HNC in Civil Engineering

Programme Specification
<table>
<thead>
<tr>
<th>Awarding Body:</th>
<th>Edexcel (BTEC)</th>
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</thead>
<tbody>
<tr>
<td>Teaching Institution:</td>
<td>South and City College Birmingham</td>
</tr>
<tr>
<td>Final Award:</td>
<td>Edexcel BTEC Level 4 Diploma HNC Construction and the Built Environment (Civil Engineering)</td>
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<td></td>
<td>HNC in Civil Engineering</td>
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<td>Programme Title:</td>
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<tr>
<td>Mode of Study:</td>
<td>Full time</td>
</tr>
<tr>
<td>Language of Study:</td>
<td>English</td>
</tr>
<tr>
<td>UCAS Code:</td>
<td>N/A</td>
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</tbody>
</table>
Introduction

The HNC in Civil Engineering is a 2 year part time course which aims to prepare and equip students with knowledge and skills when working within the Civil Engineering Industry. The Edexcel BTEC HNC in Civil Engineering is a highly regarded, nationally and internationally recognised, undergraduate level programme, equivalent to the first year of a university degree course. The course is Level 4 on the National Qualifications Framework and has been designed to equip you with knowledge, understanding and skills for employment in such fields as management within the Civil Engineering Industry. The qualification provides a thorough grounding in the key concepts and practical skills required in their sector and their national recognition by employers allows progression direct into employment. BTEC Higher Nationals offer a strong emphasis on practical skills development alongside the development of requisite knowledge and understanding in their sector. Learners are attracted to this strong vocational programme of study that meets their individual progression needs whether this is into employment or to further study on degree or professional courses.

Aims of the Programme

The HNC Civil Engineering aims to:

• Provide education and training for a range of careers in the civil engineering sector
• Provide opportunities for part-time learners to gain a nationally recognised vocationally specific qualification to enter employment in the Civil Engineering sector or progress to higher education vocational qualifications such as a full-time degree in Civil Engineering.
• Develop the knowledge, understanding and skills of learners in the field of Civil Engineering
• Provide opportunities for learners to focus on the development of higher level skills in an Civil Engineering context
• Providing opportunities for learners to develop a range of skills, techniques and attributes essential for successful performance in working life.
• Provide education and training to improve the skills and effectiveness of the Civil Engineering workforce and a common core of training for all those who work within Civil Engineering.
• Develop a range of skills and techniques, personal qualities and attributes essential for successful performance in working life and thereby enabling learners to make an immediate contribution to employment
• Develop Civil Engineering practitioners with new and enhanced skills to fulfil new roles and responsibilities in the Civil Engineering industry.
• Provide opportunities to address skills gaps and shortages, notably in leadership, quality assurance and management, which are of increasing and crucial importance in the early years sector
• Provide a programme with a nationally recognised vocationally specific qualification which confers to holders of the qualification qualified practitioner status

Relationship to Subject Benchmark Statements and other Relevant External Reference points

The programme has been developed by Edexcel with reference to the National Occupational Standards in Civil Engineering Management at level 4. The programme also provides an opportunity to gain some of the underpinning knowledge and understanding for Level 5 NVQ in Civil Engineering Management some of the contextualised underpinning knowledge for NVQ units in Management at level 4.

Higher level skills and abilities

Edexcel Learners will be expected to develop the following skills during the programme of study:

• Analysing, synthesising and summarising information critically
• The ability to read and use appropriate literature with a full and critical understanding
• The ability to think independently and solve problems
- Obtaining and integrating several lines of subject-specific evidence to formulate and test hypotheses
- Applying subject knowledge and understanding to address familiar and unfamiliar problems
- Appreciating the need for ethical standards and professional codes of conduct; reflecting on practice and continuing development
- An appreciation of interdisciplinary approaches to Civil Engineering practice to meet the needs of Civil Engineering managers of emerging roles and responsibilities across settings, projects and services
- Leadership and management within multi disciplinary teams and enhanced interagency working
- Designing, planning, conducting and reporting on Civil Engineering research
- The capacity to give a clear and accurate account of a subject, marshal arguments in a mature way and engage in debate and dialogue both with specialists and non-specialists.

