Programme Specification

COM-Fd-2019: Computer Science and Digital Technologies

B&FC Foundation Degree in Science awarded by Blackpool And The Fylde College (FHEQ Level 5)

Programme Status: Approved | Version: 1

Introduction

This programme specification provides a summary of the main features of the Computer Science and Digital Technologies programme and the learning outcomes that you as a student might reasonably be expected to achieve and demonstrate on successful completion of the programme.

Further detailed information related to this programme and the College can be found in the following resources:
- Programme Handbook
- B&FC Student Handbook
- B&FC Admissions Policy
- Work based and placement learning handbook (for foundation degrees)
- Student guide to assessment and feedback

Key Programme Information

Programme Code	COM-Fd-2019
Programme Title	Computer Science and Digital Technologies
Teaching Institution	Blackpool and The Fylde College
Professional, Statutory and Regulatory Body (PSRB) Accreditation	None
UCAS Code	TBC
Language of Study	English
Version	1
Approval Status	Approved
Approval Date	18 June 2019
JACS Code	J900: Others in technology (J900)
Programme Leader	Christopher Willitts

Programme Awards			
Award	**Award Type**	**Level**	**Awarding Body**
B&FC Foundation Degree in Science	Foundation Degree (240 credits)	Level 5	Blackpool And The Fylde College

Programme Overview

We are in an increasingly interconnected world with technology playing an important part of our lives. The digital future we are part of requires highly skilled individuals to design, implement, maintain and innovate, which ensures the demand for computer science specialists will continue to grow. There are jobs today that simply did not exist in the past, enabled by technical innovations and the people that create and use them.

On this programme you will produce work in a range of computer science disciplines, including configuring network infrastructure practically applying contemporary practices that support a wide range of digital systems. You will design and develop database-driven systems including information systems that form a core part of modern business. You will become familiar with emerging cyber security trends as well as apply them in securing databases and websites. You will prepare for careers that are in demand as well as for those that may not have yet been created. As well as the significant practical content you will develop transferrable skills enabling you to be adaptive in an evolving sector and across a range of disciplines. Our cutting-edge

curriculum, high quality resources, friendly and skilled staff and supportive environment will give you the best opportunities to excel in the future. What future could you create?

The college is also a Cisco academy and as such have embedded CCNA1 certification within this degree. In addition to this, we are an affiliate of the British Computer Society (BCS) and are continually updating our resources to remain at the cutting edge and industry focused, giving you the best opportunities to take advantage of continued growth in the digital and creative industries and increased demand for designer and developer roles locally, nationally and internationally.

Key elements of the programme include:

- Setting up network infrastructure and configuring servers using current practices employed in evolving DevOps contexts to support a wide variety of digital projects, using PowerShell and Windows Server as well as alternative technologies
- Investigation of emerging cyber security threats and practices, performing penetration tests on web servers to identify security holes and then patch them ensuring robust solutions
- Development of a number of database-driven projects including developing an information system prototype, the core of many modern organisations
- General software engineering skills including working with databases, sharing data between distributed components of applications, requirements gathering, producing technical designs and working to established development methodologies, and developing and testing interfaces, all of which increase the range of careers you can pursue both in and out of software and web development
- Working in team projects and individually, building collaborative and problem-solving skills which will enhance value to future employers and develop yourself both personally and professionally
- Analysis of organisational structures in the industry and development teams, and build workplace skills so that you can adapt and thrive in modern digital organisations

Admission Criteria

Entry requirements for the B&FC FdSc. Computer Science and Digital Technologies:

A minimum of 64 UCAS points in an appropriate discipline (this is the equivalent of 160 UCAS point on tariffs prior to 2017 entry).

Applicants who are able to demonstrate relevant work/life skills or knowledge will also be considered on an individual basis.

We will strongly encourage and support those who do not hold GCSE Maths / English at C / 4, or equivalent qualifications, to pursue a Maths / English qualification alongside the main programme.

Additionally, direct entry to level 5 upon successful completion of the HNC Computing at B&FC.

Career Options and Progression Opportunities

Career opportunities that graduates of this programme could successfully pursue include:

- Entry Level Web Developer
- Entry Level Data Analyst
- Network support
- IT Support Technician
- Entry Level Developer

There are also progression opportunities onto the BSc (Hons) Computer Science and Digital Technologies one year top up degree validated through Lancaster University.

Programme Aims

- To provide students with a broad range of computer science cognitive abilities and skills including analysis of data, systems, software and code.

- To develop skills in application, database and information systems development; including design, implementation and testing; enabling students to formulate decisions and develop applications.

