PROGRAMME SPECIFICATION – HNC CIVIL ENGINEERING

Awarding body/institution	Glyndŵr University under Edexcel License
Teaching institution	Collaborative Partners
Details of accreditation by a professional, statutory or regulatory body	Although not accredited the CIOB, RICS, and CIAT offer student membership to all construction related programme enrolees, more directly the JBM (Joint Board of Moderators), representing the ICE, ISE, CIHT, and the IHE also recognise this programme
Final award/s available	Civil Engineering
Award title	HNC
UCAS code	n/a
Relevant QAA subject benchmark statement/s	'Construction Property and Surveying (2008)', 'Engineering (2010)', and 'Architectural Technology (2007)'
Other external and internal reference points used to inform the programme outcomes	Professional Bodies Collaborative Partners
Mode/s of study	Part-time
Language of study	English / Welsh
Date at which the programme specification was written or revised	May 2012

Distinctive features of the programme

The Edexcel template for HNC programme design remains the prevailing format for the delivery of part-time pre-degree qualification in the construction industry. Their content, mode of delivery, and credit values are universally understood which enables ease of progression onto related undergraduate courses, as well as guaranteeing relevance for those paying the fees who are usually employers. The curriculum is based very much on what can be interpreted as the industry vernacular model finessed to closely match the outcomes of Glyndŵr University's Built Environment programmes.

The programme will provide an educational framework for students working in, or aspiring to work in, a wide range of organisations within the field of Civil Engineering. The strategy underpinning the programme's curriculum ensures that students experience vocationally relevant education which provides them with the knowledge, skills, and attitudes to enable them to operate effectively within their Civil Engineering sectors.

The existing programme is well established and well respected in the North Wales construction industry, as testified to by the consistent student numbers it attracts providing employer valued qualifications for students aspiring to reinforce their status or begin moving from technical to professional status. The programme will also continue to provide academic integrity of routes for practically experienced former site based, craft orientated employees to

progress to desk and office environments.

Programme structures and requirements, levels, modules, credits and awards

The Edexcel format of a core set of modules has significantly influenced the programme structure. The modules themselves are based on similar Edexcel modules, whilst enabling progression onto Glyndŵr University Built Environment degree programmes or similar courses at other HE establishments. Thus, the general equivalence of the modular content to that of Level 4 and Level 5 Glyndŵr University Built Environment degree programmes will allow Accredited Prior Learning (APL) to a maximum of 105 credits to be awarded as Advanced Standing to applicants. HNC Civil Engineering students considering this route should enquire direct to the university programme leaders for further details.

Module specification recognises that commonality is a central tenet of related Edexcel programmes and is a model that has been retained here, as much as possible, to reinforce the broad base of the Built Environment subject area. 70% of the proposed modules are common to both the Building Studies programme and the Civil Engineering programme although, where appropriate, certain programme specific content will be delivered separately to each programme cohort.

The HNC in Civil Engineering is designed to be delivered over a two year period on a part-time day-release basis with a progression point at the end of the first year. All modules are typically delivered over the whole academic year, reflecting the prevailing delivery mode practiced by our collaborative partners. The modular content is given in the diagram below, with each year of study corresponding to a total of 75 credits, 120 credits are delivered at Level 4 and the remaining 30 credits are delivered at Level 5, represented by the Group Project and Health and Safety modules.

Civil Engineering

YEAR 1	Analytical Methods *	Design Principles And Applications *	Civil Engineering Construction A	Science and Materials *	Management Principles and Applications *
	15 Credits	15 Credits	15 Credits	15 Credits	15 Credits
	AURH442	AURH441	AURH451	AURH443	AURH453

YEAR 2	Site Surveying Procedures *	Structural Analysis and Design	Health Safety and Welfare *	Geology and Soil Mechanics	Group Project *
	15 Credits	15 Credits	15 Credits	15 Credits	15 Credits
	AURH444	AURH449	AURH542	AURH450	AURH540

* Indicates modules shared with HNC Building Studies

Where feasible the timetable will be devised in such a way that modules common to both programmes will be delivered in the mornings providing a mutually relevant industry wide contextual base for the more specifically orientated modules in the afternoon. As the day proceeds it becomes more directly relevant to the individual student's working background and aspirations.

