



# **Programme Specification**

**Title of Course: BSc (Hons) Computing (Top-up)**

**Date Specification Produced: 7<sup>th</sup> October 2013**

**Date Specification Last Revised: September 2019**

This Course Specification is designed for prospective students, current students, academic staff and potential employers. It provides a concise summary of the main features of the course and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content of each module can be found in Student Handbooks and Module Descriptors.

## **SECTION 1: GENERAL INFORMATION**

<b>Title:</b>	BSc (Hons) Computing
<b>Awarding Institution:</b>	Kingston University
<b>Teaching Institution:</b>	<i>North East Surrey College Of Technology</i>
<b>Location:</b>	<i>NESCOT</i>
<b>Course Accredited by:</b>	

## **SECTION2: THE COURSE**

### **A. Course Introduction**

The aim of the BSc (Hons) Computing one year top-up is for students to achieve at a high academic standard and to provide them with the technical skills to become computing professionals. This is achieved in the following ways:

- The BSc (Hons) Computing top-up is an Undergraduate Degree designed to support those progressing from the HND and Foundation Degree to level six.
- Our programme gives students relevant academic and technical skills, while broadening their employment options through the development of research, practical work and theoretical study.
- Our industry contacts inform the composition of the disciplines within the programme and give students the opportunity to use that knowledge in embedded work projects.

The NESCOT BSc (Hons) Computing is respected by local employers and industry. The course is designed as a one year top-up for students who have a relevant HND or Foundation Degree and a suitable profile of achievement.

The smooth transition from these level 5 programmes is ensured through rigorous assessment as part of the interview and selection process, including diagnostic tests covering the core subjects, graded interview of candidates in addition to literacy and numeracy assessment. This information is used as the basis for the NESCOT Computing Bridging Course that supports suitable candidates in gaining the additional research and academic writing skills to succeed on the programme. The support process is ongoing and assists with any knowledge or skills gaps identified at the beginning of the programme. The assessment and recruitment process also allows the Programme Coordinator to identify the appropriate route for each candidate.

The BSc (Hons) Computing is offered in both full-time and part-time modes and has an excellent history of work experience both in large national companies and in small

and medium sized (SME) industries. The curriculum is backed by the research undertaken within the School of Accounting, Business and Computing.

In addition the programme is informed by the College's ABC Industrial Forum which includes representatives from the information technology (IT) industry. Links with companies like SAP, CISCO, LINUX, MICROSOFT and CYBEROAM keep the programme vocationally relevant and respected by employers. Our staff are highly qualified teaching professionals and all have industry experience across a variety of disciplines.

Vendor curriculums are an invaluable addition to the programme. They help students progress their education and provide the right skills for students to find sustainable employment as an IT professional. Aspects of Cisco CCNA, Cyberoam UTM CCNSP, Linux, Microsoft Server Admin and Oracle Data modelling and Database Programming are embedded into the curriculum content. This means that students have the opportunity to gain certification in this area with limited further study.

To complement a chosen career path the BSc (Hons) Computing can be tailored to the student's own academic and technical strengths. This is done through the identification of an optional module to be taken in the key area of Software Development and Advanced Networking.

The programme is designed to equip students with the knowledge and skills base required for life-long learning in a continually expanding area. To facilitate this, the programme team provide a range of learning and teaching strategies and experiences for our students.

Students undertake project based exercises which culminate in an individual capstone project. Allocated projects are designed to provide the 'honours challenge' expected of graduates in this field. Students are also encouraged to propose their own ideas for a project. Students are expected to undertake work experience during the programme to further develop employability skills, and to allow exploration of new technologies and techniques.

Most full-time students who have completed the programme and work experience have gained employment as a result of their studies and those who studied part-time have gained promotion or have taken up new posts.

Students progressing from level 5 higher education programmes will develop their practical and analytical skills to achieve a degree level qualification and go on to meet the growing global demand for workers in the computing sector. Graduates from the BSc (Hons) Computing top-up course will also have a viable level 6 qualification with which to apply for post-graduate Master's Degree study.