- To foster creativity in production and an understanding of a broad range of computing disciplines, preparing students for working in interdisciplinary teams and producing innovative content.

- To support collaborative teamwork and leadership skills through team-based development projects working to industry-standard practices.

- To support students in building a commitment to lifelong learning and career development through industry-focused scenarios, work placements, career focussed tutorials, and personal and professional development planning.

- To build students' communication, information and digital literacy skills using a range of assessment approaches in computer science disciplines.

Programme Learning Outcomes

Level 5

Upon successful completion of this level, students will be able to:

1. Investigate and discuss industry relevant technologies and theories utilised in the design, development and testing of hardware, software and systems infrastructure.
2. Examine the social, legal and ethical aspects of the design, development, testing and evaluation of software and systems and implications of their use in contemporary society including security concerns.
3. Apply mathematical techniques in the provisioning of hardware, software and systems infrastructure and analysis of data.
4. Produce appropriate documentation which analyses the design, development and testing of hardware, software and systems infrastructure, which considers particularly the relationship between these stages and their impact on the final product.
5. Communicate information in a variety of formats to a range of audiences using a range of media that evidences both academic and digital literacy skills.
6. Work effectively as an individual and as a member of a team undertaking critical self-appraisal to support continued professional development, employability, lifelong learning and transferrable digital and academic skills.
7. Analyse, design, develop and test hardware, software and systems infrastructure, applying industry-relevant concepts, principles and practices to solve appropriate problems.

Programme Structure

Module	Level	Credits	%	Category	Description	Length/Word Count	Grading Method
Stage 1							
B4SCCOM-FD: Introduction to Academic Study (Mandatory)	4	20	60%	Coursework: Other	Written piece and reflection	2000	Letter Grade
			40%	Practical: Other	Case study, analysis, interpretation (1500 words) and poster presentation (15 minutes	15	Letter Grade
NET401: Network Principles (Mandatory)	4	20	10%	Coursework: Other	End-of-Chapter Quizzes	30	Percentage Grade
			40%	Coursework: Case Study	Case Study	2400	Letter Grade
			20%	Written Exam: Formal Written Examination	CCNA 1 MCQ	60	Percentage Grade
			30%	Practical: Other	Lab Practical	60	Percentage Grade
NET404: Introduction to Systems Security (Mandatory)	4	20	50%	Coursework: Other	Passive and Active Reconnaissance	2000	Letter Grade
			50%	Coursework: Other	Developing a Security Strategy	2000	Letter Grade
SOE401: Introduction to Programming (Mandatory)	4	20	50%	Coursework: Other	Prototype development using a high-level language	2000	Letter Grade
			50%	Coursework: Other	Operating systems, computer architectures and use of low-level language	2000	Letter Grade
WTM401: Markup Languages and Styling (Mandatory)	4	20	40%	Coursework: Other	Requirements Gathering and Front-End Web Design and Justification	1500	Letter Grade
			60%	Coursework: Other	Web Development, Testing and Emerging Front-End Technologies Report	2500	Letter Grade
WTM402: Database Concepts and Communication (Mandatory)	4	20	30%	Coursework: Other	Relational Database design	1500	Letter Grade
			40%	Coursework: Other	Relational Database implementation and reflective report	2000	Letter Grade

Module	Level	Credits	Weight	Assessment Type	Assessment Description	Size	Grade Type
WTM402: Database Concepts and Communication (Mandatory)	4	20	30%	Coursework: Other	XML implementation and reflective report	1500	Letter Grade
Stage 2							
B5COM-32: Work Based Learning (Mandatory)	5	20	70%	Coursework: Report	Project	3000	Letter Grade
			30%	Practical: Presentation	Poster - Critical Reflection & Target Setting	2000	Letter Grade
COM503: Developing Information Systems (Mandatory)	5	20	60%	Coursework: Report	Produce a report which looks into a range of business information systems theory.	2000	Letter Grade
			40%	Coursework: Other	Develop, Analyse and Evaluate an information system.	2500	Letter Grade
NET512: Database and Web Security (Mandatory)	5	20	40%	Coursework: Other	Report – Web Application Security	1600	Letter Grade
			60%	Coursework: Other	Implementing Web Application Security	2400	Letter Grade
NET522: Systems Configuration and Management (Mandatory)	5	20	50%	Coursework: Report	Investigative Report	2000	Letter Grade
			25%	Practical: Other	Lab Practical – Configuring Domain services	150	Percentage Grade
			25%	Practical: Other	Lab Practical – Data Manipulation	150	Percentage Grade
SOE501: Software Engineering and Technical Design Documentation (Mandatory)	5	20	30%	Coursework: Other	Investigation of systems analysis and development methodologies	1500	Letter Grade
			40%	Coursework: Other	Construction of full technical design documentation to a given specification	2000	Letter Grade
			30%	Written Exam: Formal Written Examination	Critical analysis of development case studies	90	Percentage Grade
SOE523: Responsive Dynamic Web Development (Mandatory)	5	20	20%	Coursework: Other	Design of responsive dynamic website	1000	Letter Grade
			60%	Coursework: Other	Implementation of dynamic website	2500	Letter Grade
			20%	Coursework: Other	Evaluation and reflection	1000	Letter Grade

