

Faculty of Engineering and Computing

Department of Computing and the Digital Environment

BSc and BSc (Honours) in

Ethical Hacking and Network Security

Internet and Enterprise Computing

Programme specification (Sept 2004)

**Part 1: Programme Specification for
BSc (Hons) Ethical Hacking and Network Security
BSc (Hons) Internet and Enterprise Computing
Scheme of Undergraduate Courses in Computing**

1 Available Award(s) and Modes of Study			
Title of Award	Mode	UCAS Code	FHEQ Level *
BSc and BSc (Honours) in Ethical Hacking and Network Security Internet and Enterprise Computing	Honours Degree 3 years F/T, 4-6 years PT 4 years S/W		H (Honours degree level)
DipHE Computing	2 years F/T		I (Intermediate level)
CertHE Computing	1 year F/T		C (Certificate level)
*Qualification descriptors can be found at http://www.qaa.ac.uk/crntwork/nqf/ewni2001/annex1.htm			
2 Awarding Institution/Body	Coventry University.		
3 Teaching Institution	Coventry University		
4 Internal Approval/Review Dates			
5 Programme Accredited by	A credtional from British computer society to be sought		
6 Accreditation Date and Duration	September 2004 intake to Sept 2009 intake Date of visit : 24 th November 2004		
7 QAA Subject Benchmark Statement(s) and/or other external factors	QAA Computing Benchmark Statement (can be found at http://www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp) Qualification descriptors (can be found at http://www.qaa.ac.uk/crntwork/nqf/ewni2001/annex1.htm)		
8 Date of Programme Specification	24 th June 2008		
9 Programme	Mr R Cook		

10 Educational Aims of the Programme

The new courses will be part of the undergraduate e scheme of courses in computing. Other courses in the scheme are:

- Computer Science
- Computing
- Software Engineering
- Network and Mobile Computing

Graduates of the Ethical Hacking and Network Security course will have a clearly targeted and developed set of skills in computer Science with special emphasis on security. They will understand the threats posed to modern information structures and will be able to apply defenses against such threats. They will be able to devise methods of testing a systems security and possess the skills needed to break into systems that have vulnerabilities. They will be able to advise a company on how to set up secure systems.

Graduates of the Internet and Enterprise Computing course will have very well developed skills in systems development for internet or any distributed systems. They will know and be able to use the languages , protocols and technologies that are essential internet systems development. They will understand the requirements of businesses for transparent systems that serve and integrate the whole enterprise. They will be able to discuss new models and methods for systems integration and will be able to advise companies about this.

All courses in the scheme all have a common first year but differ in emphasis in the following years. The difference is achieved by specifying certain modules that must be studied in each of the named routes. However each of the named routes has space for the students to choose at least one module from an approved list that includes specialisms from other courses. This gives students the opportunity to learn about any areas of interest to them. There is the possibility of a placement year for all courses.

The skills base of these courses generally resides within the body of knowledge defined by the QAA Computing benchmark statement. As well as the technical foci, the courses all contain content that prepares students in social, ethical and professional aspects of a cooperative human environment such as the workplace.

11 Intended Learning Outcomes

This programme satisfies the Computing benchmark statements and Coventry University's Code of Practice for Academic and Professional Skills Development.

Section 20 maps the learning outcomes described below to the programmes' mandatory and core option modules (these are identified in section 19)

Section 21 shows the capabilities that students will be taught, given the opportunity to practise and will be assessed in.

11.1 Knowledge and Understanding

On successful completion of each of the programmes in this scheme a student should be able to demonstrate knowledge and understanding of :

Level	Id	Description
I and H	KU1	The underlying technology, design methods and programming languages required to

		practice in the domain of their programme of study.
I and H	KU2	The cultural, commercial, ethical and professional issues connected with the creative and IT industries and professional practice within them.
I and H	KU3	The requirements and/or the relevant background information required for the development of product in a domain appropriate to their programme of study.
I and H	KU4	The means of production of a product of a nature relevant to their domain of study to meet a set of agreed requirements.
I and H	KU5	Knowledge of emergent technologies appropriate to their domain of study.

