

Course Specification

Published Date:	29-Jul-2019
Produced By:	Oliver Jones
Status:	Validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Mathematics and Computer Science		
Course Code(s):	CS017H01UV	Full-time	3 Years
	CS017H31UV	Part-time	6 Years
Course Title:	BSc (Hons) Cloud Computing		
Hierarchy of Awards:	Bachelor of Science with Honours Cloud Computing Bachelor of Science Cloud Computing Diploma of Higher Education Cloud Computing Certificate of Higher Education Applied Computing University Statement of Credit University Statement of Credit		
Language of Study:	English		
Date of DAG approval:	17/May/2017		
Last Review:	2015/6		
Course Specification valid from:	2015/6		
Course Specification valid to:	2021/2		

Academic Staff

Course Leader:	Miss Katie Wood
Head of Department:	Dr Kevan Buckley

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Not delivered in partnership
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS)

2017 Entry

- A Level minimum of BC or CDE.
- BTEC National Diploma grade MMP, BTEC National Certificate grade DM
- BTEC QCF Extended Diploma grade MMP, BTEC QCF Diploma grade DM
- Access to HE Diploma full award (Pass of 60 credits - of which a minimum of 45 credits must be at level 3 including 18 at Merit or Distinction).
- Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or equivalent
- If you've got other qualifications or relevant experience, please contact [The Gateway](#) for further advice before applying.
- International entry requirements and application guidance can be found [here](#)
- Successful completion of the [International Foundation Year in Science and Engineering](#) guarantees entry on to this course

Distinctive Features of the Course:

This course has increased in popularity and level of integration with other technologies in recent years. Many businesses are therefore considering the opportunities presented by cloud computing. In order to fully understand the complexities of both the technical aspects of cloud computing and how to integrate it into business settings skills need to be developed in this cutting edge field. Cloud Computing covers technical, legal and social aspects of cloud computing and security to ensure that graduates experience applying cloud computing solutions to real business problems. Computer security topics will enable graduates to gain an insight into networking and operating systems challenges to gain hands on experience in problem solving.

Through our up to data teaching laboratories students will gain experience and knowledge through both theoretical instruction and practice activities. New and emerging technologies will be used in order to detect and migrate against security attacks. Student will use virtualisation and a range of optimization and deployment tools to create cloud solutions. The security element of this degree will focus on using a range of operating systems and networking devices to determinate and mitigate against the security challenges that businesses encounter.

Educational Aims of the Course:

This course has increased in popularity and level of integration with other technologies in recent years. Many businesses are therefore considering the opportunities presented by cloud computing. In order to fully understand the complexities of both the technical aspects of cloud computing and how to integrate it into business settings skills need to be developed in this cutting edge field. Cloud Computing covers technical, legal and social aspects of cloud computing and security to ensure that graduates experience applying cloud computing solutions to real business problems. Computer security topics will enable graduates to gain an insight into networking and operating systems challenges to gain hands on experience in problem solving.

Through our up to data teaching laboratories students will gain experience and knowledge through both

theoretical instruction and practice activities. New and emerging technologies will be used in order to detect and migrate against security attacks. Student will use virtualisation and a range of optimization and deployment tools to create cloud solutions. The security element of this degree will focus on using a range of operating systems and networking devices to determinate and mitigate against the security challenges that businesses encounter.

Intakes:

September

Major Source of Funding:

HE FUNDING COUNCIL FOR ENGLAND (HEFCE)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2017/8	H	Full Time / Sandwich	£9250.00
2017/8	EU	Full Time / Sandwich	£9250.00
2017/8	Overseas	Full Time / Sandwich	£11475.00
2017/8	H	Part Time	£2835.00
2017/8	EU	Part Time	£2835.00
2017/8	Overseas	Part Time	£5738.00
2018/9	H	Full Time / Sandwich	£9250.00
2018/9	EU	Full Time / Sandwich	£9250.00
2018/9	Overseas	Full Time / Sandwich	£11700.00
2018/9	H	Part Time	£2925.00
2018/9	Overseas	Part Time	£5850.00
2018/9	EU	Part Time	£2925.00
2019/0	H	Full Time / Sandwich	£9250.00
2019/0	EU	Full Time / Sandwich	£9250.00
2019/0	Overseas	Full Time / Sandwich	£12000.00
2019/0	H	Part Time	£2975.00
2019/0	Overseas	Part Time	£6000
2019/0	EU	Part Time	£2975.00