In the first year **Analytical Methods** will provide the mathematical background to support the delivery of content in other modules. The principles of structural and civil engineering and how it relates to the construction industry will be the basis of **Civil Engineering Construction** whilst **Science and Materials** will introduce the sources, behaviour and properties of constructional elements. Both areas will be further developed in **Design Principles** and **Management Principles**, with the former contextualising the design process within Structural and Civil Engineering, as well as introducing the environmental aspects of development, and the latter advocating non-adversarial multi-disciplinary team working as integral to sustainable development.

The second year extends the technical content of the previous year through the **Structural Analysis and Design** module, and **Geology and Soil Mechanics** which details the influence of earth moving on the construction process. **Site Surveying** focuses on the application of manual and computer-aided plotting methods to process survey information. **Health, Safety, and Welfare** is an essential part of any engineering course given its prominence in all facets of contemporary society. Finally the **Group Project** is the vehicle for applying the skills and knowledge acquired in other modules within a major piece of work undertaken as a group but with individual assessment.

Additional modules, not contributing to the award, will also be offered. These will be timetabled for the evening after the completion of the daytime delivery of core modules. They may be taken concurrently with the HNC core modules or separately at a future date, depending on the programme team's assessment of the student's circumstances and ability to cope with the additional demands. **Water Engineering** (NBH404) will provide opportunities to develop skills required to solve hydrostatic and flow problems and aims to give an overview of sustainability in water resource engineering and flood risk management. **Civil Engineering Contractual Procedures** (NBH403) will provide opportunities to gain knowledge of the roles, responsibilities and activities of the parties involved in the contractual procedures and procurement of civil engineering projects. **CAD for Construction** (NBH401)will provide an opportunity for students from a more craft based background to be introduced to contemporary CAD techniques.

Criteria for admission to the programme

Glyndŵr University and its partners are fully committed to the principle of lifelong learning and to widening access particularly to those groups who have not traditionally accessed higher education or courses related to the Built Environment.

The normal minimum requirement for entry onto the programme is:

- GCSEs in mathematics and English or Welsh, and
- One grade E pass at 'A' Level, or
- BTEC National Diploma or Certificate, or
- Membership, deemed at an appropriate level by the programme team, of a recognised

professional body

Additionally:

- Applications from individuals who do not meet the formal educational qualifications for entry will be welcomed.

Such applicants will be expected to demonstrate through interview that they have the potential to succeed on the course. Invariably they are employed within the construction industry and have relevant experience. Where appropriate, following interview, the collaborating college may require formal diagnostic assessment to ensure academic potential, particularly in mathematics and English or Welsh, prior to admission to the course. In certain cases, as a result, the prospective student may be required to undertake a tailored preparatory programme before admission.

Accredited Prior and Experiential Learning will be considered where appropriate, and in line with the university's procedures.

Recruitment to the course is the responsibility of the collaborative partner college. As part of their marketing policy, the collaborative partner will ensure that brochures detailing the course will be available across a wide range of appropriate locations such as libraries, community, and adult centres, as well as on-line. It is established procedure that enquiries made direct to Glyndŵr University will be forwarded to the appropriate collaborative programme leaders.

Aims of the programme

The aims of the programme are closely aligned with those of the university, and, although not strictly relevant, as it is not a degree programme, refer to the most appropriate QAA Benchmark statements which are for 'Construction Property and Surveying (2008)', 'Engineering (2010)', and 'Architectural Technology (2007)' :

- To provide intellectually challenging, vocationally relevant, and technically accredited programmes of study, as informed by current developments within the Civil Engineering Construction Industry.

- To integrate theory and practice in the context of multidisciplinary curricula.

