

## Nottingham Trent University Course Specification

<b>Basic Course Information</b>		
1.	Awarding Institution:	Nottingham Trent University
2.	School/Campus:	Architecture, Design and the Built Environment
3.	Final Award, Course Title and Modes of Study:	BEng (Hons) Civil Engineering Sandwich or Full Time
4.	Normal Duration:	Sandwich 4 years, Full Time 3 years
5.	UCAS Code:	H200 / H203

<b>6.</b>	<b>Overview and general educational aims of the course</b>	<p>This degree course exposes you to the exciting and rapidly expanding world of civil engineering construction, preparing you to take on the challenges of developing and maintaining the infrastructure required by the world at large. Civil engineering offers a rewarding and varied career where you can make a positive difference to the world in which we all live. Remember that without the infrastructure provided, developed and maintained by civil engineers the world as we know it today would not exist.</p> <p>The course has design and project work at its heart looking at creativity and innovation within the engineering context and uses these vehicles to develop together a deep understanding of the engineering principles and practice of civil engineering.</p> <p>The course has a strong vocational nature that is supported for students following the sandwich route by an acclaimed salaried supervised year in industry between the second and final academic years. The final academic year of the course builds on the engineering principles covered in the first two years of the course utilising construction and design projects as well as exploring the business and professional ethics side of the civil engineering industry.</p> <p>The course is recognised by the Institution of Civil Engineers (ICE), the Institution of Structural Engineers (IStructE), the Chartered Institution of Highways &amp; Transportation (CIHT), the Institute of Highway Engineers (IHE) and the Chartered Institution of Engineering Surveyors (CInstCES) and leads towards Chartered Engineer (CEng) status.</p> <p>In summary, the course aims to:</p> <ul style="list-style-type: none"> <li>• Encourage students to achieve and surpass their expectations on the most appropriate course through dedicated tutorial and pastoral support.</li> <li>• Equip students with the skills required to be valued member of the civil engineering profession directly upon graduation.</li> <li>• Provide an academically rigorous, professionally accredited, course of study that prepares students for wider graduate employment and equips them for life long learning.</li> </ul>
<b>7.</b>	<b>Course outcomes</b>	Course outcomes describe what you should know and be able to do by the end of your course if you take advantage of the opportunities for learning that we provide.
	<b>Knowledge and understanding</b>	By the end of the course you should be able to:
		<ul style="list-style-type: none"> <li>• Demonstrate deep knowledge and understanding of the key facts, concepts, theories and engineering and scientific principles that underpin civil engineering and potential future developments and technologies(B)</li> </ul>

- Apply engineering principles (including analysis, design and evaluation) to solve practical engineering problems (B)
- Apply mathematical methods, tools and notations proficiently to analyse and solve of civil engineering problems (B)
- Relate civil engineering to the wider global context considering social, environmental and ethical issues with an awareness of the legal framework (B)
- Recognise the important role civil engineering has in the commercial and economic market place (B)
- Demonstrate the requirement for civil engineering activities to promote sustainable development (B)
- Convey a comprehensive awareness of the realm and context of design within the built environment and of the different customs and practices within the interrelated disciplines.

**(B)** = indicates those outcomes that have been informed by the [QAA Engineering \(2015\) Benchmark Statement and the Engineering Council Accreditation of Higher Education Programmes 3<sup>rd</sup> Edition.](#)

### **Skills, qualities and attributes**

By the end of the course you should be able to:

- Use creativity to establish and develop innovative solutions to engineering problems (B)
- Design civil engineering solutions that are fit for purpose whilst recognising the importance of aesthetics and the clients needs (B)
- Investigate and define a project brief identifying environmental, sustainability, health and safety and risk issues (B)
- Demonstrate a proficiency in the use of key technology, software, materials, standards and codes of practice related to the civil engineering industry (B)
- Manage and develop the design process and evaluate solutions (B)
- Work effectively, both independently and within teams, with intellectual curiosity whilst also demonstrating a capacity to manage others (B)
- Prepare and give technical reports and presentations proficiently in both the oral and written form
- Demonstrate a range of transferable skills that will be of value in the world of work
- Communicate clearly and effectively at different levels and with different parties involved in the design process within the built environment.

**(B)** = indicates those outcomes that have been informed by the [QAA Engineering \(2015\) Benchmark Statement and the Engineering Council Accreditation of Higher Education Programmes 3<sup>rd</sup> Edition.](#)

## **8. Teaching and Learning Methods**

A range of teaching and learning methods are used across the course and the particular method used for each module will depend upon the key learning outcomes of that module and the type of subject material being dealt with.