Programme Structure

To achieve the qualification of HNC Civil Engineering learners will study 8 modules. This is subject to module combination rules and requirements as stipulated by Edexcel. Learners must pass all 8 modules and comply with the professional practice requirements to be awarded the qualification.

The programme is provided over two years on a part time basis, typically this is from September until June and will require attendance at College for 1 day per week, it is expected that part time learners will be employed.

Modules are designated as Level 4 or level 5, to achieve the HNC learners must study at least 8 modules.

The programme consists of 8 core modules:

<table>
<thead>
<tr>
<th>Module</th>
<th>Level</th>
<th>Credits</th>
<th>ECTS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design Principles and Application for Construction</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Science &amp; Materials for Construction and the B.E</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Engineering Geology and soil mechanics</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Civil Engineering technology</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Site Surveying procedures</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Structural Analysis and Design</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>Group project</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>Applied Mathematics</td>
<td>4</td>
<td>15</td>
</tr>
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</table>

* ECTS = European credit transfer system

Specialist modules will be selected by the Programme Team and will take into account the resources available and the views of learners, it is not possible to offer all specialist modules on an individual basis to learners.

Intended Learning Outcomes

The programmes intended learning outcomes are identified in each module in detail, however generally the programmes learning outcomes include fundamental concepts, principles and theories appropriate to the working with children and families settings.

The Intended Learning Outcomes for the Mandatory/Core curriculum are:

Design Principles and Application: Learners will explore the roles and legal responsibilities of all parties
involved in Civil Engineering projects. Learners will also gain an understanding of how emerging
technologies affect the design and production phases of Civil Engineering projects.

Science and Materials: designed to enable learners studying Civil Engineering, civil engineering and/or
building services engineering programmes to explore scientific principles and the behaviour of materials
used in the Civil Engineering sector.

Group Project: This unit is designed to bring together small groups of learners into teams so that they
can coordinate their individual skills and abilities. The scheme of work should give individual learners an
opportunity to take responsibility for their contribution to the outcome, and demonstrate their ability to
work as part of a team.

Geology and Soil Mechanics: This unit provides the learner with an introduction to the engineering
characteristics of geological materials and the formation of rock and soils. It provides a basic
understanding of the use of rock and soils in construction. It is anticipated that learners will gain a working understanding of the tests required to classify soils and to establish their design parameters

Site Surveying Procedures This unit is designed to give the learners a general understanding of site
surveying and levelling which includes setting out techniques, topographical methods, contouring, and
traversing. The unit is both theory and practical based and should give individual learners an opportunity
to take responsibility for their contribution to the outcome and requires the learner to work as part of a
team

Structural Analysis and Design
This unit develops the learners’ ability to analyse structures and produce an appropriate design. The unit
builds on techniques and understanding of structural behaviour. The unit aims to provide the learner with
the analysis and design knowledge required to carry out the design of common structural elements to
the appropriate British Standard, Code of Practice or European Code of Practice. The learner is encouraged to work with simple real life examples and to gain the skills and understanding
to develop effective and economic designs.

Applied Mathematics
This unit provides the learner with the opportunity to acquire further knowledge of a range of
Mathematical techniques and will develop his/her understanding of how these techniques can be
applied to solve engineering problems. Learners will also learn the value of mathematics as a method of
communicating results.
The knowledge and skills that learners acquire in this unit will underpin their study of most other units of
the BTEC Higher National programme.

Civil Engineering: Construction A
This unit provides the learner with an introduction to the acquisition of knowledge and understanding
of some of the most commonly utilised methods and resources used in some major civil engineering
construction activities.
Although there will be a strong theoretical underpinning to the study of this unit there will also be
considerable emphasis on enabling learners to become aware of the processes of selecting appropriate methods and resources in a variety of realistic case studies.

Criteria for Admission to the Programme

Learners must be aged 18 years on or before 31st August of the academic year that the programme commences.