- To provide a supportive and stimulating environment for student centred learning.

- To provide learners with appropriate subject knowledge of the Civil Engineering Construction Industry. and key/cognitive skills to further progress their careers, and/or progress onto further study.

- To maintain standards and enhance the quality of provision through close monitoring of module and programme specifications which are capable of responding to changes in the Civil Engineering Construction Industry

The programme specific aims are to provide a two year course which seeks to empower individuals enabling them to operate more effectively in their current working field within the Built Environment, underpinned by a teaching and learning strategy which seeks to offer them self-determination in terms of learning, and professional and personal development.

Intended learning outcomes of the programme

A) Knowledge and understanding: On completion of the programme, students will be able to…

A1 – Describe the nature and extent of the UK Construction Industry, as it relates to Civil Engineering, by identifying the responsible institutional and professional bodies within the Built Environment
A2 – Explain and appreciate the way in which Civil Engineering, in its constituent parts, relates to society generally, and the central role it has to play
A3 – Demonstrate knowledge and understanding of civil engineering construction, design, management, and maintenance
A4 - Recognise the legislative and organisational framework within which the construction industry operates, and display an awareness of policy options
A5 – Appreciate the design, materials, and technological principles underpinning building technology

B) Intellectual skills: On completion of the programme, students will be able to…

B1 – Assess and evaluate information, theories, and concepts from various sources to produce reports and solutions formulated from independent ideas and challenging existing assumptions
B2 – Identify the essential features of a problem and how that problem may be resolved by the creative application of technological, design, and managerial methods
B3 - Begin to apply strategic thinking skills beyond the immediate confines of a problem by critically evaluating current policies and practices
B4 - Actively seek feedback and use it as a basis for personal and professional development by taking responsibility for their learning, and increasing an awareness of their abilities
B5 – Present and communicate effectively using a variety of techniques

C) Subject skills: On completion of the programme, students will be able to ...

C1 – Evaluate the characteristics of various civil engineering techniques and materials and their effect on civil engineering production and design
C2 – Integrate various technology related issues to the development Civil Engineering aspects of the Built Environment
C3 – Appreciate the collaborative interaction required between the different civil engineering industry professionals to realise construction projects
C4 – Recognise current and future developments of overarching importance to the individual technician and the field generally within Civil Engineering
C5 – Demonstrate familiarity with exclusive construction industry IT systems

Professional Skills and abilities and Employability Skills and abilities: On completion of the programme, students will be able to ...

D1 – Demonstrate the ability to communicate accurately and reliably with structured and coherent written reports and verbal presentations to a range of audiences
D2 – Make effective use of IT skills and resources to assemble and disseminate information, and to support learning and professional practice
D3 – Apply effective time management, for both individual tasks in the shorter term and their place within the overall time scale
D4 - Identify and apply strategies for personal and professional development by agreeing

personal learning plans and recording progress
D5 – Work effectively as part of a team and, whilst appreciating the group dynamic, take responsibility for their own actions
D6 – Apply numeracy to calculating, checking, and presenting solutions to problems

The Curriculum Map overleaf indicates where the above programme outcomes are met in specific modules through the content, aims, assessment, and syllabus as well as through the formally stated module outcomes. Although all modules are academically equal, in programme outcome terms it is inevitably the case that certain modules, such as Analytical Methods, are more narrowly represented on the Curriculum Map than more broadly relevant modules such as the Group Project.