Staff/student contact will include: individual and group seminars/tutorials, lectures, laboratory/practical sessions, interdisciplinary design projects, cross-year and cross-subject projects, residential field courses, site visits, individual research and research supported by staff in other Schools/disciplines. Formal contact is supplemented by individual 1-to-1 Personal Academic Tutorials where students can

be supported on a more individual basis with issues that may lie outside of the main course curriculum.

A number of the modules at first and final year are project based with the aim of integrating technology with design and this will involve both individual and group work that is supplemented by focussed supporting subject lectures and seminar sessions. Other modules that are designed to convey the core subject discipline material are lecture/seminar focussed and supported by laboratory, computer, studio and field practical sessions to integrate the theory and practice elements. This mix of learning and teaching styles leads to a more thorough understanding of the subject and the development of associated practical skills.

Team work is fundamental to civil engineering. Modules in all years contain teamwork elements and the final year design projects require extensive collaborative team activity. Analysis and problem solving skills are developed throughout the course.

The development of your independent learning skills will culminate in the undertaking of the final year individual project. This involves you working on a topic that you choose in consultation with your project supervisor who will provide support and guidance throughout the year.

The university runs an online resource to support teaching and learning, called the Nottingham On-line Web-space or NOW. All modules are represented on the NOW and most use it to provide you with supporting material associated with the module. Our aim is to support your development into an autonomous independent learner.

#### **9. Assessment Methods**

A variety of assessment methods are used across the course depending upon the particular learning outcomes being assessed; these range from assignments where practical skills have to be demonstrated through to formal reports, essays, examinations or a combination of these styles that assess the core subject material.

Projects assess an important range of skills relevant to the world of work, including technical and numerical skills, command of relevant software, technical skills presentations skills, team working, leadership and time and resource management. This is especially true of the final year Group Design Project and Individual Project.

As well as formal assessments, the course incorporates formative and diagnostic assessments – through these staff will provide you with more informal encouragement and feedback on your progress and development.

Some assessments may be synoptic or overarching, in that one piece of work may cover the requirements of more than one module. This will be used in particular where the nature of a particular civil engineering challenge is multi-faceted in character, which of course, is true of much work in practice. It should be noted that some tasks/learning on this course may require attendance and engagement as part of the assessment criteria.

Whilst much of the work is undertaken on an individual basis, a number of assignments and projects may be undertaken on a group basis. The course team regard this aspect of learning and the student experience to be of fundamental importance to the personal development of aspiring professional civil engineers.

#### **10. Course structure and curriculum**

The course is studied on either a sandwich (normal route – 4 years) or on a full-time (3 years) basis. The first two academic years of theory and simulated practice are,

on the sandwich route, consolidated by a paid placement of 9 months or more within the civil engineering industry, on the full-time route you will progress directly into the final academic year.

The course is designed around the core themes of the professional accrediting bodies and the modules you study are designed to develop both your general understanding of civil engineering in its broadest context as well as focusing on the key core subject areas (geotechnics, materials and structures). Civil engineering design in its broadest sense plays a significant role within the course at all levels and integrates many of the separate disciplines that form the subject area. The course also aims to develop your key skills and to produce highly attractive, creative, competent young graduate engineers.

In year 1 (NQF 4) you will be introduced to civil engineering through the Civil Engineering Design Projects module. This module is intended to integrate a number of civil engineering disciplines through project work that is supported by key focus lecture/seminar sessions. The module will draw upon core material delivered in the four other year 1 modules together with developing knowledge and skills in construction, architectural/building technology, CAD, health & safety, the environment and communication skills. The project essence of this module is strongly supported by the Engineering Surveying module that incorporates a week long residential surveying field course where the practical surveying skills required by the construction industry along with teamwork and management skills will be developed. Mathematics as an underpinning science of engineering is developed and you are also introduced to the key materials used in the construction industry and their properties.

Year 2 (NQF 5) builds upon your year 1 studies but with more focus on the traditional civil engineering disciplines and will introduce hydraulics, ground engineering and construction practice whilst maintaining an element of project work in the Integration of Engineering Applications module - *nominally this may involve working on an Engineers without Borders challenge* project which highlights international aspects of the industry.

The Final Year (NQF 6) explores the professional morals and ethics side of the side of the construction industry and allows you to develop an area of personal civil engineering interest through both an Individual Project. Further aspects of structural engineering in terms of the Euro-codes for structural design will be introduced as well as the environment and sustainability themes being developed.

Successful completion of the placement period is necessary for you to gain the sandwich award. In addition you may be eligible for the award of a Placement Diploma in Professional Practice based upon this placement period together with a report detailing the work undertaken by you and evaluating your part in the overall company context. This placement period can also be counted towards your personal objectives in terms of working towards gaining the professional qualification of Chartered Engineer (CEng).