11.2 Cognitive (thinking) Skills

On successful completion of each of the programmes a student should be able to

Level	Id	Description
I and H	CS1	Apply appropriate design and problem-solving techniques to computing requirements or issues
H	CS2	Research the concept, design and development of a product relevant to their domain of study
H	CS3	Conduct an in-depth investigation relating to the requirements and/or relevant background information for the development of a product in a domain appropriate to their programme of study
H	CS4	Reach relevant and useful conclusions in the evaluation of the implementation of a product in a domain appropriate to their programme of study

11.3 Practical Skills

On successful completion of each of the programmes a student should be able to

Level	Id	Description
I and H	PS1	Use design, production and programming tools relevant to their domain of study.
I and H	PS2	Apply usability and HCI design techniques in the context of a product relevant to their domain of study.
I and H	PS3	Structure and write reports on various aspects of their domain of study
H	PS4	Structure and write an in depth report detailing the concept, design and development of a product relevant to their domain of study

11.4 Transferable Skills

On successful completion of each of the programmes a student should be able to

Level	Id	Description
I and H	TS1	Demonstrate professional and ethical practice in their field of study
I and H	TS2	Demonstrate personal and time management skills appropriate to professional conduct

		in their field of study.
I and H	TS3	Communicate effectively using a appropriate media and style.
I and H	TS4	Demonstrate an ability to work effectively as part of a group
I and H	TS5	Demonstrate an ability to learn independently, reflect on one's own learning needs and achievements and to develop a plan for learning development
H	TS6	Reflect on the process of development of a product appropriate to their field of study and report and communicate findings effectively.

Transferable/key skills are generally incorporated within modules (see annex 3) and related to relevant assessments as appropriate. Self-directed learning forms an element of all modules and the necessity to work within tight deadlines is an essential requirement across the curriculum. The ability to communicate orally and in writing will be developed across the range of modules.

A range of assessment techniques will ensure that students are given every opportunity to demonstrate their skills in these areas.

Teaching, Learning and Assessment

A variety of teaching and learning methods is used, as described in various module descriptors, as appropriate to the module learning outcomes. The modes of learning support given have been selected so as to be appropriate to the material presented and skills to be developed. Generally, lectures are used for teaching theoretical and factually based materials. The preferred method of assessment for these type of skills are unseen examinations, either in a formal, end of session format or as on-line, in-class tests. Practical and skills related outcomes are usually learned in a laboratory environment and assessed using practical assignments, which may occur as 'coursework' or as in-class, unseen, time limited assignments or portfolio construction. All honours degrees include a substantive, product based final year project, which acts as both an integrative study and provides students with the opportunity to demonstrate the practical and personal skills necessary for professional practice in their chosen field. All courses include a group project module, which provides development and assessment of work related and group working skills.

12 Programme Structure and Requirements, Levels, Modules, Credits and Awards

Modules within the programme, their status (whether mandatory or core options), the levels at which they are studied, their credit value and pre/co requisites are identified in section 19.

The BSc and BSc (Hons) courses have a duration of three years (full time) and four years (sandwich).

The DipHE can be achieved within two years. The CertHE can be achieved within 1 year.

Recommended programmes of study for the degree courses will be organised as shown in section 22. Here, modules identified with a number starting '1' are level 1, '2' level '2' and so on. Modules identified with 'H' as the first letter are HND modules

For the BSc courses, an optional placement year is available between stages two and three, providing a sandwich degree variant of all courses. The module 250EC, Professional Training (40 credits) will be taken by those taking a sandwich degree in addition to those modules in the recommended programme.

The requirement for a BSc honours award is as follows:

1. Achievement of 360 CATS credits at levels H, 1, 2 and 3, with a maximum of 40 level H credits.
2. A pass in all of the mandatory modules in the recommended programme of study for the named award.

The project module must be included in the calculation of the class of award for all Honours Degree awards.

The requirement for an BSc award in each of the named routes is as follows:

1. Achievement of 300 CATS credits at levels H, 1, 2 and 3, with a maximum of 40 level H credits.
2. A pass in all of the mandatory modules, except the project, in the recommended programme of study for the named award.

The requirement for an DipHE award in Computing is as follows:

1. Achievement of 240 CATS credits at levels H, 1 or 2 made up from modules specified as part of the BSc or BSc(Hons) Computing programme

The requirement for an CertHE award in Computing is as follows:

1. Achievement of 120 CATS credits at levels H, 1 or 2 made up from modules specified as part of the BSc or BSc(Hons) Computing programme

Progression for BSc (Hons)

To progress from year 1 to year 2, students will be required to have gained 80 level 1 credits including 100CT.

To progress from year 2 to professional training, students will be requires to have gained 100 credits at level 2

To progress from year 2 to year 3, students will be required to have gained 80 level 2 credits including 200CT

12.1 Cascade of Awards

The cascade of awards will be as follows:

BSc (Hons) Computer Science, Software Engineering, Ethical Hacking and Network Security, Internet and Enterprise Computing, Network and Mobile Computing
BSc (Hons) Computing
DipHE Computing

13 Support for Students and their Learning

The Programme Leader for the scheme oversees its effective day-to-day operation. The on-going development of the courses is the responsibility of the Department under the management of the Head of Department. Co-ordination of this scheme with others within the Computing Portfolio in the Faculty is undertaken by the Director of Undergraduate Studies, who will ensure consistency of practice and operational arrangements within courses at a Faculty level.

