

Programme specification for HNC in computing

- 1.1 Awarding Body : Edexcel (BTEC)
- 1.2 Teaching Institutions : Anonymous College
- 1.3 Accreditation : Edexcel is in contact with the British Computer Society regarding accreditation
- 1.4 Final Awards : Higher National Certificate
- 1.5 Programme Titles : Higher National Certificate in Computing
- 1.6 UCAS Codes : HNC's are not assigned UCAS codes
- 1.7 Subject Benchmarking : Computing
- 1.8 Date of Productions : February 2002

2) Programme Aims

2.1 The Scheme has been designed to equip the student with the knowledge, understanding and transferable skills required for success in current and future employment and for progression to a degree in the School of Computing via the Bridging Course. The transferable skills will enable her/him to meet changing circumstances, whether these arise from a shift in her/his sphere of employment to supervisory or management roles or from general changes in computing practices and the information technology environment.

This Scheme has been developed to meet the needs of major functions in computing, hence the various award titles.

The Schemes aims to provide :

- 2.1.1 national qualification, with detailed common standards recognised by educational institutions, students and employers.
- 2.1.2 a focus on practical knowledge and skills
- 2.1.3 a common core of study
- 2.1.4 the generation and fostering of good practice
- 2.1.5 the capacity to respond to changing training and educational needs
- 2.1.6 progression to further study in computing (and business)

- 2.1.7 preparation for a technical or management career in computing (and business) including :
 - 2.1.7.1 specialised studies directly relevant to individual vocations and professions in which the student is working or intends to seek employment
 - 2.1.7.2 a platform for the student to make an immediate contribution in employment
 - 2.1.7.3 flexibility, knowledge, skills and motivation as a basis for progression to further studies and further career development

2.2 AWARD SPECIFIC AIMS

The HNC in Computing provides a good broad based grounding in a variety of computing areas covering a spectrum of application areas. The award is designed to equip the student with sufficient knowledge of general computing to be able to provide an immediate contribution in a range of computer-related career paths, for example, programming, help-desk support, internet technologies or software development and testing. This award also provides the basis for continuing on to the HNDs in Computing, Internet Technology and Software Engineering.

Specifically, this award provides :

- 2.2.1 a sound basis for career development in software production, Internet technologies, hardware maintenance, network management and systems development.
- 2.2.2 an opportunity for the student to build upon experience within her/his work context.
- 2.2.3 An opportunity for the student to undertake substantial project work representative of that which she/he will encounter in future employment.

2.3 LEARNING OUTCOMES

The following is a set of aims and learning outcomes that applies to the award :

Summary of Aims and Learning Outcomes	Learning Outcome	Year of Study
1. Demonstrate an understanding of the basis operations of computers and their associated peripherals and software. <ul style="list-style-type: none"> • Evaluate performance of a selected computer system • Employ operating systems • Upgrade a computer system • Participate in the planning of a network installation 	1.1, 1.2, 1.3, 1.4	1
2. Demonstrate an understanding of data and functional modeling techniques and use a variety of systems analysis and design methodologies. <ul style="list-style-type: none"> • Compare different lifestyle models • Perform a system investigation • Perform functional and data modeling 	2.1, 2.2, 2.3	1
3. Demonstrate an awareness of a wide range of problems within computing, the way that problems and solutions can be modeled and techniques to solve them. <ul style="list-style-type: none"> • Investigate problem-solving theory, applications and techniques • Develop business models using spreadsheets • Design and develop code using an appropriate programming methodology 	3.1, 3.2, 3.3	1
4. Show an appreciation of the information flows within an organisation and the importance of information as a valuable organizational resource. Demonstrate an awareness of the role of computer based information systems in business. <ul style="list-style-type: none"> • Examine the nature of information and contemporary applications • Examine the tools available to organisations for information processing • Evaluate the information systems within an organisation 		