CURRICULUM MAP: HNC CIVIL ENGINEERING

		Knowledge and Understanding					**Intellectual Skills**					**Subject Skills**					**Employability Skills**					
	Module Title	A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5	D 6
Yr 1	Analytical Methods									*****	*****					*****		*****				*
	Design Principles and Applications	*****	*****	*****		*****		*		*		*	*	*****	*****				*	*		
	Civil Engineering Construction A			*****	*****	*	*****	*****		*		*	*		*			*				*
	Science and Materials			*****		*****				*****		*****			*****							
	Management Principles and App's	*	*	*	*		*	*	*	*****			*	*			*	*****	*****	*****	*****	
	Module Title																					
Yr 2	Site Surveying Procedures									*	*****		*			*						*
	Structural Analysis and Design			*****	*				*****	*				*	*****				*		*****	*****
	Health Safety and Welfare	*	*		*	*****			*	*				*	*		*					
	Geology and Soil Mechanics					*				*		*	*					*	*****			
	Group Project		*****	*****	*****	*	*****		*****	*****	*****		*	*****	*****	*	*****	*****	*****	*****	*****	

Learning and teaching strategy used to enable outcomes to be achieved and demonstrated

Students will have a varied learning and teaching experience. The majority of contact time will centre on traditional lectures, typically delivered in 1.5 hour lecture slots over a day commencing at 9am and finishing by 6pm. Adequate lunch and other breaks are built in to the study day. Other delivery methods will also be employed and class time allocated to allow student groups to undertake projects in seminar situations or to use a range of the facilities outlined below.

The Built Environment pages of the university's Moodle system will be available to students as permitted, although course and module specific material will be accessible, at all times, through the Moodle systems of our collaborative partners.

Glyndŵr University's status as a licensed centre will enable the programme team to pursue a strategy which is more overtly student centred. Students will be expected to undertake preparations for presentation sessions, which will often be based on their employment experiences pooling their developing knowledge with their peers.

Collaborative partners will provide surveying equipment, drawing boards, a soil mechanics / materials laboratory, and computer suites to enable proper delivery of the practically orientated modules. This will include demonstrations of the skills to be acquired delivered in the drawing studios and, in the case of surveying, on appropriate sites. It is also anticipated that a series of visits, local, national, and international, to contextually inform studies, will take place.

Classrooms will generally be equipped with integral digital projection facilities and interactive whiteboards. To preserve the HE ethos within an FE environment dedicated HE base rooms / areas will be provided.

Building on existing formats a varied system of assessment modes encompassing tests, projects, both individual and group and, where appropriate, work related assignments will be employed, depending on the particular module outcomes.

Although the majority of students will be from a relevant working background there is no formal Work-Based / Placement element to the programme but, undoubtedly, this background will inform their studies.

Assessment strategy used to enable outcomes to be achieved and demonstrated

Assessment is designed to achieve a combination of outcomes and is progressive in the sense that as students proceed through levels, so the nature and extent of their skills and competences is enhanced. Year 1 assesses primarily to establish understanding and knowledge, and Year 2 to establish intellectual skills. Subject and employability skills are assessed over both years.

The majority of assessment will be module based, although cross modular integrated themes will be deployed where practicable, which has proved very successful at degree level. Assignment and project briefs will be prepared to meet particular outcomes or range of outcomes. Submitted elements and complete work will be assessed and feedback provided to the student, both within and/or on completion as appropriate to the work set.

Projects may be undertaken individually or in groups. Group work will be based on large scale development opportunities with local relevance. They will require students to specify individual responsibilities, and include an element of individual presentation and submission to allow individual marks to be allocated within the group.

Scenario based open book examinations, in the form of time controlled 'in-course assessment', will also be deployed in appropriate modules, but will retain the potential for being involved in cross modular assessment.

Students are to be provided with Assessment Calendars similar to the indicative example shown overleaf listing assessment and submission dates, together with relevant information on standard assignment and examination formats, grading criteria, and feedback mechanisms.

Certain Year 1 modules will have a diagnostic assessment element to establish the student's overall abilities at course commencement for the benefit of the entire programme team. Formative assessment will usually inform the progress of a piece of work rather than stand alone as it proceeds towards a final submission and summative assessment.

Several modules provide the opportunity for assessment by an element of group coursework. Within Built Environment courses generally this is a particularly useful method of mirroring and including work experience and enabling larger and potentially more complex projects to be undertaken with an inter-professional element.

Assessment regulations that apply to the programme

The programme is subject to Glyndŵr University regulations for BTEC Higher National Qualifications. There are no derogations.