**Modules studied:**

**Year 1, Level 4**

Civil Engineering Design Projects	40 cps
Engineering Materials	20 cps
Engineering Mathematics & Mechanics	20 cps
Engineering Surveying	20 cps
Introduction to Structural Analysis & Design	20 cps
<b>Total</b>	<b>120 cps</b>

**Year 2, Level 5**

Construction Practice & The Environment	20 cps
Ground Engineering	20 cps
Further Engineering Mathematics & Fluid Mechanics	20 cps
Integration of Engineering Applications	20 cps
Structural Analysis, Design & Detailing	40 cps
<b>Total</b>	<b>120 cps</b>

**Work Placement (year 3) Industrial Placement period for Sandwich students  
Diploma/Certificate of Professional Practice**

Working in conjunction with the work placement office, you are assisted in identifying appropriate work placement opportunities which are then secured through a process of application and competitive interview. In order to qualify for the Diploma of Professional Practice you will normally have:

- Completed 36 weeks (minimum requirement) of Professional Practice Placement with an approved organisation.
- Received a satisfactory report from the employer.
- Successfully completed the Professional Practice logbook / presentation.

A Certificate in Professional Practice is available for the successful completion of shorter periods of placement work experience (a minimum of 10 weeks).

*NOTE: A Sandwich award will not be conferred with a Certificate in Professional Practice*

Further information regarding the placement learning framework can be found by visiting the Placement Information area of the NOW Workspace.

**Final Year, Level 6**

Individual with Group Project	40 cps
Infrastructure Engineering 1	20 cps
Further Structural Design	20 cps
Further Geotechnical Engineering & Design	20 cps
Professional Responsibilities & Development in Civil Engineering	20 cps
<b>Total</b>	<b>120 cps</b>

**Overall Total****360 cps****11. Admission to the course**

Applicants to the course need a technically enquiring mind, to enjoy problem solving and possess an ability to approach any problem with an open mind. They should be 'team players' who can develop the ability to communicate clearly in a technical environment. They need to be prepared to follow an active, varied and exciting career, dealing with projects that are often worth many millions of pounds. A desire to enhance the built environment in a sustainable manner is also a key quality.

**UCAS points**

For admission to the course, applicants need a minimum of 120 UCAS Tariff points from three A-levels. This must include A-level Mathematics grade C or above.

**Note**

- Those applicants with a BTEC National Diploma in an Engineering subject (18 Units not including early years) must have achieved - Grade Distinction and grade Distinction and grade Merit. In addition applicants must gain a Merit in both the Mathematics for Technicians AND Further Mathematics for Technicians units.

- All applicants are required to have GCSE maths at grade C or above and GCSE English at grade C or above (literature and language).

Please note we do not accept A-level General Studies or ACCESS based qualifications as part for the points score for this particular course. Certain extension studies to AS standard may however be accepted.

### **Non UK applicants**

Competence in written and spoken English is essential. Applicants from overseas thus need to have a minimum score of IELTS 6.5 with minimum of 5.5, in reading, listening, speaking and writing, unless their previous studies were undertaken in English.

A full list of all English language qualifications accepted by the University is available on our website [www.ntu.ac.uk/englishlanguage](http://www.ntu.ac.uk/englishlanguage).

**Please note applications are welcomed from students without these normal qualifications.** In addition students may be considered for entry beyond the beginning of the course if they possess appropriate prior qualifications or experience. If applying through this route you will need to provide a portfolio of supporting evidence which will be assessed against the course level learning outcomes and also to attend an interview with the Admissions Tutor.

Students from the Nottingham Trent University BSc (Hons) Civil Engineering course are eligible to be considered for entry directly onto the second year of the BEng course if they gain an overall first year aggregate mark of 60%, including at least 65% in Mathematics and with no failed modules. Students transferring by this route will be required to undertake bridging studies in the area of Structural Mechanics and Maths to demonstrate competency in the level 4 BEng course outcomes.

Selection is by application form, open days and, where appropriate, interview. All applicants are invited to attend open days

There is an entry profile available on the UCAS website. The entry profile will give you more information about the course. It provides further details about entry qualifications, selection criteria and desirable personal characteristics.

Competence in written and spoken English is essential. Applicants from overseas need to have a minimum score of either IELTS 6.5 (with minimum of 5.5 in reading, listening, speaking and writing) and for TOEFL (IBT) 83 (with minimum reading:18, listening: 17, speaking: 20, writing: 17) unless their previous studies were undertaken in English. A full list of all English language qualifications accepted by the University is available on our website [www.ntu.ac.uk/englishlanguage](http://www.ntu.ac.uk/englishlanguage).