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Study Workload

Timetabling for our programmes in Computing is done to ensure that other commitments can be met, with most of our full-time HE programmes requiring one day and one evening of attendance. Where there are multiple groups, priority choice will be given to those with outside commitments, for example employment and childcare. There are many opportunities to work on assessments provided within our timetabled sessions however there will be formative and summative assessments set where you will be expected to complete work by a set deadline. Spending regular time on these activities will make this more manageable hence 'little and often' is an approach we take.

Most summative deadlines are set for Sunday night to enable weekends to be spent on finishing work. The expected volume of independent study is on average 152 hours per module, which equates to 9.5 hours per week, per module. Often students find that this is a high expectation, however through engagement with our formative assessments and direction, building up work over time and improving skills, students find the workload manageable and succeed from a diverse range of backgrounds.

Time allocated for your career development will provide you with an opportunity to focus on applying your learning and experiences to the development of graduate attributes, your professional practice and career intentions. A range of self-paced digital resources to support work based and independent learning will also be made available to you on your VLE.

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Programme Delivery: Learning and Teaching

We have various approaches to ensuring that course content is delivered to you in the most effective way possible including:

- a wealth of multimedia resources so you can work at your own pace
- supported workshops to aid you in coding, debugging, problem solving, and enhancing work
- labs to aid with networking, security, practical experience, remote access and virtualisation
- lectures, class discussions and analysis of case studies to introduce you to new concepts, theories and techniques, and to help in building your understanding of theoretical content
- team projects worked to established development methodologies to build your collaborative working skills and increase your value to employers
- clear building of academic skills, employability and graduate skills, with a focus on reflective practice to enhance your personal and professional development
- approachable and friendly staff with an open door policy and individualised support so that students and employers can feel welcome and comfortable in asking questions, gaining feedback and making progress

The content is regularly updated to ensure that you are working with current software tools, coding practices, network protocols and deploying to current platforms. There are specialist rooms containing high-spec machines and dual monitors to help you develop web applications and digital media in an industry relevant environment. We also have dedicated net labs which are isolated networks allowing you to configure and manage your own network. Additionally, guest speakers will be invited into college to discuss current industry practice with you which could support you with your assessment briefs.

All resources needed are available through remote access allowing you to continue your study from home at anytime. In addition, we review and adjust our teaching practices to best suit particular group dynamics based on feedback that is received during module delivery, to ensure that you have the best experience.

Programme Delivery: Assessment

Throughout the course we embed formative assessment. This provides you with the opportunity to submit drafts and practice tasks to gain feedback to improve. We use digital submission and feedback so that you can refer back to previous assessments to reflect upon progress and build confidence for future assessments. Assessments include a mix of written reports, design documentation, development, reflective writing and other methods will be employed in coursework so you have a wide range of skills both academically and practically.

Graded assessment submissions are balanced throughout the academic year so that you can manage their workload effectively. Written exams will include application of theories to given scenarios and analysis of case studies; targeted revision and mock exams will aid you in preparing for these.

The assessments will include development of work which you can use to build a portfolio; this will include responsive web sites, software applications, network diagrams, database design and documentation, security analysis of needs and data analytic techniques.

Programme Delivery: Work Based and Placement Learning

At level 5 there is an emphasis on the nature of contemporary work based learning opportunities that can occur in different contexts in terms of where you are in your professional career or learning journey. The practice of work based learning relates to your academic and professional development to prepare you for graduate employment and career development.

We recognise that for some students, work-based learning will be linked directly to their employment or a structured work placement, for others, it may relate to a specific live-brief or scenario which has been co-created with an employer. Your work-based learning experience may fall in to one of the following categories or it could be a combination of all three.

Learning through work: structured work placements or internships undertaken for a minimum of 30 hours (equivalent to a 5-day industry placement) as part of the module to provide you with an experience of an employment situation where the work you undertake will provide a key source for your learning, including remote working and work undertaken in non-employed settings i.e. volunteering

Learning at work: if you are employed in an appropriate setting and your subject discipline is embedded in the workplace.