## **B. Aims of the Course**

- Provide a rewarding learning experience which combines research and academic writing skills with the study of communication technology, operating systems, wireless networks, software development, security and business management relevant to industrial and commercial environments.
- Provide students with the skills and professional qualities necessary for a successful career in computing or progression to post graduate study.
- Meet the changing needs of industry, commerce and public services and respond to technological developments in the computing field as appropriate.

## **C. Intended Learning Outcomes**

The course provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The course outcomes are referenced to the QAA subject benchmarks for Computing (March 2007) 2<sup>nd</sup> Edition and the Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008), and relate to the typical student.

<b>Course Learning Outcomes</b>					
	<b>Knowledge and Understanding</b>		<b>Intellectual skills – able to:</b>		<b>Subject Practical skills</b>
	<b>On completion of the course students will be able to:</b>		<b>On completion of the course students will be able to:</b>		<b>On completion of the course students will be able to:</b>
A1	Demonstrate detailed knowledge of Computing with specialisation and depth in identified areas.	B1	Undertake research and critically evaluate data and other information sources.	C1	Decide on the effectiveness of various practical approaches and recommend solutions.
A2	Analyse problems and identify strategies for their solutions with consideration of technical factors.	B2	Work autonomously and accept accountability and work effectively as part of a team.	C2	Demonstrate technical awareness in Computing which can be applied to a rapidly changing environment.
A3	Demonstrate awareness of relevant social, ethical, legal, professional and environmental issues applicable to rapidly evolving technology based business.	B3	Critically evaluate key theoretical frameworks and principles in a range of contexts appropriately integrate theory and practice.	C3	Operate effectively in a variety of platforms and environments.
A4	Plan, organise and review professional development to ensure continuous improvement.	B4	Use technical literature effectively to develop own knowledge base and understanding and formulate their own technical theories, arguments and ideas.	C4	Use a wide range of workshop equipment safely, carefully, precisely and efficiently.
<b>Key Skills</b>					
	<b>Self Awareness Skills</b>		<b>Communication Skills</b>		<b>Interpersonal Skills</b>
AK1	Take responsibility for own learning and plan for and record own personal development.	BK1	Express ideas clearly and unambiguously in writing and the spoken work.	CK1	Work well with others in a group or team.
AK2	Recognise own academic strengths and weaknesses reflect on performance and progress and respond to feedback.	BK2	Present, challenge and defend ideas and results effectively orally and in writing.	CK2	Work flexibly and respond to change.
AK3	Organise self effectively, agreeing and setting realistic targets, accessing support where appropriate and managing time to achieve targets.	BK3	Actively listen and respond appropriately to ideas of others.	CK3	Discuss and debate with others and make concession to reach agreement.
AK4	Work effectively with limited supervision in unfamiliar contexts.			CK4	Give, accept and respond to constructive feedback.
				CK5	Show sensitivity and respect for diverse values and beliefs.
	<b>Research and information Literacy Skills</b>		<b>Numeracy Skills</b>		<b>Management &amp; Leadership Skills</b>
DK1	Search for and select relevant sources of	EK1	Collect data from primary and secondary	FK1	Determine the scope of a task (or project).

	information.		sources and use appropriate methods to manipulate and analyse this data.		
DK2	Critically evaluate information and use it appropriately.	EK2	Present and record data in appropriate formats.	FK2	Identify resources needed to undertake the task (or project) and to schedule and manage the resources.
DK3	Apply the ethical and legal requirements in both the access and use of information.	EK3	Interpret and evaluate data to inform and justify arguments.	FK3	Evidence ability to successfully complete and evaluate a task (or project), revising the plan where necessary.
DK4	Accurately cite and reference information sources.	EK4	Be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data.	FK4	Motivate and direct others to enable an effective contribution from all participants.
DK5	Use software and IT technology as appropriate.				
<b>Creativity and Problem Solving Skills</b>					
GK1	Apply scientific and other knowledge to analyse and evaluate information and data and to find solutions to problems.				
GK2	Work with complex ideas and justify judgements made through effective use of evidence.				
<b>Teaching/learning methods and strategies</b>					
<p>The range of learning and teaching methods and strategies include staff-student contact with a mixture of eLearning as part of blended learning:</p> <ul style="list-style-type: none"> <li>• Lectures</li> <li>• Computer workshops/laboratories</li> <li>• Group tutorials</li> <li>• One-to-one tutorials</li> <li>• Seminars</li> <li>• Problem solving classes</li> <li>• Directed reading (texts and work books, hard or e-copy)</li> <li>• Directed course of internet based lecture and tutorial videos</li> <li>• Directed research projects</li> <li>• External visits/guest speakers</li> </ul>					
<b>Assessment strategies</b>					
<p>The assessment strategies employed are designed to include formative and summative assessments which test the learning outcomes of the course using the following mechanisms:</p> <ul style="list-style-type: none"> <li>• Written examinations/tests</li> <li>• Multiple choice tests</li> <li>• Short answer tests</li> <li>• Practical demonstrations</li> <li>• Data interpretation exercises</li> <li>• Design exercises</li> <li>• Poster presentations</li> <li>• Essays</li> <li>• Individual reports</li> <li>• Group reports</li> <li>• Researched literature surveys</li> <li>• Simulation exercises</li> </ul>					



- Group presentations
- Individual presentations
- Essays

- Case studies
- Research
- Computer-aided assessment

## **D. Entry Requirements**

The minimum entry qualification for the course -is one of the following:

- Foundation degree in Computing from a UK university (or international equivalent recognised by NARIC)
- Edexcel BTEC Level 5 HND Diploma in Computing and Systems Development with a Merit grade profile.
- British Computer Society (BCS) Diploma in IT (level 5) including completion of the professional project
- HNC in a computing subject plus at least 3 years relevant work experience in a computing role

We will consider a range of alternative qualifications or experience equivalent to the typical offer. Mature candidates with equivalent professional experience will be considered on an individual basis. Accreditation of prior experiential learning (APEL) may be considered as part of entry requirements for those without formal qualifications. APEL will only be considered for entry to the course and not for exemption from any part of the BSc (Hons) Computing award. Applications from international students with equivalent qualifications are welcome

A minimum IELTS score of 6 overall is required with no element being less than 5.5, or equivalent, is required for those for whom English is not their first language.

All applicants sit a diagnostic assessment at interview. The diagnostic assessment will ascertain each applicant's knowledge of Database Concepts, Networking Concepts and Programming Concepts. Those who score 60% or more on each section will be considered eligible for entry to the BSc (Hons) Computing programme. Applicants who achieve less than 60% in the diagnostic assessment will be required to attend and successfully complete a NESOT Computing Bridging course in September prior to commencing the BSc programme. The course has no cost, no credit value, and comprises 40 guided learning hours and totals 100 hours of study. Database Concepts, Networking Concepts, and Programming Concepts will be studied over a 2 week period and testing will be undertaken in week two. For entry to the BSc (Hons) Computing programme a score of 50% or more is required in each element of the NESOT Computing Bridging course. If one element is failed a retake is permitted, however if more than one element is failed the candidate will be considered unsuited to the BSc Computing programme. The assessment methods used in the NESOT Computing Bridging course mirror those used during the BSc Computing programme. Those who are unsuccessful will be provided with advice and guidance to support them in finding alternative employment or training.

## **E. Programme Structure**

This programme is offered in full-time or part-time modes, and leads to the award of BSc (Hons) Computing. Students will select one of two optional modules in either 'Software Design and Development' or 'Routing, Switching and Security.'

### **E1. Professional and Statutory Regulatory Bodies**

N/A

### **E2. Work-based learning and work experience**

Work experience is actively encouraged and it is the responsibility of individual students to source and secure such experience. Students will focus on aspects of this experience in order to clearly understand theoretical concepts and to evaluate the relationship between theory and practice. This will also allow students to reflect upon their own personal experience of working in an applied setting.