### **Direct entry from Partner Institutions with advanced standing Agreements**

Applications for direct entry to the second or third year of the course will be considered from suitably qualified candidates at a partner institution with which the School of Architecture, Design and the Built Environment has signed an agreement for advanced standing provision. Candidates must have successfully completed two or three years of appropriate prior study (minimum average mark of 70%) and be able to evidence English language standards to a score of IELTS 6.5 (or its equivalent).

## **12. Support for Learning**

There is an induction course at the start of Year 1 and for students entering directly into other years (including IT and library use) and you will receive a course handbook that provides all the essential information about the course and the support we

provide for your learning. Returning students will receive refresher induction at the start of both Year 2 and the Final Year.

The academic staff teaching on the course are active within their professional fields and are supported by external practising engineers who provide guest lectures and project support.

The course leader, assisted by year tutors, oversees all students enrolled on the course and the Course Team will monitor your progress on an individual basis. All staff operate an 'open door' policy and you are always welcome to call in for help and advice.

A Placement Team will assist you to find an industrial placement with a suitable company and provide detailed appropriate Health & Safety training. The Placement Team will also closely monitor your progress during your year of industrial placement.

The library and other learning resources (equipment/plant/IT/laboratory provision) are continually updated to ensure they are fit for purpose.

The University central Student Support Services offers a range of general, specialist and professional support services for students. [Student Support Services](#).

### **13. Graduate destinations / employability**

Gaining this award will open up the wide range of career opportunities that exist in civil engineering and related industries. The construction industry is at the heart of society and civil engineering graduates are potentially more likely than most other graduates to find employment directly upon graduation. Opportunities for career development exist worldwide with many civil engineering companies working on an international basis.

The civil engineering courses at Nottingham Trent University have an enviable graduate recruitment record with graduates working for many of the major UK contractors and consultants. If you chose to work in the areas related to the subject discipline studied, we have a near 100% graduate employment record. Top UK companies return year on year to employ both placement students and graduates on very attractive starting salaries.

Some graduates choose to venture into other sectors and are equally successful in gaining employment because of the transferable skills gained on their course. Other graduates continue in academia and go on to study for higher degrees.

The University's Careers Service is available to all students, offering individual consultation.

### **14. Course standards and quality**

- Student Representatives are members of the course committee which also monitors student feedback on module delivery.
- You will be given detailed feedback on all assessed work.
- The course is overseen by an External Examiner, who submits an annual report on the standards and quality of the course.
- The Civil Engineering team has a longstanding and active relationship with various sectors of the construction industry. This group of senior civil engineers from the public and private sectors (some of whom are alumni) provide ideas, feedback and assistance in what we teach, the way we run courses and employment related issues.

- The Joint Board of Moderators of the Institution of Civil Engineers (ICE), Institution of Structural Engineers (IStructE), Chartered Institution of Highways & Transportation (CIHT), Institute of Highway Engineers (IHE) and Chartered Institution of Civil Engineering Surveyors (CInstCES) accredit the course: Further details are here: [www.jbm.org.uk](http://www.jbm.org.uk) .
- The Engineering subject benchmarks of the Quality Assurance Agency & UK-SPEC through AHEP have been incorporated into the course learning outcomes.

**15. Assessment regulations**

This course is subject to the University's Common Assessment Regulations (located in its [Academic Standards and Quality Handbook](#)). Any course specific assessment features are described below:

Due to the requirements of the Professional Bodies that accredit this course a maximum of 20 credit points only can be considered for compensation by the Examination Board.

You need to obtain 360 CPs (120 CPs at each level) to obtain the honours degree award. Students who do not obtain 360 credit points may be eligible for one of the following awards:

- Certificate of Higher Education – 120CPs at Level 4;
- Diploma of Higher Education – 120CPs at Level 4 and 120CPs at Level 5;
- Ordinary degree – 120CPs at Level 4, 120CPs at Level 5, and 60 CPs at Level 6.

Your final degree classification will be based on an aggregate of your year two mark (20%) and your final year mark (80%).

**16. Additional Information**

Collaborative partner(s):

Course referenced to national QAA

Benchmark Statements:

Course recognised by:

Date implemented:

Engineering; UK-SPEC AHEP

ICE, IStructE, IHE, CIHT & CInstCES

1 September 2006; revised June 2007;

revised March 2012, Implemented

September 2012; revised Dec 2014 (v3);

revised June 2017 (v4)

Any additional information: