BACHELOR OF ENGINEERING (HONOURS) IN CIVIL ENGINEERING (TOP UP) BY BIRMINGHAM CITY UNIVERSITY

BIRMINGHAM CITY University

Course Specification

Course Summary Information		
1.	Course Title	BEng (Hons) Civil Engineering (Top Up)
2.	Awarding Institution	Birmingham City University

Course Description

Want to become a Civil Engineer?

Study our Civil Engineering BEng (Hons) Top Up awarded by Birmingham City University at Global School of Technology and Management. Students are directly enter to Final Year of the honours degree programme.

This course, designed to meet the requirements of relevant professional bodies, will give your career in civil engineering a head start. Much of your learning activity will be hands-on, with access to our strong industry links.

You'll also be provided with the latest software such as PLAXIS, ANSYS, etc meaning you'll be well equipped to make an impact in an important industry. You will study in a unique simulated workplace environment. This experience, and our outstanding industry links, will give you a competitive edge, enabling you to progress to a successful career when you graduate.

What's covered in the course?

You'll be provided with knowledge of the scientific, technical, environmental, economic, and managerial aspects of civil engineering, so that you will be able to apply yourself to both the design and management of civil engineering projects. You will also develop the key transferable

skills that modern employers require, such as problem solving, project planning, presentation and communication. Our strong links to industry enable you to apply your learning to problem-based scenarios, ensuring your intellectual and practical competencies are fully developed.

Civil Engineers design and construct anything from buildings and bridges, to dams, power stations, and motorways. This course will prepare you to work on these projects. You will focus on structures, materials, geotechnics, and hydraulics, and your studies will be enhanced with site visits, field trips, and guest lectures.

Course Awards		
Name of Final Awards	**Level**	**Credit Awarded**
Bachelor of Engineering with Honours Civil Engineering	6	120
Exit Awards and Credits Awarded		
Bachelor of Engineering Civil Engineering	6	80

Delivery Pattern	
Mode of Study	**Duration of the course**
Full Time	12 months
Part Time	15 months

Course Learning Outcomes

1. Apply scientific principles, theories, and design processes and methods that underpin civil engineering and its branches (structural, geotechnical, water, and transportation).
2. Apply analytical, numerical, and computational techniques used to model, simulate, design, and develop solutions to civil engineering problems.
3. Use and critically appraise business, organisational, teamwork, and management practices in industries based on civil engineering.
4. Develop innovative designs and solutions based on a broad range of scientific principles in order to meet a specification, while taking into account commercial risks and constraints, legal, contractual, and ethical issues, as well as environmental impact and Health and Safety issues.
5. Argue rationally and draw independent conclusions based on a rigorous, analytical, and critical approach.
6. Critically appraise the usefulness of new technologies and the changes in civil engineering practice.

7. Develop innovative designs and solutions based on a broad range of scientific principles in order to meet a specification, while taking into account commercial risks and constraints, contractual issues, and environmental impact.
8. Design and propose solutions to civil engineering problems critically appraising the output of analytical and/or numerical modelling.
9. Demonstrate practical engineering skills in the use appropriate laboratory and workshop equipment, following appropriate Health & Safety guidelines.
10. Use digital technology for the modelling, analysis, and design of civil engineering projects, recognising their limitations and being aware of the directions for future development.
11. Apply industry Codes of Practice, including national and international standards, as well as the relevant Health & Safety regulation.
12. Evaluate the output of primary and secondary research methods, using a wide range of sources of information and appropriate methodologies in the management of engineering projects taking into account a range of commercial and industrial constraints
13. Participate effectively in group working activities in a leadership role, being able to undertake most of the technical functions within the group and managing the delivery of a plan under changing circumstances in a timely fashion.
14. Integrate a wide range of data from a variety of sources in order to solve a range of engineering problems, apply knowledge and understanding to challenging situations, while being aware of the limitations of the solution.
15. Make effective use of information and communications technologies, including use of the internet, standard office applications, and a range of civil engineering-specific software packages.
16. Plan innovative approaches making appropriate use of numerical and statistical information in order to develop a deeper understanding and/or have greater impact, including research into new methods for novel situations.

Course Requirements

In order to complete this course, a student must successfully complete all the following CORE modules (totaling 120 credits):

Module Code	Module Name	Credit Value
BNV6131	Hydraulics and Drainage	20
BNV6132	Geotechnical Engineering	20
BNV6135	Structures 2	20
BNV6134	Advanced Analysis and Design Methods	20
BNV6200	Individual Honours Project	40

Programme Synopsis

BNV6131 Hydraulics and Drainage

In accordance with the programme philosophy and aims, this module has been designed to enable learners to use problem-based learning to understand the theories and applications of hydraulics in civil engineering, including flow of fluids and theories relating to pumps, many demonstrated through laboratory experiments. Theories are then practically applied drainage system design.

The module follows the Civil Engineering programme philosophy of developing your intellectual and practical competence in technical, economic, theoretical and environmental aspects of civil engineering. Similarly the learning and teaching philosophy incorporates learning through formal lectures including presentations, seminars, tutorials, hands-on experience, learning sets and problem based scenarios. Learning is practice-based and knowledge applied including project based activities.