Module	**Indicative Assessment format**	**Submission Date**
Year 1		
Analytical Methods	Written Assignment In Course Assessment	January May
Design Principles	Project and Presentation Written Assignment	January May
Science and Materials	Report Written Assignment	January May
Management Principles	Portfolio Viva	January May
Civil Engineering Construction	In Course Assessment Report and Presentation	January May
Year 2		
Health and Safety	Case Study Coursework	January May
Group Project	Portfolio Documentation Presentation Report	January May
Structural Analysis	Coursework Time Controlled Task	January May
Geology and Soil Mechanics	In Course Assessment Project	January May
Site Surveying	Practical Task Written Assignment	January May

INDICATIVE ASSESSMENT CALENDAR: HNC CIVIL ENGINEERING

MODULE TITLE	**SEMESTER 1**																**SEMESTER 2**														
Yr 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Analytical Methods												**1**																		**2**	
Design Principles															**1**														**2**		
Construction A														**1**																**2**	
Science/Materials													**1**															**2**			
Management														**1**																	**2**
Yr 2																															
Site Surveying														**1**																**2**	
Structures													**1**																**2**		
Health & Safety												**1**																		**2**	
Geology														**1**														**2**			
Group Project															**1**																**2**

Programme Management

Programme Team

David Skydmore (Academic Leader)
Ian Williams (Programme Leader)
Gareth Carr
Louise Duff
Barry Hills
Kevin Gilliam
Derek Jones
Colin Stuhlfelder
Dave Cheesbrough

The programme team has membership of a wide range of appropriate professional bodies – the Association of Building Engineers (ABE), the Architects' Registration Board (ARB), the Chartered Institute of Builders (CIOB), the Chartered Institute of Housing (CIOH), the Institute of Civil Engineers (ICE), the Royal Institute of British Architects (RIBA), and the Royal institute of Chartered Surveyors (RICS). In some cases individuals are active at a regional and national level participating in CPD events, a growing number of which are being hosted at Glyndŵr University, with students positively encouraged to attend.

Team members continue to take up positions as external examiners on validation panels, internally and externally, and for programmes at other HEIs both nationally and internationally. Colleagues at Yale are ambassadors for the CITB-Construction Skills body, visiting schools to raise the profile of the construction industry generally. External activity of this nature continues to inform the team's approach to all aspects of programme design and delivery, as does the scholarly activity undertaken by everyone.

The programme is designed to be delivered in collaboration with Further Education (FE) college partners, although ownership of the course will reside with Glyndŵr University. The approval of the programme collaborative arrangement is subject to Glyndŵr University procedures that are separate to those of programme validation. These procedures may vary from partner to partner depending on the specific nature of the collaborative arrangement, but certain academic details and management arrangements of the programmes as detailed in this proposal will be required.

The Glyndŵr University Programme Team has responsibility for overall quality assurance of the programme and is in regular contact with their collaborative partners to ensure the smooth running of the programme, and to discuss the future direction of the academic content of the provision. Individual responsibilities within the Glyndŵr University Course Team are described below.

The Academic Leader will ensure that the management of the arrangement operates within the requirements of Glyndŵr University's quality assurance system at an Institute level by facilitating discussion and reporting of the arrangement at Built Environment Team meetings, which will then be taken forward to Institute meetings. Issues that would require the Academic Leader's direct involvement would include any proposed variation of significance made by the collaborative partner which could affect the academic integrity of the programme.

The Programme Leader will be the main point of contact, both informal and formal, with the collaborative partner's academic team regarding the general management of the programmes, including ensuring that the collaborative partner remains informed of

developments in current procedures adopted by Glyndŵr University.

Responsibility for the day to day management of the courses will continue to lie with the collaborative partner programme team. The collaborative partner will hold team meetings, which will include student representation and be attended by the Glyndŵr University programme leader, to review quality issues regarding the design and application of the programme.