An Undergraduate Support Office (Computing) led by a Programme Administrator, supports all activities of the programme from enrolment through to results and acts as a first point of contact for students on any matter. For some matters, students will be referred elsewhere within the University (e.g. to a Student Counsellor).

Students undertaking a sandwich year receive at least two visits from an academic member of staff during their placement period. The students are fully briefed prior to commencing their placement. Students undertaking an approved placement are registered for a Professional Training Module (250EC), which provides support for learning of the work related skills acquired while on placement.

A group personal tutorial system exists for all first and second year full-time students and for final year Degree students. For final year Honours students their personal tutor is their project supervisor.

For first year students, the personal tutorial system is embedded into an integrative study module, 100CT Computing Perspectives. Students meet with their personal tutors in small groups on a weekly basis during the teaching of this module.

All full-time/sandwich students receive advice and guidance on their future programme of study and associated regulations. There is an induction week for first year students and half day sessions for returning students. Also around the Easter period, each year a group of students is briefed by their Programme Leader regarding end-of-year results arrangements, the resit processes and start-up information for the following academic year.

To give specific and encouragement to first year students, there is a Cohort Coordinator (First Year Tutor) who works closely with the Programme Leader in this respect. Cohort Coordinator will lead the activities taking place in the Induction Week and give follow-on support and advice to ensure the students settle in well to their studies. The Cohort Coordinator will also be directly involved in the Easter briefing session and the processing of results.

The Manager of Part-time Undergraduate Studies acts as an advisor to all part-time students.

Reasonable adjustments can be made to the teaching, learning, assessment and support of the course(s) to maximise accessibility to students with disabilities. The Faculty has a Learning Support Co-ordinator who is available to give advice on matters concerning students with a disability and/or a learning difficulty. The Mathematics Support Centre within the Faculty offers support for students with the mathematics/quantitative aspects of their course.

The Computing Support Centre within the Faculty offers daily support, particularly for first year students with their further understanding and development of programming skills.

All students receive a Student Handbook giving a range of course information including full details of each curricula and associated regulations, as well as general details applicable to all students in the Faculty.

Module guides are provided giving, as a minimum, the teaching and assessment schedule and the form of assessment.

14 Criteria for Admission

14.1 Candidates for admission to Stage 1 of the course will normally be at least 18 years of age by 31st December of the year of entry and satisfy the University's standard entry qualifications of:

- i) Minimum of 5 Grades A-C with a grade C or above in Mathematics and English at GCSE level or equivalent
- ii) Minimum of two GCE/VCE A-Levels (or equivalent) qualifications for entry onto a degree programme. Passes in AS Levels can be counted towards the Tariff Point total, however, these must not be double counted for a subject that has been continued onto A2 Level.

14.2 Offers of a place on one of the courses will normally require qualifications in excess of these minimum requirements.

14.3 The Faculty encourages applications from candidates over the age of 21. In assessing such applications, consideration will be given to the applicant's ability to successfully complete a degree programme and to what additional support may be required and how it may be provided. Due credit will be given for relevant previous work and learning experiences.

14.4 Entry with Advanced Standing

Students who have already obtained academic or professional qualifications in subjects related to computing are invited to apply for entry at a stage later than the start of the course.

The standard university regulations for accreditation of prior learning will be applied.

15 Method for Evaluating and Enhancing the Quality and Standards of Teaching and Learning

Under the current structures of the Faculty, the Programme is managed by the Board of Study (BOS) of the Computer and Network Systems department.

The Programme Assessment Board (PAB) for Undergraduate Programmes in Computing is responsible for considering the progress of all students and making awards in accordance with both the University and course-specific regulations.

The assurance of the quality of modules is the responsibility of the Board of Study (BOS) of the Computer and Network systems Department.

External Examiners report annually on the programme and their views are considered as part of the annual quality monitoring process (AQM). Details of the AQM process can be found on the Academic Registry's web site.

Students are represented on the Course Consultative Committee, Departmental Board of Study and Faculty Board, all of which normally meet two or three times per year.

Student views are also sought through module and course evaluation questionnaires.

All programmes are subject to a major review, normally on a five or six year cycle. At these reviews the views of current and former students, and employers are sought.

16 Regulation of Assessment

University policy requires the internal moderation of assessments.

External Examiners are appointed for all named University awards. The role of the External Examiner at module level is to ensure that academic standards are in line with national norms for the subject. External Examiners undertake the moderation of examination papers, and view representative samples of work for the modules for which they have responsibility. At programme level, External examiners help to ensure fairness in the consideration of student progression and awards. They have the right to comment on all aspects of the assessment system and participate as full members of the assessment boards.