Learning for work: live work-based project which involves employers in the commissioning of industry briefs, projects or research. Similar to learning through work, it provides you with a work-based experience of your industry, where the work you undertake will provide an opportunity to connect theory and practice to work-based learning.

Work-based learning activities

There are a variety of work-based learning activities which you can engage, including (where required) work placements. In order for you to learn from your experiences it is recommended that you should engage in a minimum of 30 hours of work based learning activities. These activities can include:

- Researching a company or organisation a student may wish to join as an employee
- Attending a careers interview, job application and interview skills
- Understanding the job market, skills and attributes sought by employers.
- Developing a graduate employability profile e.g. Linkedin
- Career planning, professional development and target setting
- Evaluating role and responsibilities in the workplace
- Incorporating formative and summative feedback in to professional and academic targets

You can discuss the range of activities available to you and these can be incorporated to your learning experience with your Work-based Learning Module Tutor and Progress Tutor.

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Programme Delivery: Graduate Skill Development

Throughout the programme there will be a great focus on the development of the graduate skills required to work in this industry. These skills that you will develop as a graduate will help to prepare you for your career. This programme helps you develop:

- **A commitment to lifelong learning and career development**
  - Personal and professional development planning throughout the programme so that you can plan for career and skills development including post-graduate study or career opportunities
- **Collaborative teamwork and leadership skills**
  - Team based projects working to established methodologies will aid you in communicating with team members, assuming leadership roles where appropriate, managing group dynamics and working collaboratively towards common goals
- **Personal and intellectual autonomy**
  - We support your development of independence in academic and practical skills through the levels of the programme and progression through to the BSc (Hons) top up programme
- **Ethical, social and professional understanding**
  - Mapping of course content to British Computer Society criteria for Chartered IT Professionals ensures the programme is current and aligned to professional standards
- **Communication, information and digital literacies**
  - You will develop your use of digital resources such as researching and reflecting through the development of various professional reports, essays and journals developing the skills needed for the digital industry
- **Global citizenship**
  - Localisation concerns for interfaces will be covered so you can build an awareness of how to operate effectively in a global industry
- **Research, scholarship and enquiry skills**
  - As you work through the programme your research and enquiry skills will grow in confidence building your independence in preparation for progression onto the top up degree
- **Enterprise and entrepreneurial awareness and capabilities**
  - As many skills are developed through this programme, many of these offer the opportunity to explore freelance work and self-employment. Our development studio will help to prepare you for this kind of environment and offer facilities to help you develop this through the work based learning elements at level 5

Study Costs: Equipment Requirements

There are no requirement for students to purchase equipment as there are several resources on campus, however, it would be advantageous for you to purchase a computer as some of the software is demanding and you will be able to spend more time on work outside of campus hours. Additionally, all resources are available through remote access making this a more viable option.

Students looking to purchase hardware should consider that as a minimum it should be able to support the recommended specifications of the latest Adobe Creative Cloud version. Most mid-high range desktops / laptops are in the region of £400 - £1,000. Many students prefer to bring their own laptops into college and accessing the network through Wi-Fi to save them from transferring files and we encourage this, however this is a personal choice. Software is available to students from the College and there are many discounted subscriptions available, including student pricing for Adobe Creative Cloud.

Study Costs: Additional Costs

There may be opportunities for field trips to conferences, exhibitions or venues. These trips will always be optional and will not be a requirement to complete the programme. Where possible, costs will be subsidised by the college.

Related Courses

Other programmes offered by Computing include:

- Software Engineering (App Development) which focuses on software engineering practices and more 'under the hood' disciplines including native iOS and Android development
- Software Engineering (Game Development) includes the production of 2D and 3D games using industry standard APIs with custom code and also with licensed engines such as Unreal
- Network Engineering Systems Administration embeds Cisco CCNA content and certification and focuses on the skills required to become a network technician/manager
- Network Engineering Cyber Security embeds part of the CCNA certification which an additional focus on network and cyber security related issues
- Web Technologies and Digital Media degree which focuses on the development of fully function front end and back end web development

We also have a range of specialist degree apprenticeship routes through our Tech Partnership accredited Digital Technology Solutions programme with Network Engineer, Software Engineer and Cyber Security Analyst pathways. These programmes require employment in a related sector / job role due to the integrated work-based nature of the programmes.

This programme provides opportunities for postgraduate study at other institutions. Our partners, Lancaster University are very well respected in Computing and innovative technologies particular in the area of distributed systems and cyber security.