NESCOT has strong links with employers so students may have the opportunity to carry out a real project for a company. This will allow students to develop interpersonal skills alongside technical skills and apply the methodologies, tools and techniques studied on the course.

NESCOT also provides access to the REED Employment Centre on site for students to apply for jobs and gain help with CVs, application forms and interview practice. For those who are unable to find appropriate work experience the opportunity to experience work in a technical support capacity will be provided at NESCOT.

### E3. Outline Programme Structure

The programme is made up of four modules, each worth 30 credit points. Students will be provided with the university regulations. Full details of each module will be provided in module descriptors and student module guides

Level 6 (at least 60 credits = core)								
Compulsory modules	Module code	Credit Value	Level	% Written exam	% practical exam	% course-work	Teaching Block	
Data Driven Web Application	CI6701	30	6	40		60	1	
Operating Systems and Computer Networks	CI6702	30	6	35	30	35	1	
Capstone Project	CI6703	30	6			100	2	
Optional modules								Pre-requisites
Software Design and Development	CI6704	30	6	50		50	2	None
Routing, Switching and Security	CI6705	30	6	30	35	35	2	CI6702

Level 6 requires the completion of 3 compulsory modules and 1 optional module.

### F. Principles of Teaching Learning and Assessment

#### Teaching

The teaching team engage in circular learning to allow the students to re-visit and retain important knowledge as well as apply new assessments and practices to existing knowledge. Throughout the programme emphasis is placed on formative assessment to support and develop students' knowledge and skills related to computing prior to module summative assessments. The programme commences with an induction period that familiarises students with each other, the programme requirements, the College

environment, policies and practices and academic writing conventions. To enable early identification of support needs and the implementation of effective support through on-line initial literacy and numeracy assessments are undertaken. During induction there also will be opportunities for students to meet the programme team, their tutor and college support staff.

Students will experience a range of teaching strategies and each module will involve a variety of methods depending on the learning outcomes, the needs of the students and the resources available. These will include:

- Formal lectures:
  - Face-to-face
  - Video lectures selected by academic staff
  - Master classes from industry experts
- Computer workshops/laboratories:
  - Individual and group work
  - Problem solving and other skill developing classes
  - Independent and guided learning from e-resources, texts and work books
  - Online e-learning forums and Blended learning
  - Use of Cisco, Microsoft and Oracle Academy materials
- Visits to outside organisations guest speakers, events such as Eurogamer and IPEXPO

Students are taught about research methods, interviewing, and how to distinguish between strong and weak evidence and argument, writing, decision making and analytical skills. Methodologies, programming languages and current technologies are also taught and students will apply these to the practical issues that exist in the working environment.

Scheduled contact time is normally between the hours of 1.30 - 8.30pm. In general, subject material and corresponding methods and techniques are introduced in lectures. Practical activities are regarded as essential to the understanding of the material and the development of relevant skills. Practical activities are often used for giving formative feedback on assessment components. In addition there are daily drop-in sessions at the Learning Resource Centre (LRC) where support is provided on a one-to-one basis. The LRC also houses an independent higher education (HE) learning suite.

Students are encouraged to develop as independent learners as they progress through the BSC (Hons) Computing programme. Typically there is greater contact time at start of the year to provide initial academic support. Student contact with staff reduces later in the year as more time is devoted to self-directed or guided study time.

### Research Informed Teaching

The course team is research active and the following areas are incorporated into the course design:

- Code Academy is an online programming environment that has emerged as the latest online learning system to follow in the footsteps of the O'Reilly School of Technology and the Netmath program at the University of Illinois. It has been created with a pedagogical stand to improve the way we teach with technology. Targeted at those students who are new to programming or wish to improve their skill level, it provides an immersive learning experience in which practical exercises can be delivered in a stimulating, engaging fashion,

with real-time feedback provided to the student as they work and progress at their own pace.

Staff also engage with research into teaching and learning in higher education which feeds through to support learning in lectures and other forms of student engagement.

## **Learning**

A practical approach enables students to build confidence and become motivated by experience. Students develop a wide range of practical skills such as creating and registering their own web-based applications, coding, troubleshooting and designing networks. The lectures and associated practical tasks are uploaded to our dedicated virtual learning environment (VLE) providing the student with a permanent accessible resource.

In some of the modules students will develop systems as members of a team and as an individual. For example, in the Data-Driven Web Application module students are aided in developing their programming using various Integrated Development Environments (IDEs), tools and techniques. Students also work on client requirements and case studies.

In the Advanced Networking modules students extend their understanding of networking and security by studying the Cisco CCNA vendor qualifications. Students are also exposed to Unified Threat Management by studying aspects of the curriculum for Cyberoam's Cyberoam Certified Network & Security Professional (CCNSP) and use simulation tools such as Packet Tracer and WireShark.

The Capstone Project is an individual piece of work which offers students the opportunity to integrate their cumulative academic studies and practical skills with a single project, which may be for a real client.

'Programming surgery' sessions are provided for students needing further help. In addition students have access to Cisco Hardware Labs to practice and further develop skills. Learning materials from Cisco Academy courses provide students with access to the very latest developments, and provide students with opportunities to work with these tools. Supplemented with lectures and seminars on key topics, a variety of teaching and learning strategies are deployed, coupled with a range of assessment strategies such as practical assessments, case studies and qualities examinations.

## **Assessment**

The BSc (Hons) Computing top-up focuses on assessment across a range of writing and presentational genres. The depth and sophistication of student's theoretical understanding is assessed together with the student's ability to effectively apply skills and knowledge in computing employment contexts.

Assessment is an integral part of our learning and teaching strategy. Formative assessment is used to provide timely feedback to aid students' learning and provide guidance to help them prepare for summative assessment. Feedback highlights areas in which students have performed well and areas that need further development or research.

Formative assessment strategies and feedback opportunities include multiple choice assessments and short answer questions as well as presentation of group projects to a

panel. Mock exams which are designed to reinforce concept learning and build subject confidence may be delivered online as part of computer-aided assessment. Other feedback opportunities are afforded during preparation for summative assessment, for example the review of draft assignments by peers and/or tutors.

Applied professional standards, including legal and ethical considerations, are addressed in the project module.

In the programme overall, the following components are used in the assessment of the various modules:

- *Multiple choice or short answer questions*: to assess competence in basic techniques and understanding of concepts.
- *Long answered structured questions* in coursework assignments: to assess ability to apply learned techniques to solve simple to medium problems and which may include a limited investigative component.
- *Long answer structured questions* in end-of-module examinations: to assess overall breadth of knowledge and technical competence to provide concise and accurate solutions within restricted time.
- *Practical exercises*: to assess students' understanding and technical competence.
- *Group-based case studies*: to assess ability to understand requirements, to provide solutions to realistic problems and to interact and work effectively with others as a contributing member of a team. The outcomes can be:
  - *Written report*, where the ability to effectively communicate the relevant concepts, methods, results and conclusions is assessed.
  - *Oral presentation/Viva*, where the ability to summarise accurately and communicate the key points clearly in a brief presentation is assessed.
  - *Poster presentation* where information and results must be succinct and eye-catching.

Key skills developed throughout the course form an integral part of an assessment.

## **G. Support for Students and their Learning**

In order to assist students in achieving their learning outcomes, the BSc (Hons) Computing Programme Coordinator uses a range of initiatives to support undergraduate students in both academic and pastoral issues. These include detailed induction and orientation courses at the start of the academic year, skills workshops that offer English language support, academic surgeries, and subject-based conference style events. Advice on generic study skills is available on the virtual learning environment (Weblearn) to which all students have access. Advice includes guidance on writing, oral communication, numeracy, problem-solving and career management.

Students also have access to the LRC, which provides a 'drop in' service giving advice on all non-subject based aspects of academic work including grammar and punctuation, academic structure, mathematics skills, referencing and plagiarism.

Students are encouraged to discuss academic and pastoral concerns with their supervisor. All academic staff operate a system of 'office hours' during which students can consult their lecturers.

### **Summary of Student Support**

- A Module Leader for each module
- A Programme Co-ordinator who helps students understand the programme

structure, and acts as Personal Tutor to provide academic and personal support

- A designated programme administrator
- An induction week at the beginning of each new academic year
- Staff Student Consultative Committee
- Weblearn, a versatile on-line interactive intranet and learning environment
- A substantial Learning Resource Centre that provides academic skills support
- Student support facilities that provide advice on issues such as finance, regulations, legal matters, accommodation, international student support etc.
- Disabled student support

Support for students continues outside of their lecture and project schedule. This support is primarily via email. The forum facility on Weblearn is also used to improve peer interaction and facilitate the sharing of best practice between students.

Students are expected to be involved in the development of their course. On an individual level through meetings with their Personal Tutor at which they can discuss their academic progress, personal development and can seek advice on course and module choice in the light of their career aspirations. Students can expect to meet with their Programme Coordinator at least once a term for a 30 minute tutorial.

Personal Development Planning (PDP) enhances and supports the learning experience and is central to each student's development throughout the programme. The PDP is a key activity through which a student records their reflections on their own learning and achievement. Students will establish some personal targets early in the programme following consideration of their existing qualifications, work experience, and additional learning. Updating the PDP throughout the programme will assist students in planning their own educational, academic and career development. Regularly reflecting upon their achievements and planning targets will assist students in getting the maximum benefit from their programme. The PDP will also be valuable in enabling students to consider their skills and knowledge in relation to the wider vocational perspective which will assist them when making applications for further study or for employment. Frequent opportunities for PDP activity will occur during workshops, assessment feedback discussions, in group feedback with peers and during regular tutorials.

## **H. Ensuring and Enhancing the Quality of the Course**

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

- External examiners
- Boards of study with student representation
- Staff Student Consultative Committee
- Annual monitoring and enhancement
- Periodic review undertaken at the subject level
- Student evaluation
- Moderation policies
- Periodic Cisco Academy quality review visit

The College will be fully compliant with Kingston University Regulations and Quality Assurance processes.

## **I. Employability Statement**

Preparation for work is an integral part of the BSc (Hons) Computing top-up. The programme has been designed to enable students to develop their employability skills to support progression and success in an expanding technology economy.

The course is designed in close partnership with employers, professional associations and practice specialists to ensure that the skills which students develop are relevant. The academic staff joined the College from a relevant industry or profession. Staff continually develop their skills and expertise in the field of computing by undertaking certification, attending vendor courses, seminars and creating links with industry.

The BSc (Hons) Computing top-up gives students the opportunity to gain experience of working in a team to tackle appropriate development tasks. Students also undertake a Capstone Project to demonstrate their ability to undertake a substantial piece of work on a real topic provided by an employer.

The vocational aspect of the programme is emphasised in taught material, practical activities and work based placements and assessments. We operate a number of Vendor Academies such as Cisco, Cyberoam, Microsoft, Citrix, Oracle and Linux and SAP. The department has also established links with technology companies such as OPUS, BYTES, BIDATASK, GAMMA, SPEDI, and Cisilion to inform curriculum, provide work experience and progression into employment.

Students actively take part in regional and national World Skills competitions. Successful candidates have had the opportunity to represent Team GB, and previous competition finalists have been scouted by national and international companies.

Career planning is integral to the BSc (Hons) Computing Top Up and students build professional development portfolios during their study to take into employment. All students have access to guidance from our professional careers and employment service via the on-site REED Employment Centre. CV preparation, interview practice, an annual programme of employer recruitment fairs and an on-line graduate vacancy service are also offered.