The Pass mark for all modules is 40%. This overall module mark may comprise more than one component (e.g. coursework and exam). The individual module descriptors give the precise pass criteria and the weighting of the component marks that contribute to the overall module mark.

On Undergraduate programmes, the Honours classification boundaries for First Class, Upper Second Class, Lower Second Class and Third Class are 70%, 60%, 50% and 40% respectively.

17 Indicators of Quality and Standards

17.1 Subject review and Discipline Audit Trail (DAT)

At the last QAA DAT of Computing in 2004 the subject was found to be satisfactory. The last subject review in the former School of MIS was for Mathematics Statistics and Operational Research where 23 points out of 24 were awarded.

17.2 Investors in people

The Faculty has Investors in People (IiP) status(gained in November 2001 and renewed in 2004)

17.3 External Examiners Reports

External Examiner reports give a view on the health of the courses, the quality of the graduates and the standards that prevail. There are two external examiners for the degree courses in the Department of Computing and Network Systems. They each have a subset of modules for which they are responsible at the department's Subject Assessment Board (SAB). Both external examiners have responsibility with regard to the final year project. The external examiners are also responsible to the Programme Assessment Board(PAB).

Points of significance from external examiners' comments are:

Standards are high at both module and course level.

The organisation and operation of SABs & PABs continues to be efficient and effective.

The introduction of module boxes and consequent availability of samples of coursework is commended.

Samples of work from the top students were judged as excellent, especially project work.

Good practice was seen with clear comments from the second marking of borderline examination scripts.

Overall, the course programme is healthy with standards being maintained.

17.4 British Computer Society exemptions and accreditation

The course curricula of the Computing portfolio within the Faculty have been designed to meet the guidelines of the British Computer Society (BCS). Accordingly, it has been felt important to seek from the BCS an appropriate level of approval to our courses in terms of their professional requirements and the Society's examinations.

Following full BCS panel visits in November 2004, 2000 and 1991 successful outcomes have resulted on all occasions.

Now operating under UKSPEC regulations from the Engineering Council, the exemptions include:

Full Exemption from the BCS Professional Examination for all Honours Degrees and specialist Masters degrees in the computing portfolio.

Accredited as partially meeting the education requirement for CEng/CSci registration for all Honours Degrees in the computing portfolio.

Exemption from BCS Professional Examination Certificate & Diploma (papers only) for Unclassified Degrees, and HNDs in the computing portfolio.

18 Additional Information

Key sources of information about the course and student support can be found in:

- In the Student handbook
- On-line on the Programme Web
- On-line on the Faculty Web
- On-line in the Module Information Directory (available via the university web)
- Study Support information is through CUOnline

19 Mandatory and Option Modules

Module code	Module title	Credit value	Prereq.	Status	
				Ethical Hacking and Internet Security	Internet and Enterprise Computing
Level 1					
100CT	Computing Perspectives	20		M	M
110CT	Object-oriented Programming	20		M	M
120CT	Computer Architecture	20		M	M
124MS	Logic and Sets	20		M	M
104KM	Information Systems	20		M	M
106CR	Designing for Usability 1	20		M	M
	Add+vantage Module	10		M	M

Module code	Module title	Credit value	Prereq.		
				Ethical hacking and Network Security	Internet and Enterprise Computing
Level 2					
200CT	Professional Skills and Group Project	20	60 credits at level 1 plus (100CT or H100CT)	M	M
207SE	Operating Systems and Security	20		M	O
210CT	Advanced Programming	20	110CT		M
220CT	Database Systems	20	60 credits at level 1	M	M
230CT	Internet Technology	20	110CT		M
245CT	Ethical Hacking 1	20	110CT	M	
250CT	System Architecture and Networks	20	120CT	M	M
260CT	Software Systems Engineering	20	110CT and 104KM		
270CT	Mobile Applications Development	20	110CT and 120CT		
280CT	User Interface Development	10	110CT and 106CR		M
250EC	Professional Training	40	200 credits(100 at level 2)	O	O
290CT	Computer Law and Digital Investigation	10	100CT	M	
	Add+vantage module	10		M	M

Module code	Module title	Credit value	Prereq.		
				Ethical Hacking and Network Security	Internet and Enterprise Computing
Level 3					
300CT	Computing Project	30	200CT plus 60 credits at level 2	M	M
310CT	Intelligent Agents	20	210CT or 219CR or 230CT	O	O
320CT	Distributed Applications Development	20	230CT or 270CT	O	M
330CT	Advanced Computer Architecture	20	250CT	O	O
340CT	Large Scale Software Development	20	260CT	O	O
345CT	Ethical hacking 2	20	245CT 290CT 250CT	M	
350CT	Systems Security	20	60 credits at level 2	M	O
360CT	Advanced Network Management and Design	20	250CT	M	O
370CT	Concurrent and Real-time Systems Design	20	124MS and (210CT or 219CR)	O	O
380CT	Formal Aspects of Computer Science	20	124MS and (210CT or 219CR)	O	O
395CT	Enterprise Systems Development	20	220CT	O	M
	Level 3 Add+vantage module	10		M	M