Proposed academic changes, such as to the modular content or modular mix for each year of delivery, would initially be made to the Programme Leader for consideration. The Glyndŵr University programme leader will also co-ordinate the response to the collaborative partner's teaching schemes and assignments if they are sought to be amended as part of the management system. As appropriate Glyndŵr University module leaders will become involved in this process to ensure the accurate interpretation of the contents and intentions of the module specifications. Glyndŵr University module leaders will be available to provide more informal advice and guidance to their collaborative counterparts at all times.

The collaborative partner also plays a direct role in Glyndŵr University's QA procedures being required to prepare a free standing Annual Monitoring Report (AMR) on the collaboration's progress. The collaborative partner, through its Programme Leaders, will attend the subsequent Annual Monitoring Review event. At the end of the academic year collaborative partners are responsible for providing results to the Student and Programmes Centre for entering on the Glyndŵr University system. Subsequently they attend the sequence of Glyndŵr University Assessment Boards demonstrating full integration with Glyndŵr University's quality procedures. Notification of results to students, and arrangements for the submission of remedial work which may be required, will be made by the collaborative centres but include the formal Transcript of Results produced by Glyndŵr University.

As well as their own methods of establishing student feedback collaborative establishments are required to hold the equivalent of Glyndŵr University devised Staff Student Consultative Committees which are open meetings, chaired by independent staff, at which all students are able to give their views. To ensure impartiality, the meetings would be chaired by collaborative partner college staff from outside the built environment subject area. The results of feedback mechanisms will be published on collaborative partners' Moodle systems.

Glyndŵr University is responsible for appointing an External Examiner who is an appropriately qualified academic from another HE institute. The role of the External Examiner is to ensure that the academic standards of the course are satisfactory. The course team respond to the External Examiner's formal annual report as part of the AMR process and the External Examiner attends Assessment Boards along with representatives from the collaborative partner programme team. Arrangements for the External Examiner's visits to the collaborative centres to inspect work and discuss matters with staff and students is co-ordinated by the Glyndŵr University programme leader, who the examiner then reports back to prior to presenting his formal report.

The Programme Handbook will be prepared by the collaborative partner for approval and will contain a synopsis of the institutional systems that apply to all Glyndŵr University students. It will include a statement of welcome and explain the Accredited Prior Learning (APL) procedure, the significance of enrolment and module registration, the requirements of the Student and Programmes Centre, the policy on plagiarism, advice on accessing information and disability rights. The collaborative partner will provide information on their programme team, methods of contact and responsibilities, the academic calendar, programme overview, aims, and structure. The handbooks will be issued in full at enrolment as well as being available on-line.

Particular support for learning

Personal tutorial support for students will be significantly influenced by the introduction nationwide of Individual Learning Plans at FE colleges which have the potential for dovetailing responses to academic and personal matters thus taking a holistic view of the students' wellbeing and progress. It is anticipated that this system will be equally applied to HE students by our collaborative partners.

The support mechanisms provided by collaborative partners will vary in detail and be the subject, in part, of the Periodic Review of Delivery process. However, as Glyndŵr University students all enrolees have online access to the library services and databases, the Technical Indexes provision being of particular importance. Glyndŵr University will continue to encourage the delivery of modules at Plas Coch by our partners where proximity and timetables allow.

Equality and Diversity

Glyndŵr University aims to provide equality of opportunity for all students. In line with the university's Disability Policy students with a disability or learning difficulty are encouraged to inform their Programme Leader of their circumstances upon entry. Where such needs are identified, students are referred to the collaborative partner's Disability Advisor. All team members have experience of students with disabilities or difficulties.

In line with the requirements of the Welsh Language Act, and in accordance with Glyndŵr University procedures, students may submit work for assessment through the medium of Welsh. Collaborative partners all offer Welsh language classes and have staff capable of facilitating the marking of work submitted in Welsh, alongside the subject expertise of the module leader when necessary. Largely dependent on their location collaborative partners may offer teaching in Welsh.