Learning activities will incorporate formative assessment including work-related learning and problem solving, in-class tasks, seminar work and learning sets. The assessment outline section below details assessment for this module by way of an end examination.

Practical work within this module includes practical demonstrations, seminar, laboratory and tutorial work, use of ICT as a visual tool and problem-based scenarios. You are encouraged to plan their own work schedules, manage their time and extend their presentational skills.

BNV6132 Geotechnical Engineering

In accordance with the programme philosophy and aims, this module has been designed to enable you to use problem-based learning to understand theories of geotechnics and their application to design and construction of civil engineering projects. It will enhance their knowledge and ability to work in teams and lead teams including the aptitude to work independently and understand the importance of being a reflective and innovative professional.

The module present the core fundamental of ground foundations, techniques of soil investigation, retaining wall structures, dynamics analysis and design of machine foundation and slope stability. These also bring the learning and understanding of core concepts soil mechanics and geotechnical structures with the emphasis of soil phases, phase relationships and inter-relationships. The

learning and teaching philosophy incorporates learning through formal lectures including, seminars, tutorials, hands-on experience, software application learning sets, problem based scenarios, and visits to exhibitions when appropriate.

Learning activities will incorporate formative assessment including work-related learning and problem solving, in-class tasks and seminar work. The assessment outline section below details assessment for this module by way of end examinations.

Practical work within this module includes practical demonstrations, seminars, laboratory and tutorial work, use of ICT as a visual tool, problem-based scenarios and group project work.

BNV6135 Structures 2

In accordance with the programme philosophy and aims, this module has been designed to enable students to use problem-based learning to understand the Structural Design process and relate it to information previously learned in Structures 1 and Civil Engineering Materials.

The module covers both analytical and numerical modelling of structures in order to provide the background for the students to produce the structural design of a small building. The effect of loading combinations is addressed utilising the approach specified in British Standards and European Norms. Aspects of analytical modelling are considered for structural design to the Eurocodes, utilising the UK National Annexes, for the common structural materials. Numerical aspects are covered via the Finite Element Method (FEM) and related software.

Learning activities incorporate formative assessment including problem solving, in-class tasks, and seminar work. The assessment outline section below details assessment for this module by way of coursework.

Practical work within this module includes use of ICT as a visual tool, problem-based scenarios and group work. Students are encouraged to plan their own work schedules, manage their time and extend their presentational skills.

BNV6134 Advanced Analysis and Design Methods

In accordance with the programme philosophy and aims, this module has been designed to enable students to use problem-based learning to understand the philosophy and application of a range of advanced methods employed in the analysis and design of Civil Engineering projects.

The module follows the Civil Engineering programme philosophy of developing the intellectual and practical competence of students in technical, economic, theoretical and environmental aspects of civil engineering. Similarly the learning and teaching philosophy incorporates learning through formal lectures, seminars, tutorials, and problem-based scenarios, backed up by guest speakers when appropriate.

Learning activities incorporate formative assessment including work-related learning and problem solving, in-class tasks, and seminar work. The assessment outline section below details assessment for this module by way of coursework.

Practical work within this module includes practical demonstrations, seminar, and tutorial work, use of ICT as a visual tool, problem-based scenarios and group work. Students are encourage to plan their own work schedules, manage their time and extend their presentational skills.

BNV6200 Individual Honours Project

The purpose of the module is to enable you to undertake a sustained, in-depth and research-informed project exploring an area that is of personal interest to you. In agreement with your supervisor, you will decide upon your topic which will take the form of a practical outcome (artefact) with accompanying contextual material. The main consideration when choosing your topic is that it must be aligned to the programme you are studying, and you should consider the relevance of this topic to your future academic or professional development.

At this level, you will be expected to work independently but you will receive additional one-to-one support from your supervisor, who will be familiar with your chosen topic area. As you progress on the module, extra support will be available and this may take the form of group seminars, workshops and online materials that will help to develop your project.

This module is an opportunity for you to develop not only academically, but it will also help you to acquire life-long skills and attributes that identify you as a graduate of BCU. These include being

a creative problem solver, entrepreneurial, professional and work ready, and having a global outlook. In the context of technology-related industries, this means:

- developing an ability to create work which demonstrates an awareness of professional standards relevant to your discipline;
- gaining an understanding of successful project planning, which may include budget, time management and other relevant constraints;
- being innovative, experimental and pushing the boundaries of your knowledge;
- being able to self-evaluate and reflect critically on your work, placing it within the context of relevant debates within your chosen medium.

For the purposes of the project, the exact nature of the artefact you create will be agreed in discussion with your supervisor to ensure its relevance to your subject discipline.

Relationship with Programme philosophy and learning outcomes

The project supports many of the programme aims in providing a range of skills needed to develop innovative solutions, strategies and ideas now and in the future. Often the project will relate directly to your career and will provide a vehicle for enhancing your professional skills and understanding of the wider issues facing practitioners in your field.

Overall Student Workload and Balance of Assessment

Overall student *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+,peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

Workload

30% time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	324
Directed Learning	212
Private Study	664
Total Hours	1200

Balance of Assessment

Assessment Mode	Percentage
Coursework	60%
Exam	40%
In-Person	3%