Key

M Mandatory (i.e. must be studied and passed)

O Option

20 Curriculum Map

Module codes	Knowledge And Understanding					Cognitive Skills				Practical skills				Transferable Skills						
	KU 1	KU 2	KU 3	KU 4	KU 5	CS 1	CS 2	CS 3	CS 4	PS 1	PS 2	PS 3	PS 4	TS 1	TS 2	TS 3	TS 4	TS 5	TS 6	
Level 1																				
100CT	✓	✓	✓	✓	✓	✓				✓		✓		✓	✓	✓	✓	✓		
110CT	✓			✓		✓				✓						✓		✓		
120CT	✓		✓	✓		✓				✓						✓		✓		
124MS	✓					✓				✓						✓		✓		
104KM	✓	✓	✓	✓		✓				✓		✓		✓		✓		✓		
106CR	✓		✓			✓				✓	✓					✓		✓		
Level 2																				
200CT	✓	✓	✓	✓		✓				✓	✓	✓		✓	✓	✓	✓	✓		
210CT	✓			✓		✓				✓						✓		✓		
220CT	✓	✓	✓	✓	✓	✓				✓						✓		✓		
230CT	✓			✓	✓	✓				✓	✓					✓		✓		
245CT	✓					✓				✓				✓						
250CT	✓		✓	✓	✓	✓				✓						✓		✓		
260CT	✓	✓	✓	✓		✓				✓				✓		✓		✓		
270CT	✓			✓	✓	✓				✓	✓					✓		✓		
280CT	✓					✓				✓	✓					✓		✓		

290CT		✓	✓	✓								✓						
219CR	✓			✓		✓										✓		✓
Level 3																		
300CT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
310CT	✓		✓	✓	✓	✓				✓						✓		✓
320CT	✓		✓	✓	✓	✓				✓						✓		✓
330CT	✓		✓	✓	✓	✓				✓						✓		✓
340CT	✓	✓	✓	✓	✓	✓									✓		✓	✓
345CT	✓					✓				✓					✓			
350CT	✓		✓	✓	✓	✓				✓						✓		✓
360CT	✓		✓	✓	✓	✓				✓						✓		✓
370CT	✓		✓	✓	✓	✓				✓						✓		✓
380CT	✓		✓	✓	✓	✓				✓						✓		✓
395CT	✓		✓	✓	✓	✓				✓	✓					✓	✓	✓

21 Capabilities (Skills) Map

Module codes	Learning to Learn	Working with others	Problem Solving and Innovation	Numeracy	IT and Online Learning	Communication	Career Management	Information Management	Personal Development Planning
Level 1									
100CT	TPA	TPA			TPA	TPA	TPA	TPA	TPA
110CT	P		TPA		P				P
120CT	P		TPA	TPA	P				P
124MS	P		TPA	TPA	P				P
104KM	P		TPA		P	TPA		TPA	P
106CR	p		TPA		P	TPA			P
Level 2									
200CT	TPA	TPA	TPA	P	P	TPA	TPA	TPA	P
210CT	P		TPA	P	P	P			P
220CT	P		TPA	P	P	P		TPA	P
230CT	P	TPA	TPA	P	P	P		TPA	P
245CT	P		TPA	P	P	P			
250CT	P		TPA	P	P	P			P
260CT	P	TPA	TPA	TPA	P	P		TPA	P
270CT	P	P	TPA	P	P	P			
280CT	P	P	TPA	P	P	P			P
219CR	P		TPA	P	P				

Level 3									
300CT	TPA		TPA	P	P	TPA		TPA	P
310CT	P		TPA	P	P	P			P
320CT	P	P	TPA	P	P	P			P
330CT	P		TPA	P	P	P			P
340CT	P		TPA	P	P	P			P
345CT	P		TPA	P	P	P			
350CT	P		TPA	TPA	P	P			P
360CT	P		TPA	P	P	P		TPA	P
370CT	P		TPA	P	P	P			P
380CT	P		TPA	TPA	P	P			P
395CT	P	PA	TPA	P	P	P		TPA	

Key: T=Taught, P=Practiced, A=Assessed

Capability Outlines (from the Code of Practice for Academic and Skills Development)

Learning to Learn - Students should be ready to accept responsibility for their own independent learning. They should also be able to reflect on their learning and appraise their capabilities and achievements. Students should also be able to identify their individual needs for effective learning.

Working with Others - Students should be able to work effectively as part of a group, and respect the dignity, rights and needs of others.

Problem Solving and Innovation - Students should be able to use problem-solving skills in a variety of practical situations. They should be able to demonstrate creativity, flexibility, perception, decisiveness, confidence and an awareness of values.

Numeracy - Students should be able to interpret, analyse and present numerical data.

IT and Online Learning - Students should be able to use computer-based systems for learning, communicating, collaborating with peers and tutors, and working with data.

Communication - Students should be able to communicate effectively in appropriate forms in a wide variety of situations.

Career Management - Students should appreciate the values, culture, structure and process of work organisations relevant to their area of study. Students should also appropriately match their experience and academic achievements to employer expectations.

Information Management - Students should be able to carry out research relevant to their field of study by retrieving and using information drawn from a variety of resources.

Personal Development Planning - Students should be able to demonstrate self-awareness, set personal goals and record achievement.

22 Recommended Programmes of Study for the Courses

Note:

Overseas Consideration

At each stage the ADD-Vantage module plus the 10 credit may be substituted by a 20 credit module from the same scheme if the degree is taken at an overseas partner institution.

22.6 BSc (HONOURS) Ethical hacking and Network Security

Module Code	Module Title	CREDITS	Status
Stage 1			
100CT	Computing Perspectives	10	M
110CT	Object-oriented Programming	20	M
120CT	Computer Architecture	20	M
124MS	Logic and Sets	20	M
104KM	Information Systems	20	M
106CR	Designing for Usability 1	20	M
	module chosen from the University's list of Add+Vantage modules	10	O
Stage 2			
200CT	Professional Skills and Group Project	20	M
207SE	Operating Systems and Security	20	M
245CT	Ethical Hacking 1	20	M
250CT	System Architecture and Networks	20	M
270CT	Mobile Applications Development	20	M
290CT	Computer Laws and Digital Investigation	10	M
	module chosen from the University's list of Add+Vantage modules	10	O
Stage 3			
300CT	Individual Project	30	M
345CT	Ethical Hacking 2	20	
350CT	Systems Security	20	
360CT	Advanced Network Management and Design	20	M
	Level 3 module from CT approved list of modules	20	O
	module chosen from the University's list of Add+Vantage modules	10	O

22.6 BSc (HONOURS) Internet and Enterprise Computing

Module Code	Module Title	CREDITS	Status
Stage 1			
100CT	Computing Perspectives	10	M
110CT	Object-oriented Programming	20	M
120CT	Computer Architecture	20	M
124MS	Logic and Sets	20	M
104KM	Information Systems	20	M
106CR	Designing for Usability 1	20	M
	Level 1 module chosen from the University's list of Add+Vantage modules	10	O
Stage 2			
200CT	Professional Skills and Group Project	20	M
210CT	Advanced Programming	20	M
220CT	Database Systems	20	M
230CT	Internet Technologies	20	M
280CT	User Interface Development	10	M
	Level 2 module from CT approved list of modules	20	O
	Level 2 module chosen from the University's list of Add+Vantage modules	10	O
Stage 3			
300CT	Individual Project	30	M
320CT	Distributed Applications Development	20	M
395CT	Enterprise Systems Development	20	M
	Level 3 module from CT approved list of modules	20	O
	Level 3 module from CT approved list of modules	20	O
	module chosen from the University's list of Add+Vantage modules	10	O

Part 2: Supporting Information for Scheme of Undergraduate Courses in Computing

1 Relationship to the National Qualifications Framework, Subject Benchmarks and Professional/Statutory Body requirements

1.1 Previous courses and developments

These courses are rooted in an extended period of provision at Coventry University in Computing. These courses have evolved over a long period to:

- provide opportunities for students from a range of backgrounds who wish to further their studies in this area;
- equip students with both transferable and professional skills thereby preparing them for employment in industry, business or education;
- produce graduates with the critical and reflective skills required for further study and research;
- deliver a stimulating curriculum, with particular emphasis on emergent technologies and developments in the practice of Computing;

These courses have in every case been favourably reviewed by external reviewers, including the QAA (who performed a DAT in 2004) and the British Computer Society (who undertook an accreditation visit in November 2004)

1.2 Rationale for the Scheme of Degrees in Computing

Computing or Computer Science is a well-established subject area in many higher education establishments. Whilst the numbers of applicants to computing courses has fallen globally over the last few years, the subject area remains relatively popular and offers graduates good career prospects. For these reasons a new scheme of degree courses in the computing area has been developed. Specialist titles are available, which allow students to focus their study on certain named aspects of the discipline in line with their interests or career aspirations

The curriculum is based on three main topics: the underlying technology that is used in computing; the design of software to meet user and technical requirements; and the implementation of computing systems in a variety of contexts

1.3 Academic Infrastructure

The current degree has been designed in accordance with the guidance issued by the Quality Assurance Agency (QAA) for Higher Education (HE) for the implementation of the framework for qualifications in the HE sector. Learning outcomes are identified for the degree and these migrate through to the mandatory modules for the course and their individual learning outcomes and associated assessment. These mappings as they relate to each course are shown in Section 20 of the programme specification.

The principles contained in the Computing benchmark statement have been followed in the design of the degree.

From surveys conducted with employers and both prospective and current students over the years, the most important aspects in terms of course design were found to be:

- Practical, transferable and professional skills especially in project work
- Maintenance of high standards

Our recent External Examiners have consistently commented that:

- Standards are high
- Processes are well organised
- Aspects of good practice are developing

In overall terms, they have judged the course programme to be healthy with standards being maintained.

2 Teaching and Learning Strategy

- 2.1 The structure of the course reflects the need to cover a breadth of study relevant to a degree within the Computing benchmark and additional depth appropriate to honours level for the specialisms reflected in these courses. The learning outcomes for the course together with those for its component mandatory modules are set out to ensure the standard of the award.

- 2.2 The underlying principle of the overall teaching and learning strategy associated with the course is to enable a focussed range of learning opportunities which are appropriate to the main application area of the degree. The approaches adopted include student-centred and self-paced learning in addition to more traditional methods. The proportions of these different components will vary from module to module as appropriate to the student population and the subject material and from time to time.

Within each module description, the aims and learning outcomes are defined. Each module also has an identified allocation of hours. This should be interpreted as a convenient way of estimating the requirements of each module in terms of staff and accommodation. The actual allocations on a year-by-year basis may differ.

- 2.3 Staff will be assigned to each module before the start of each session based on the number of hours defined for that module and the estimated student enrolment on the module.

As soon as staff have been assigned to a module, a module leader will be nominated to co-ordinate the activities of the module team. The team will draw up and publish a teaching programme and assessment schedule for the year. Each team will decide how to use the staff resource available for that module to achieve the intended learning outcomes in the most effective ways.

- 2.4 The time indicated in each module specification as lecture time will be used in a variety of ways.

The traditional lecture is still seen as an effective way of presenting knowledge and interacting with groups of students. Some lectures will make significant use of student handouts to back up the lectures as well as use of pre-prepared slides and other aids to allow students to concentrate on the subject matter of the lecture without undue emphasis on note taking. In other lectures, the nature of the material will lend itself to a disciplined development on a board. This practises the valuable skill of note-taking.

Student-centred learning is used as appropriate as an alternative or as a supplement to conventional lectures. This may be based on published material available from the library but the Faculty has also developed experience of producing its own materials. In either case the time allocated for lectures will be used to set the context, set learning targets and to cover topics where the group as a whole may experience difficulties.

- 2.5 Group and project work is an important feature of study within a technical subject since future careers often require team working. Group coursework enables students to work together on reasonable size assignments as they would in a small project team in industry. The degree includes modules at levels 1 and 2 which contain a group project which is undertaken partly to develop transferable skills alongside technical ones.

The final-year project is one of the principal features of an Honours programme. This is a major individual piece of work serving as the main vehicle for integration of the course modules studied. The project is expected to be a substantial practical problem-solving exercise emphasising, as appropriate, various aspects of practice in the computing industry. Students will not only extend their knowledge and experience in their specialised area of interest but they will be able to improve their ability to organise and time-manage as well as promote their skills in investigation and communication, taking initiatives and making decisions.

- 2.6 The impact of the World Wide Web is such that there are web sites providing information and offering services for practically every area of our lives. The University has taken advantage of this type of facility by adopting CU Online, a web-based application to complement other aspects of teaching and learning. CU Online can support many of the activities that occur within the operation of a module for those students who are registered to study on it, and provides a forum for communication between a member of staff and students, and between students on an individual module. Alongside CU Online, there are programme webs that operate as bulletin boards for students enrolled on a course within a specific programme, ie group of courses.

3 Assessment Strategy

For all students, the University regulations for assessment and reassessment apply.

- 3.1 The range and type of modules contained in the degree reflects the nature of the discipline and the need for appropriate balance between theoretical and practical aspects, and also individual and group work. Accordingly, some modules are appropriate for coursework only assessment. For other modules other weightings are applied, namely 30:70 or 50:50 for coursework : examination.
- 3.2 A module may be included in a programme of study if its prerequisites have been satisfied, i.e. a pass has been obtained in the relevant module(s). An exemption from a module (e.g. accreditation

for prior learning) constitutes a pass in that module.

- 3.3 The attainment of students is monitored throughout the course by a combination of the assessed coursework and invigilated written examinations. The importance of these two components will naturally vary between modules. The learning outcomes for individual modules and the related assessment are given in the module descriptors.
- 3.4 Where students have registered for a module which includes a component of written examination, they are expected to present themselves at the appointed times and places for the invigilated examinations. Where students have registered for a module that includes a coursework component they are expected to submit coursework/portfolio by the times stipulated. Failure to comply with either of these requirements shall normally be deemed to constitute failure in that particular assessment unless there is some valid cause for which acceptable evidence is produced. For Part-time students unexpected work commitments may exceptionally be regarded as a valid reason for a delayed first attempt.
- 3.5 A student will normally be deemed to have passed a module if the marks in ALL the individual assessment components AND the overall mark (the weighted sum of the marks of the components) meet the requirements set by the Department responsible for that module. Where a module has more than one component of assessment, a student may be required to achieve a minimum mark in each component AND reach the pass mark for the module overall.
- 3.6 Module results are determined by the Subject Assessment Board responsible for the Department the modules and a student's overall progress is assessed by the Departmental Programme Assessment Board responsible for the course.
- 3.7 The overall assessment for the degree is determined by the modules which are included in its programme of study. The assessment structure for each module is designed in relation to the learning outcomes of the individual module. These will reflect:
- the subject matter of the module and whether the module aims to contribute either skills or knowledge or both;
 - the level of the module, which reflects a number of broader academic objectives that must be adhered to by all University modules.

From this, the appropriate balance between formative and summative assessment, between continuous assessment, coursework assignments and written examinations, and between different methods of assessment, e.g. group or individual work, is determined.

4 Programme/Course Management

4.1 Faculty Structure

There are three main bodies responsible for educational programme management and assessment. These are:

- **Board of Study (BOS)** is established by the Faculty for each department. It is responsible for the design, development and delivery of modules within each department. It is also responsible for the effective delivery, evaluation and revision of the courses and the students' programme of studies in each department.
- **Programme Assessment Board (PAB)** is established by the Faculty for each department. The board is responsible for determining the progress or otherwise of students at intermediate stages of courses and the decisions or recommendations, as appropriate, at the final stage.
- **Undergraduate Subject Assessment Board (SAB)** is established by the Faculty for each department and is also responsible for determining the assessment results for each module within its department.

Each operates within the existing framework of the committee structure, responsible ultimately to the Academic Board.

4.2 Structure for the Computing Scheme.

The Department of Computing and Network Systems has responsibility for the courses described in this Programme Specification. There is a Subject Assessment Board (SAB) with external examiners responsible for moderation of a cognate group of Level 2 and 3 degree modules as specified by the sub-groups identified

above.

There is a Board of Study which has the overall responsibility for all the named degree awards in the area. This Board reports to the Faculty Board.

There is an Undergraduate Programme Assessment Board (PAB) which determines the progression and awards of students on the courses in the department.

An Undergraduate Student Support Office provides advice on all matters to all students and provides support for the processes relating to the management and operation of the courses.

4.3 External Examiner

External Examiners are appointed to each SAB and scheme of courses within the remit of the Programme Board. All undergraduate external examiners are expected to attend the undergraduate PAB.

4.4 Management Structure for the Degree

The degree is managed and operated as follows:

Programme Leader

- is responsible for the development, delivery and enhancement of the courses in the Department
- is responsible for the day-to-day management of the courses

Cohort Coordinator

- is responsible for the day-to-day supervision of stage 1 of students .

Manager of Part-Time Undergraduate Studies and Local Partnerships

- is responsible for part-time degree students, per se
- is responsible for the co-ordination of local partnership activities

Professional Training Tutor

- A Professional Training Tutor supports the process of procuring suitable training places for students intending to pursue a sandwich course, and for the monitoring of the training programme undertaken by the students. This activity is carried out in conjunction with a member of the administrative staff.

Personal Tutor

- is a point of contact and advisor to students on individual matters

Portfolio Manager

- is responsible for the general co-ordination of all undergraduate Computing group of courses within the Faculty.

Course Consultative Committee:

The students of this degree will participate in the Computing CCC which provides an effective mechanism whereby staff and students discuss issues and interchange views meeting three times per year or as necessary to deal with issues of an urgent nature.

Note: Feedback from part-time students is coordinated by the Manager of Part Time Undergraduate Studies.

5 Compliance with the University's Academic Regulations and current legislation

These courses belonging to this scheme are designed to operate within the Mode C Regulations of the University.

6 Entry Requirements and Selection Procedures

BSc (Honours) in Ethical Hacking and Network Security

5 GCSEs at grade A-C including Mathematics and English Language and 260 Tariff points or equivalent

BSc (Hons) in Internet and Enterprise Computing

5 GCSEs at grade A-C including Mathematics and English Language and 240 Tariff points or equivalent