Previous students are working at the highest levels of the industry in specialised consultancy or in exciting roles like Network Infrastructure Analysts, Security Analyst, Business Intelligence, Network and Database administrators, C# and Java Software Developers. Other examples include Microsoft SQL Server and Oracle Database Administrators Mobile and web development and Help Desk support. The combination of NESOT's facilities with the industry knowledge and teaching excellence of our staff give students the edge they need to succeed in the expanding sector.

## **J. Approved Variants from the Undergraduate Regulations**

None

## **K. Other sources of information that students may wish to consult**

QAA Subject Benchmark

[https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-computing-16.pdf?sfvrsn=26e1f781\\_12](https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-computing-16.pdf?sfvrsn=26e1f781_12)



The review of the degree has been made with consideration of the published QAA benchmarks in computing. The aims and objectives relate to modal and threshold standards indicated in the benchmarks. The cognate area provides students with the opportunity to study modules on a range of computing topics, giving them an ability to span the field. The place and importance of specialist areas is, however, recognised through the provision of option pathways. Attention has been given to the progression routes and the background of applicants in the design of the course. Principles of course design specified in the benchmarks are reflected in the design, presentation and delivery of the programme. Assessment is structured to include team working and the development of personal and transferable skills.

The result of this is a fairly broadly based treatment focusing on software, communication and interaction, but also having regard to practice and theory. For instance, the skills of problem identification and analysis, the process of design, development, testing and evaluation, the theory and application of algorithm design and analysis. In addition to the building of knowledge there is considerable practical emphasis and the development of transferable skills, for instance, the management of personal learning and organisational skills.

The use of virtual learning environments adds a new dimension to the existing provision by providing greater flexibility and effectiveness and this is recognised as an important factor in ensuring that students are appropriately motivated. The use of this style of learning also leads to improvements in the manner in which the students are assessed and this also improves motivation.

In regard to curricula the following areas will be specifically addressed:

- Computer communications
- Computer networks
- Security
- Concurrency and parallelism
- Databases
- Data structures and algorithms
- Distributed computer systems
- Gaming
- Middleware
- Multimedia
- Operating systems
- Programming fundamentals
- Software engineering
- Systems analysis and design

The Chartered Institute for IT

<http://www.bcs.org/>

SAP University Alliances Community:

<https://www.sap.com/training-certification/university-alliances.html>

*The Code Academy*

<http://www.codecademy.com/>

*Cisco Networking Academy*

<https://cisco.netacad.com/>

*Oracle Academy*

<https://academy.oracle.com/oa-web-overview.html>

*Microsoft Academy*

<http://www.microsoft.com/education/itacademy/Pages/index.aspx>

*Linux Professional Institute*

<http://www.lpi.org/partnerships/academy>

*ACM*

<http://www.acm.org/>

## Development of Course Learning Outcomes in Modules

This map identifies where the course learning outcomes are assessed across the modules for this course. It provides an aid to academic staff in understanding how individual modules contribute to the course aims, and a means to help students monitor their own learning, personal and professional development as the course progresses and a checklist for quality assurance purposes. Include both core and option modules.