Summary of Aims and Learning Outcomes	Learning Outcome	Year of Study
<p>5. Use the skills and knowledge students have acquired during the course to produce an integrated software-based solution to a realistic problem. Produce an acceptable and viable software solution to an agreed specification within a designed timescale and constraints.</p> <ul style="list-style-type: none"> • Select, specify and plan an appropriate project • Develop the project to the agreed specification and plan • Verify the project against the specification • Demonstrate and critically evaluate the project 	5.1, 5.2, 5.3, 5.4	2
<p>13. Demonstrate knowledge and practical experience in managing, installing users and software on to a network.</p> <ul style="list-style-type: none"> • Evaluate the benefit of networks • Apply architectural concepts to the design / evaluation of networks • Install network software • Perform network management responsibilities 	13.1, 13.2, 13.3, 13.4	2
<p>14. Demonstrate knowledge and practical implementation of database systems and their basic design principles.</p> <ul style="list-style-type: none"> • Design a small database • Implement a small database 	14.1, 14.2	2
<p>15. Develop visual applications.</p> <ul style="list-style-type: none"> • Use visual objects • Design a visual application • Use advanced features of a visual development environment to implement an application 	15.1, 15.2, 15.3	2
<p>18. Demonstrate an understanding of the general principles and concepts of programming.</p> <ul style="list-style-type: none"> • Design and develop code using structured programming method • Use modularization appropriate to the chosen programming language • Create and apply appropriate test schedules 	18.1, 18.2, 18.3	1
<p>22. Create and manage web-based applications focusing on server side management and the mechanisms to link web pages to databases.</p> <ul style="list-style-type: none"> • Design interactive web pages • Design and build web sites • Develop interactive applications on a web server 	22.1, 22.2, 22.3	2

In addition to the learning outcomes, the student is also required to demonstrate competence in Edexcel COMMON SKILLS. These common skills fall into seven areas :

1. Managing and developing self
2. Working with, and relating to others
3. Communicating
4. Managing tasks and solving problems
5. Applying numeracy
6. Applying technology
7. Applying design and creativity

The assessment of these common skills is incorporated into the modules that comprise the award.

2.4 TEACHING, LEARNING AND ASSESSMENT STRATEGIES

It is the School's aim to emphasise the role of lecturer as learning facilitator and for the student to a responsibility for her/his own learning.

In deciding how modules should be taught and how learning will take place and be assessed, two important principles have been used :

- that each module should be taught and assessed in the way that best fits the subject matter rather than imposing common learning and assessment methods across all modules.
- that the student should have the opportunity to experience a variety of different ways of working and to demonstrate their skills and knowledge in the most appropriate way.

Thus the student will, depending on the module being studied, encounter one or more of the following teaching methods :

- Formal lectures
- Problem-based Tutorials
- Practical laboratory sessions
- Surgeries
- Group-based studies
- Investigations

Assessment will be accomplished using the following methods, as appropriate :

- Individual coursework assignments
- Group-work assignments
- Presentations
- Demonstrations
- Written reports
- Laboratory log books
- In-class tests

The programme learning outcomes can be categorized under four distinct headings : Knowledge & Understanding, Cognitive Skills, Practical Skills and Transferable Skills. Likewise, each of the Edexcel Common Skills can be categorized under one of the three skills headings. Teaching, Learning and Assessment strategies are chosen appropriately as shown in the following table. For further details see the module specifications in the Student Handbook.

Knowledge and Understanding	Teaching and Learning Strategies
<p>1. Demonstrate an understanding of the basic operations of computers and their associated peripherals and software.</p> <p>2. Demonstrate an understanding of data and functional modeling techniques and use a variety of systems analysis and design methodologies.</p> <p>3. Demonstrate an awareness of a wide range of problems within computing, the way that problems and solutions can be modeled and techniques to solve them.</p> <p>4. Show an appreciation of the information flows within an organisation and the importance of information as a valuable organisational resource. Demonstrate an awareness of the role of computer based information systems in business.</p> <p>15. Develop visual applications.</p> <p>18. Demonstrate an understanding of the general principles and concepts of programming.</p>	<p>Lectures, tutorials (1,2,3,4,15,18)</p> <p>Practical sessions (1,2,3,4,15,18)</p> <p>Case Studies (3,4)</p> <p>Supervised project work (2,3,15)</p> <p>Assessment</p> <p>In-class tests (1,15,18)</p> <p>A portfolio of practical programming assessments (15,18)</p> <p>Coursework (2,3)</p> <p>Peer group presentation (4)</p> <p>Written report (1,2,3,4)</p>

Cognitive Skills	Teaching and Learning Strategies
<p>5. Use the skills and knowledge students have acquired during the course to produce an integrated software-based solution to a realistic problem. Produce an acceptable and viable software solution to an agreed specification within a defined timescale and constraints.</p>	<p>Lectures, tutorials, practical sessions and surgeries.</p> <p>Self-directed study using we resources.</p> <p>Supervised project work.</p> <p>Assessment</p> <p>Project</p>