A minimum of 120 UCAS points which may be gained from the following qualifications:

- 2 x GCE ‘A’ Level passes
- 1 x GCE ‘A’ Level pass plus AS level passes in appropriate subjects
- BTEC National Diploma or Extended Diploma
- BTEC National Certificate
- A Level 3 Diploma or equivalent such as NVQ, GNVQ, International Baccalaureate, Scottish Certificate of Education
- A recognised (Kite marked) Access Course
- Other relevant international qualifications

It is recognised that some learners may have significant relevant work experience or other professional qualifications and therefore may be admitted to the programme following a successful interview.

Teaching and Learning

A range of teaching and learning methods will be used during the programme which aims to be culturally inclusive and meet the needs of individual learners. Teaching and learning may include:

- Lectures
- Tutorial support groups
- Practical classroom based activities
- Group and individual presentations
- Group projects
- Co-operative group work
- Independent learning/self directed study
- Work place investigations
- Online learning materials
- Work placements

It is recognised that learners learn in a variety of ways and the teaching and learning on the programme will take account of these different needs.

Support for Learning

Students are encouraged to identify and, with guidance, to reflect on their own learning needs and are offered support as appropriate to those needs.

Where specific learning needs are identified (e.g. Where a disability is declared,) the course team will liaise with Student Services to ensure that the requirements of the statement are met.

Students are encouraged to identify and, with guidance, to reflect on their own learning needs and are offered the following support as appropriate to meet those needs:

- A course induction programme
- Induction to learning resources
• Group project briefing sessions for students embarking upon project work, followed by regular meetings with supervisors at which progress is monitored.
• Individual tutorials
• Learning agreements
• Online resources (Moodle)
• Study skills support
• Student Handbook with information relating to the course, modules, assessment and support
• Access to college resources such as IT facilities and the Library.
• Access to Student Services, including those offered by the careers service, financial; advisers and counselling service

Assessment

A variety of assessment methods will be used on the programme. These are designed to enable learners to meet the learning outcomes for the module and experience a range of methods in preparation for further study or employment. A sample are provided below, (this is not an exhaustive list)
• Written examinations
• Coursework assignments
• Individual and group-based project work
• Practical investigations
• Group and individual presentations
• Work experience log books
• Reflective accounts
• Portfolios

Modules generally have a maximum of two assessments, for example a presentation and a written piece of course work.

Grading

Grades are awarded at module and qualification level.

Each module will be graded as a pass, merit or distinction.
A pass is awarded for the achievement of all learning outcomes against the specified assessment criteria. Merit and distinction grades are awarded for higher-level achievement

The qualification grade of a merit or distinction is awarded through the aggregation of points gained through the successful achievement of individual units. Grading of the HNC is based on learner’s best performance in units at the level or above of the qualification to the value of 75 credits.

The number of points available is dependent on the unit grade achieved and the credit size of the unit (as shown in the ‘Points available per credit at specified unit grades’ table below).
Points available per credit at specified unit grades

<table>
<thead>
<tr>
<th>Points per credit</th>
<th>Pass</th>
<th>Merit</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Qualification grades are:

<table>
<thead>
<tr>
<th>Points Range</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>0-74</td>
<td>Pass</td>
</tr>
<tr>
<td>75-149</td>
<td>Merit</td>
</tr>
<tr>
<td>150</td>
<td>Distinction</td>
</tr>
</tbody>
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Methods for evaluating and improving the quality and standards of learning, including consideration of stakeholder feedback

Quality and standards are enhanced through:

Committees:
- Board of Studies (Student Representatives Board)
- Examination/ Award Board
- Standards Committee

Mechanisms for review and evaluation:
- Review and validation event
- Annual monitoring report
- Student feedback questionnaires
- Annual teaching appraisal
- External examiner’s report
- Course team meetings
- Quality monitoring systems

External Examiners who monitor the programme are appointed by Edexcel and are recruited from similar programmes of high standing at other Higher Education Institutions or have considerable experience in the provision of HNCs in the Civil Engineering Sector. Their work includes:
- Approving coursework assignments and assessment criteria
- Approving examination papers
- Monitoring standards through moderation of completed assessments
- Confirming assessment standards
Progression and Employment Opportunities

The program leads to employment within the Construction Industry such as Civil Engineering Technician, Trainee site manager or agent. The qualification also provides entrance to further academic study through entry onto a range of Civil Engineering Top Up Degrees.