		Level 6					
		C16701	C16702	C16703	C16704	C16705	
<b>Course Learning Outcomes</b>	<b>Module Code</b>						
	<b>Knowledge &amp; Understanding</b>	A1	S/F	S/F	S/F	S/F	S/F
		A2	S	S	S/F	S/F	S/F
		A3	S		S/F	S/F	S/F
		A4	S		S/F	F	S/F
	<b>Intellectual Skills</b>	B1	S/F	S/F	S/F	S/F	S/F
		B2	S/F	S/F	S/F	S/F	S/F
		B3	S/F	S/F	S/F	S/F	S/F
		B4	S	S	S/F	S/F	S/F
	<b>Practical Skills</b>	C1	S/F	S	S/F	S/F	S/F
		C2	S/F	S	S/F	S/F	S/F
		C3	F	S/F	S/F	S/F	S/F
		C4	S/F	S/F	S/F	S/F	S/F
	<b>Self Awareness skills</b>	AK1	S/F	S/F	S/F	S/F	S/F
		AK2	S/F	S/F	S/F	S/F	S/F
		AK3	S/F	S/F	S/F	S/F	S/F
		AK4	S/F	S/F	S/F	S/F	S/F
	<b>Communication skills</b>	BK1	S/F	S/F	S/F	S/F	S/F
		BK2	S/F	S/F	S/F	S/F	S/F
		BK3	S/F	S/F	S/F	S/F	S/F
	<b>Interpersonal skills</b>	CK1	S/F	F	F	F	F
		CK2	S/F	S/F	S/F	S/F	S/F
		CK3	S/F	S/F	S/F	S/F	S/F
		CK4	S/F	S/F	S/F	S/F	S/F
		CK5	S/F	S/F	S/F	S/F	S/F
	<b>Research and Information literacy skills</b>	DK1	S/F	S/F	S/F	S/F	S/F
		DK2	S/F	S/F	S/F	S/F	S/F
		DK3	F	F	S/F	F	S/F
		DK4	S/F	S/F	S/F	S/F	S/F
		DK5	S/F	S/F	S/F	S/F	S/F
	<b>Numeracy skills</b>	EK1	F	F	S/F	F	F
		EK 2	S/F		S/F		
		EK3	S/F		S/F		S/F
		EK4	S/F		S/F		
	<b>Management and leadership skills</b>	FK1	S/F		S/F		
		FK2	S/F	S/F	S/F	S/F	S/F
		FK3	S/F		S/F		
		FK4	S/F	S/F	S/F	S/F	S/F
	<b>Creativity and Problem solving skills</b>	GK1	S/F		S/F		
		GK2	S/F	S/F	S/F	S/F	S/F

**S** indicates where a summative assessment occurs.

**F** where formative assessment/feedback occurs.

## Technical Annex

<b>Final Award(s):</b>	<i>BSc (Hons) Computing</i>
<b>Intermediate Award:</b>	<i>BSc Computing (Ordinary degree)</i>
<b>Minimum period of registration:</b>	<i>1</i>
<b>Maximum period of registration:</b>	<i>3</i>
<b>FHEQ Level for the Final Award:</b>	<i>6</i>
<b>QAA Subject Benchmark:</b>	Computing (March 2007) 2 <sup>nd</sup> Edition  Framework for Higher Education Qualifications in England, Wales and Northern Ireland (2008) <i>Full time &amp; Part-time</i> <i>English</i>
<b>Modes of Delivery:</b>	
<b>Language of Delivery:</b>	
<b>Faculty:</b>	
<b>School:</b>	
<b>JACS code:</b>	<i>This is the <u>Joint Academic Coding System</u> (JACS) agreed jointly by UCAS and HESA. G402</i>
<b>UCAS Code:</b>	
<b>Course Code:</b>	
<b>Route Code:</b>	

**Form C1**

Table of modules contributing to a field for Module Directory

**Modules contributing to:** BSc Computing (Hons) Top -Up**Field Leader:** Kamadchisundaram Sureshkumar

Module Code	Module Title	Credit Value	Sponsoring School/Faculty	Status of Module (validated/for approval)	Module Leader	Other staff teaching on module
CI6701	Data Driven Web Application	30		For approval	Sureshkumar, Kamadchisundaram	Sureshkumar, Kamadchisundaram Syeda Shamsia Sage Lal John Omergie
CI6702	Operating Systems and Computer Networks	30		For approval	Kevin Emby	Sureshkumar, Kamadchisundaram Kevin Emby Avice Raza
CI6703	Capstone Project	30		For approval	Sage Lal	Sage Lal Sureshkumar, Kamadchisundaram John Omergie
CI6704	Software Design & Development	30		For approval	Joseph Hanke	Sureshkumar, Kamadchisundaram Joseph Hanke Sage Lal John Omergie Syeda Shamsia

CI6705	Routing, Switching & Security	30		For approval	Sureshkumar, Kamadchisundaram	Sureshkumar, Kamadchisundaram Kevin Emby Sage Lal Avice Raza
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