Practical Skills	Teaching and Learning Strategies
<p>13. Demonstrate knowledge and practical experience in managing, installing users and software on to a network.</p> <p>14. Demonstrate knowledge and practical implementation of database systems and their basic design principles.</p> <p>22. Create and manage web-based applications focusing on server side management and the mechanisms to link web pages to databases.</p>	<p>Lectures, tutorials (13, 14, 22)</p> <p>Practical sessions (13, 14, 22)</p> <p>Demonstrations (13)</p> <p>Case studies (13, 14, 22)</p> <p>Supervised project work (14, 22)</p> <p>Assessment</p> <p>Coursework (13, 14, 22)</p> <p>Project (14)</p> <p>Group project work (14, 22)</p> <p>A portfolio of practical programming tasks (22)</p>

Transferable Skills	Teaching and Learning Strategies
<p>1. Managing and developing self.</p> <p>2. Working with, and relating to, others.</p> <p>3. Communicating.</p>	<p>Lectures, tutorials, practical sessions and surgeries (1, 2, 3)</p> <p>Supervised project work.</p> <p>Assessment</p> <p>Coursework (1, 2, 3)</p> <p>Presentations (2, 3)</p> <p>Written reports (1, 3)</p> <p>Group work projects (2)</p>

2.5 ASSESSMENT CRITERIA

A pass grade is achieved by meeting all the requirements defined by the learning outcomes for each unit.

Merit	Distinction
<p>In order to obtain a merit the student must :</p> <ul style="list-style-type: none"> • Use a range of methods and techniques to analyse and process information/data. • Apply and analyse detailed knowledge and skills, using relevant theories and techniques. • Coherently present and communicate work using technical language accurately. 	<p>In order to achieve a distinction the student must :</p> <ul style="list-style-type: none"> • Check validity when collecting, analyzing and processing complex information/data. • Evaluate and synthesise relevant theories and techniques to generate and justify valid conclusions. • Show an individual approach in presenting and communicating work coherently, using technical language fluently.

2.6 PROGRAMME STRUCTURE AND REQUIREMENTS

Two years of part-time study leads to a Higher National Certificate in Computing.
Each academic year is divided into two semesters :

Year One

SEMESTER ONE	SEMESTER TWO
2 Systems Analysis	4 Computing Solutions
3 Software Constructs and tools	18 Introduction to programming
1 Computing Platforms	

Year Two

SEMESTER ONE	SEMESTER TWO
15 Visual Programming	14 Database analysis and design
22 Website Management	13 Networking
1 Computer implementation project	

Durations of Awards :

Most students follow the study format indicated above. However, for students who cannot devote sufficient time to complete the course in two years, it is possible to extend the period of study up to a maximum of 5 years (Edexcel recommendations).

Award	Minimum Duration	Maximum Duration
HNC Part Time	2 years	5 Years

2.7 CRITERIA FOR ADMISSION TO THE PROGRAMME

Admission Requirements :

The Higher National Certificate in Computing is primarily intended for those who are in, or plan to enter, employment and have reached a minimum age of 18. The qualification is designed to be available to everyone who can achieve the required standard. However, students who enter with at least one of the following are most likely to benefit :

- BTEC National Certificate or Diploma
- An AVCE in a computer related discipline
- A GCE A Level pass with appropriate supporting GCSE grades A, B or C
- For mature candidates, appropriate work experience

RELATIONSHIP TO OTHER AWARDS:

In the past, students have progressed on to a Higher National Diploma

2.8 INFORMATION ON ASSESSMENT REGULATIONS

Assessment Regulations :

In order to progress from one level of an award to next level, the student must be awarded a pass in all the units at that level.

The student will qualify for a particular award only if she/he has passed in all the modules on that award and all the common skills. All modules of a part-time Higher National Certificate must normally be passed within five years from the date of enrolment.

The student has two attempts in total at passing each module. However, if she/she does not pass a module on the first attempt then the highest grade that she/he can subsequently achieve in that module is a pass.

All course work is graded pass, merit or distinction. A maximum grade of a pass can be awarded to any work that is referred. Late submissions of assessed work results in a referral.

The course tutors, in collaboration with the BTEC external examiner, has discretion to modify the pass marks for particular cases.

2.9 AVAILABILITY OF SUPPLEMENTARY INFORMATION

A full description of the programme including module specifications can be found in Edexcel course Guidance and Units, and the course handbook, Information relating to the course may be found at the School of Computing Website.