PSRB:

None

Course Structure:

September (Full-Time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 1

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
4CS001	Introductory Programming And Problem Solving	20	SEM1	Core
4CS015	Fundamentals of Computing	20	SEM1	Core
4CI018	Academic Skills and Team-based Learning	20	SEM1	Core
4CS017	Internet Software Architecture	20	SEM2	Core
4CS012	Server Management and Virtualisation	20	SEM2	Core
4CS016	Embedded Systems Programming	20	SEM2	Core

September (Full-Time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 2

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
5CS032	Computer Networking	20	SEM1	Core
5CI022	Databases	20	SEM1	Core
5CS021	Numerical Methods and Concurrency	20	SEM1	Core
5CS022	Distributed and Cloud Systems Programming	20	SEM2	Core
5CS031	Network Security	20	SEM2	Core

For this option group you must choose a minimum of 20 credits and a maximum of 20 credits

5CS024	Collaborative Development	20	SEM2	
5CS016	Professional Experience and Development	20	SEM2	

September (Full-Time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 3

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
6CS023	Project and Professionalism with Cloud Artefact	40	YEAR	Core
6CS012	Artificial Intelligence and Machine Learning	20	SEM2	Core
6CS005	High Performance Computing	20	SEM1	Core
6CS030	Big Data	20	SEM2	Core
6CS029	Advanced Networks	20	SEM1	Core

Learning, Teaching and Assessment

Academic Regulations Exemption:

None

Reference Points:

The course is designed with reference to the most up-to-date QAA Subject Benchmark for Computing and the accreditation requirements of BCS The Chartered Institute for IT. In addition reference has also been made to;

1. Quality Code - [Part A: Setting and Maintaining Academic Standards](#). Including :
2. [Qualifications Frameworks](#)[Characteristics Statements](#)
3. [Credit Frameworks](#)
4. [Subject Benchmark Statements- Computing](#)
5. Quality Code - [Part B: Assuring and Enhancing Academic Quality](#)
6. [University Policies and Regulations](#)
7. Equality Act (2010).

Learning Outcomes:

CertHE Course Learning Outcome 1 (CHECLO1)

Apply appropriate theory, tools and techniques (e.g. theory and practice of programming, object-oriented design and analysis, design and construction of data systems, concurrent and distributed systems) to the analysis, design and synthesis of solutions to requirements in the domain of Cloud Computing.

CertHE Course Learning Outcome 2 (CHECLO2)

Demonstrate mastery of the essential facts, concepts, principles, theories and practices enabling graduate employment in applications of Cloud Computing (e.g. Software development, media computing, systems analysis).

CertHE Course Learning Outcome 3 (CHECLO3)

Demonstrate a range of transferable skills in: problem solving; communication; project management; working individually and in teams; self-management; the ability to gather, evaluate and reflect on information from relevant sources and synthesize new knowledge and solutions to requirements in the domain of applications

of Cloud Computing.

CertHE Course Learning Outcome 4 (CHECLO4)

Demonstrate a range of social, legal, ethical and professional skills required for continuing professional development in Computing and Information Technology Discipline within a world-wide context.

DipHE Course Learning Outcome 1 (DHECLO1)

Apply appropriate theory, tools and techniques (e.g. theory and practice of programming, object-oriented design and analysis, design and construction of data systems, concurrent and distributed systems) to the analysis, design and synthesis of solutions to requirements in the domain of Cloud Computing.

DipHE Course Learning Outcome 2 (DHECLO2)

Demonstrate mastery of the essential facts, concepts, principles, theories and practices enabling graduate employment in applications of Cloud Computing (e.g. Software development, media computing, systems analysis).

DipHE Course Learning Outcome 3 (DHECLO3)

Demonstrate a range of transferable skills in: problem solving; communication; project management; working individually and in teams; self-management; the ability to gather, evaluate and reflect on information from relevant sources and synthesize new knowledge and solutions to requirements in the domain of applications of Cloud Computing.

DipHE Course Learning Outcome 4 (DHECLO4)

Demonstrate a range of social, legal, ethical and professional skills required for continuing professional development in Computing and Information Technology disciplines within a world-wide context.

Ordinary Degree Course Learning Outcome 1 (ORDCLO1)

Apply appropriate theory, tools and techniques (e.g. theory and practice of programming, object-oriented design and analysis, design and construction of data systems, concurrent and distributed systems) to the analysis, design and synthesis of solutions to requirements in the domain of Cloud Computing.

Ordinary Degree Course Learning Outcome 2 (ORDCLO2)

Demonstrate mastery of the essential facts, concepts, principles, theories and practices enabling graduate employment in applications of Cloud Computing (e.g. Software development, media computing, systems analysis).

Ordinary Degree Course Learning Outcome 3 (ORDCLO3)

Demonstrate a range of transferable skills in: problem solving; communication; project management; working individually and in teams; self-management; and the ability to gather, evaluate and reflect on information from relevant sources and synthesize new knowledge and solutions to requirements in the domain of applications of Cloud Computing

Ordinary Degree Course Learning Outcome 4 (ORDCLO4)

Demonstrate a range of social, legal, ethical and professional skills required for continuing professional development in Computing and Information Technology disciplines within a world-wide context.

Honours Degree Course Learning Outcome 1 (DEGCLO1)

Apply appropriate theory, tools and techniques (e.g. theory and practice of programming, object-oriented design and analysis, design and construction of data systems, concurrent and distributed systems) to the analysis, design and synthesis of solutions to requirements in the domain of Cloud Computing.

Honours Degree Course Learning Outcome 2 (DEGCLO2)

Demonstrate mastery of the essential facts, concepts, principles, theories and practices enabling graduate employment in applications of Cloud Computing (e.g. Software development, media computing, systems analysis).

Honours Degree Course Learning Outcome 3 (DEGCLO3)

Demonstrate a range of transferable skills in: problem solving; communication; project management; working individually and in teams; self-management; the ability to gather, evaluate and reflect on information from relevant sources and synthesize new knowledge and solutions to requirements in the domain of applications of Cloud Computing.

Honours Degree Course Learning Outcome 4 (DEGCLO4)

Demonstrate a range of social, legal, ethical and professional skills required for continuing professional development in Computing and Information Technology disciplines within a world-wide context.

Overview of Assessment:

Module	Title	Course Learning Outcomes
4CI018	Academic Skills and Team-based Learning	CHECLO1, CHECLO2, CHECLO3, CHECLO4
4CS001	Introductory Programming And Problem Solving	CHECLO1, CHECLO2, CHECLO3
4CS012	Server Management and Virtualisation	CHECLO1, CHECLO2, CHECLO3, CHECLO4
4CS015	Fundamentals of Computing	CHECLO1, CHECLO2, CHECLO3, CHECLO4
4CS016	Embedded Systems Programming	CHECLO1, CHECLO4
4CS017	Internet Software Architecture	CHECLO1, CHECLO2, CHECLO3, CHECLO4
5CI022	Databases	DHECLO1, DHECLO2
5CS016	Professional Experience and Development	DHECLO1, DHECLO2, DHECLO3
5CS022	Distributed and Cloud Systems Programming	DHECLO1, DHECLO2
5CS024	Collaborative Development	DHECLO1, DHECLO2, DHECLO3
5CS030	Cybersecurity Management	DHECLO1, DHECLO2, DHECLO4
5CS031	Network Security	DHECLO1, DHECLO2, DHECLO3
5CS032	Computer Networking	DHECLO1, DHECLO2, DHECLO3, DHECLO4
5MM006	Industrial Placement	DHECLO1, DHECLO2, DHECLO3
6CS005	High Performance Computing	DEGCLO1, DEGCLO2, DEGCLO3, ORDCLO1, ORDCLO2, ORDCLO3
6CS023	Project and Professionalism with Cloud Artefact	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4
6CS026	Systems Architecture and Internet of Things	DEGCLO1, DEGCLO2, DEGCLO3, ORDCLO1, ORDCLO2, ORDCLO3
6CS029	Advanced Networks	DEGCLO1, DEGCLO2, DEGCLO3, ORDCLO1, ORDCLO2, ORDCLO3
6CS030	Big Data	DEGCLO1, DEGCLO2, DEGCLO3, ORDCLO1, ORDCLO2, ORDCLO3

Teaching, Learning and Assessment:

The learning activities on your course will develop distinctive graduate attributes that will make you stand out and enhance your employability. These skills will be embedded into the curriculum throughout your course. Examples include:

Digitally Literacy: All Mathematics graduates will surely be users of advanced technologies. However, on your course you will develop your skills to encompass literacy more fully such as learning how to find information and how to take best advantage of digital resources and the Internet to make you effective in the Information Age.

Global Citizenship: On each level of your course you will learn about the social aspects of Mathematics, which will broaden your understanding of the way the world works and how communication and collaboration are evolving.

Knowledgeable and Enterprising: Throughout your course you will build up your professional and employability skills and learn to apply the knowledge you have acquired in an enterprising way. You will constantly nurture your own intellectual curiosity.

The tools, methodologies and techniques that you will learn have been carefully selected to prepare you with the skills that employers demand and the opportunities for work based learning and placements will allow you to gain the vital experience that they often expect. Formative assessments provide feedback and are not used in the grading process. Their purpose is to provide both tutors and students with a gauge of progress.

Summative assessments are used in the grading process. Most summative assessments (with a notable exception of exams) also have a formative aspect to them in that tutors provide written feedback on the work. Students should use this feedback to improve their performance on future assessments.

Feedback on an assessment on one module may help with assessments on other modules. Assessment methods are closely linked to the learning and teaching approaches used. Below are examples of the assessment methods that you may encounter.

Assignments – task based and report based assignments. Coursework frequently requires the writing of reports documenting the development of solutions. It is frequent practice to ask students to reflect on their learning experience as part of the coursework.

Case studies – based on realistic scenarios. Analysis, application and evaluation skills are developed via case studies as appropriate for the topic areas.

Practical exercises – tutorials and workshop sessions. These aid understanding and application of knowledge using a variety of IT tools within practical settings in workshops as well as assessing depth and breadth of understanding and application of subject knowledge. Practical exercises are the primary mechanisms for assessing analysis and evaluation. The tasks undertaken involve well-defined problems with varied level of complexity. Some practical exercise may involve interactive learning tools that are able to provide formative feedback.

Portfolios / e-portfolios – contain samples of work demonstrating what the student has accomplished. This is a good way to assess learning and development which is illustrated by multiple examples of work, opportunities for self-assessment and reflection charting over a period of time. Tasks set relate to outcomes being assessed thus documenting evidence of development towards mastering the identified outcomes and skills. Enhances the assessment process by demonstrating a range of skills and understandings of the subject area by the student. Some portfolios are sometimes called Learning Journals.

Formal presentations - you may be required to present your work to a group of tutors or to the rest of the class. This may be a demonstration of practical work or something you developed or built or may present the results of a study. These are an important way of assessing your communication skills.

Examinations and Time-Constrained Assessments (tests) - may follow a traditional format or on-line alternatives. They are used to ensure breadth of knowledge has been acquired. TCA and examinations, some of which are case study based, emphasise application of knowledge and skills.

Group Project Work - where group work is assessed, mechanisms are used to allow individual contributions to be reflected in the grading as appropriate e.g. peer assessment of individual group members, individual reflection on the process and the product.

Peer-group assessment – using student feedback, particularly in group assessments to identify each student's contribution to the work.

Individual Project Work - All courses require at least one module of individual project work where students work individually on a large task. This type of work is supported by either regular meetings with a named project supervisor or through seminars.

Work-based assessments – used to assess the student's work-based modules and enable feedback from work placement organisations. These are usually used for students who are industry-based and doing their course part-time or students doing a placement. Assessments will also focus on skills such as team working, time-management and developing Continuing Professional Development (CPD) awareness, as well as discipline-specific skills related to the analysis, design, development, implementation, testing and evaluation of systems.

Typical tasks include: production of technical documentation, reports for differing target audiences, presentations, demonstrations and viva, allowing for assessment of the breadth and depth of knowledge, analysis and synthesis, communication, and evaluation within the subject area.

Learning and Teaching Methods:

This data indicates the proportion of time in each year of study that students can expect to engage in the following activities (expressed as a percentage for each level).

Level	Teaching	Independent	Placement
4	21	79	0
5	24	76	0
6	24	76	0

Assessment Methods:

This data indicates the proportion of summative assessment in each year of study that will derive from the following: (expressed as a percentage for each level).

Level	Written Exams	Practical Exams	Coursework
4	0	0	100
5	17	0	83
6	8	8	84

Student Support:

University provided support:

As well as providing general counselling support the University Counselling Service provides short courses on topics such as "Self Confidence", "Stress Management and Relaxation" and "Life Skills". They also provide study skills and academic support, providing short courses such as provide help in areas such as "Writing and Assignment Skills", "Exam Techniques", "Enhancing Professional Skills", "Personal Development Planning" and "Making Choices for the Future. University Learning Centres provide general academic skills support to all students. You can make an appointment with a study skills advisor for advice on areas such as academic writing, assignment planning, exam preparation, and time management. In addition, there is a regular timetable of drop-in and bookable workshops covering information and digital literacy skills, including academic referencing. School of Computing and IT students are supported by a designated subject librarian who is available to support research and project work. Course support: At the start of each year of your course you will be assigned a Personal Tutor who will guide you through the induction process and provide support and academic counselling throughout the year on an appointment basis. They should be able to offer you advice and guidance to help you liaise with other staff and support facilities in the School and University. You should meet your Personal Tutor at least 3 times a year, which must include meetings that you are invited to at critical points in your course. The Academic Programme Advisor (APA) provides academic counselling and will be accessible throughout the week on a drop-in or appointment basis to discuss timetables, requests for extensions, requests for extenuating circumstances, general concerns about study and student life and general programme planning. The APA will act as a first point of contact in relation to leave of absence (including returning after leave), withdrawal, transferring to another course (internal and external) and changes to mode of attendance. Your Course Leader will be available thereafter for meetings by appointment to discuss leave of absence, withdrawal, transferring to another course (internal and external), changes to mode of attendance, returning after leave of absence and direct entrants.

Subject support:

Tutorials, workshops, seminars and meetings - provide the primary opportunities for students to interact with staff on topics relating to modules. All modules provide at least one of these forms of face-to-face support. Formative feedback - tutors provide personalised written feedback on most summative assessments. The mechanism for feedback from purely formative tasks varies between assessments, but will always be provided in some form. Online formative tasks often provide feedback straight away. On occasions tutors may provide generalised verbal feedback to the whole class on points relating to an assessment Assessment and subject-based surgeries provide additional student support for subjects that students often need extra help with. They are often concentrated around the times when assessments take place. Revision sessions are

provided for many modules that have exam-like tests and enable you to interact with tutors to review parts of the course. Mock exams and tests may provide opportunities to experience an examination environment before the final summative test and give you feedback on your understanding.

Employability in the Curriculum:

Throughout your course you will build up your professional and employability skills and learn to apply the knowledge you have acquired in an enterprising way. You will constantly nurture your own intellectual curiosity. The tools, methodologies and techniques that you will learn have been carefully selected to prepare you with the skills that employers demand and the opportunities for work based learning and placements will allow you to gain the vital experience that they often expect.



THE UNIVERSITY OF OPPORTUNITY