: Engineering Group Project (10)
UBIL75-10-1: The Process of Development (10)
Students must take 60 credits from the following modules. NOTE Experiential modules and Project (CE) can only be taken by students in relevant employment.
20 Credits Shared Electives
UBILF3-20-3: Dissertation A (20)
UBCLPR-20-3: Experiential Learning B (CEME) (20)
UBIL76-10-2: Inter-professional: Development Project (10)
UBIL4N-10-3: Interdisciplinary Issues (10)
UBCLCP-20-2: Project (CE) (20)
Students must take one of the following modules:
UBCLDK-20-3: Structures and Ground Engineering C (20)
UBPL3H-20-2: Transport Planning and Modelling (20)
Students must do one of the following modules. Students entering without A-level Maths (including Calculus) or equivalent must do the Foundation Maths module. Students with A-level Maths or equivalent will normally take Experiential Learning A.
UBILPQ-20-3: Experiential Learning A (Professional) (20)
UFQEFA-20-0: Foundation Mathematics: Calculus (20)

Placement

120 P credits
Placements

Target Award

BSc (Hons)/HND Civil Engineering

360 credits of which at least 100 must be at level 3 or above, a further 100 credits at level 2 or above and a further 140 at level 1 or above.

Default Award

Interim Awards

BSc Built and Natural Environments

300 credits with 60 credits at level 3, a further 100 credits at level 2 or above and a further 120 credits at level 1 or above

DipHE/Cert HE Civil Engineering (Full-time students)

Respectively:
240 credits with at least 100 at level 2 and a further 120 at level 1; 120 credits with at least 100 at level 1

HNC Civil Engineering (PT students)

120 credits with 100 credits at level 1 or above

HND Civil Engineering (Part-time students)

200 credits with 100 credits at level 2 or above and a further 100 credits at level 1 or above;

Section 5: Entry requirements

Award Specific Admissions Requirements

All applicants for entry to the first year of the full time programme must have A-levels in Mathematics or Physics or an AS in both Mathematics and Physics. Additionally they must meet the 'UK-SPEC' requirements for IEng accredited programmes.

Candidates will be admitted into PT1.1 with:
· National Certificate in Construction or Civil Engineering or equivalent
· Advanced GNVQ in Engineering

Candidates will be admitted into PT2.1 with:
· Higher National Certificate (HNC) in Civil Engineering (or equivalent) with at least 4 merits

Candidates will be admitted to PT2.2 with:
· Higher National Diploma (HND) in Civil Engineering (or equivalent) with at least 4 merits

See also the Standard faculty entry requirements apply.

Section 6: Assessment Regulations

The Undergraduate Modular Scheme assessment strategy is set out in Volume 1 of the documentation. Details of the assessment of individual modules are shown in the module specifications.

For Edexcel programmes, modules are graded pass/merit distinction as follows:

70+ Distinction
55-69 Merit
40-54 Pass

In addition the placement and common skills are assessed as set out in Volume 1 of the UG Modular Scheme documentation.

Standard skills assessment of EdExcel courses applies.

Section 7: Student learning: distinctive features and support

1. Links with Industry

The award benefits from close links with local industry including:
* The scope to undertake a placement year
* Input from local professional engineers as visiting lecturers
* Student visits and field courses to examine engineering practice
* Real life projects to be investigated by students in the 'Feasibility Study' module
* Industrial input into the Experiential modules since all students are in employment at civil engineering practices

2. Underpinned by staff consultancy. research and professional practice

Staff responsible for the teaching of structures, services and management subjects have an established research and consultancy base. This allows them to bring latest issues into the syllabus.

3. Inter-professional understanding

Full-time students study one inter-professional module in each year of their programme which requires them to work with students on other built environment professional courses. This encourages students to work in teams to understand the different objective and value systems they bring to their profession.

4. Student choice

Students may select an option which further develops their understanding of structures and ground engineering or they may choose to take an alternative module in transport planning and modelling.

Full time students must select 20 credits from a group of Faculty electives, including languages, computer modelling, GIS, media presentation and many others.

5. Experiential modules

Students in relevant employment may complete a project based on their learning at work.

6. Part-time day release routeway

The programme may be studied over five years part-time day release, four years sandwich or three years full-time. Students may elect to transfer between full and part-time modes of study.

Section 8: Reference points/benchmarks

1. The programme draws on the benchmark statements in Engineering.

Details are set out in the learing outcomes set out above.
2. The programme is underpinned by staff consultancy, professional practice and research

3. Professional body requirements
The programme (both full and part-time routeways) is accredited by the Joint Board of Moderators.

4. Employer feedback
The course team have excellent links with local employers who advise the course team on the content and structure of the programme.

5. Faculty and University policies on teaching, learning and assessment including a strong emphasis on formative work, skills development and innovative approaches to teaching and learning.