

<b>Programme Title</b>	<b>BSc (Hons) Cyber Security</b>
<b>Awarding Body</b>	Ravensbourne University London
<b>Teaching Institution</b>	Ravensbourne University London
<b>Final Award</b>	Level 6 – BSc (Hons) Cyber Security
<b>Interim awards</b>	Level 5 – Dip HE Level 4 – Cert HE
<b>UCAS Code</b>	I110
<b>QAA Subject Benchmark</b>	Computing (2019)
<b>PRSB reference</b>	N/A
<b>Mode of study</b>	Full Time / Part Time
<b>Date produced/amended</b>	January / March 2020
<b>Course Leader</b>	Ajaz Ali

### Distinctiveness

Ravensbourne University London is known for its excellence in Media and Creative Arts education. With the convergence of technology and media, it is inevitable for the University to adapt the changes and deliver courses which are relevant now and also future proof our learners.

The BSc in Cyber Security together with its sister course the BSc Cloud Computing is the first honours degree in the UK that:

- has been developed in partnership with Amazon Web Services (AWS), one of the leading global providers of cloud services;
- in addition, covers the Cyber Security Body of Knowledge (CyBOK 1.0) framework at this level.

Students will have privileged access to resources especially designed for the content covered in this course by experts from global industry connections. Students will also gain access to a dedicated AWS-Educate job portal after completion of this programme.

The course covers a range of requisite skills, knowledge and industry standard technologies related to cyber security and its implementation in various sectors. Cyber Security in general and particularly in the Creative Industries is gaining momentum and is regarded as a highly valuable and specialist profession.

The framework used for development of this programme aligns well with the Key Knowledge Areas of CyBOK 1.0 which is a comprehensive Body of Knowledge to inform and underpin educational and professional training for the cyber security sector. CyBOK is funded by the National Cyber Security Centre. A mapping with CyBOK version 1.0 is given at the end of this document.

A typical role of a cyber security expert includes implementation and maintenance of security controls on digital assets of an organisation. The role also involves ensuring that security technologies and practices are operating in accordance with the organisation's policies and standards. In order to become a successful cyber security expert, you will need a broad understanding of computer networks, software engineering processes, web technologies and databases to mitigate against the potential threats.

Alongside covering the technical content and practices underpinning relevant knowledge areas,

the programme is designed to develop soft skills such as communication, team work, creativity, project management and leadership. This is achieved by students working in groups, selecting cross departmental and cross institutional electives and regular participation in in-class activities.

This programme equips the students with a strong understanding of what cyber security entails. Based on numerous case studies, labs, workshops and online resources, students will utilise state of the art and most current tools and methodologies to learn about Cyber Security. Upon completion, students will be able to evaluate Cyber Security issues, recognize best practices, and analyse and evaluate possible solutions to overcome any potential threats.

This programme covers six key areas of cyber security which include Networking, Databases, Software Development and Management, Cyber Security, Artificial Intelligence and Machine Learning and Ethics and Regulations.

Almost all or majority of the organisations are directly or indirectly users of computing and cloud technologies, it is imperative for Ravensbourne to develop programmes which are meeting the needs and demands of the industry.

#### **Potential Careers in Cyber Security**

- Cyber Security Consultant
- Security Architect
- Cyber Security Analyst
- Information and Cyber Security Manager
- Software Developer
- Network Administrator
- Cyber Incident Manager
- Cyber Project Manager
- Security Management
- Penetration Tester
- Ethical Hacker

#### **Ravensbourne University London**

Ravensbourne University London is a leading University specialising in creative arts, design and digital media. By working closely with the UK high tech industry and research institutions, Ravensbourne has developed a unique proficiency and practical knowledge of the latest disruptive technologies in this area. Ravensbourne graduates meet the skill demands across many industry sectors including media production, broadcasting, engineering, design, fashion and architecture, and we are proud to achieve excellent graduate employment rates.

Though relatively small, Ravensbourne is very well-known and respected by the UK's media, production and broadcasting organisations, and we are active in various relevant industry forums. We maintain a Society of Motion Picture and Television Engineers (SMPTE) Student Chapter at Ravensbourne, which gives our students valuable access to a range of technical meetings and seminars, and provides our teaching staff the opportunity to engage and collaborate with a leading global standards organisation and its respected international members.

#### **Mindset and Skillset Manifesto**

This programme is based on the Ravensbourne Mindset and Skillset Manifesto. Our students are

at the core of this Manifesto where we are committed to thread these five Principles through everything we do:

- Cultivate / Where the individual thrives
- Collaborate / Where disciplines evolve
- Integrate / Where education engages industry
- Advocate / Where purpose meets practice
- Originate / Where creativity meets technology

### **Course Structure**

The programme is divided into units of study that are taught over three academic terms. Throughout the course you will develop a wider understanding of the industrial context, including how the existing processes, management and distribution infrastructures have developed, and how new and disruptive technologies are having a great impact on all walks of life.

Every unit has detailed indicative content which are divided into 2 or 3 sections.

The first section covers industry wide knowledge to ensure students understand the topic effectively and are able to work in a variety of roles and positions regardless of vendor specific tools.

The second section covers relevant Amazon Web Services (AWS) specific “Knowledge Areas” where students will learn about available tools and technologies offered by AWS.

The third section links the content of the unit with CyBOK framework to ensure alignment with the body of knowledge created by the National Cyber Security Centre (NCSC).

The structure of this programme has a number of distinctive characteristics comprising:

- Core taught units covering industry wide knowledge and AWS specific knowledge
- Covering 19 areas of CyBOK framework
- Supplementary tutorials underpinning the core units, including Maths
- Specialisation subject tutorials and additional engagement such as industry visits or external seminars.
- Collaborative learning stream providing a linked program of industry speakers from AWS and other industries
- Conceptual Studies to develop students’ wider knowledge, interests and skills.
- With the help of cross institutional and cross departmental electives students will be able to understand and practice Mindset and Skillset manifesto

Companies operating in a range of markets and application areas will require different focuses for some of the taught unit subject areas. This course is uniquely structured to meet this requirement. Fundamental core taught units are supplemented by specialisation subject tutorials given by experts in a particular field, while the Collaborative Learning Stream is supported by external speakers. Speakers will include experts from relevant areas in industry, Ravensbourne researchers and incubatees, and representatives from leading organisations in the field.

### **QAA benchmark statement (2019)**

This programme uses QAA benchmark for computing and related subjects:

*“Computing is concerned with the understanding, design and exploitation of computation and computer technology - one of the most significant advances of the twentieth and twenty-first centuries. It is a discipline that:*

- *Blends elegant theories (including those derived from a range of other disciplines such as Mathematics, Engineering, Psychology, Graphical Design or well-founded experimental insight) with the solution of immediate practical problems.*
- *Underpins the development of both small and large scale, secure reliable and usable systems that support organisational goals.*
- *Helps individuals in their everyday lives.*
- *Is pervasive, ubiquitous and diversely applied to a range of applications, and important components are often invisible to the naked eye.”*

**The programme will meet the QAA benchmark standards in computing as follows:**

6.1 Benchmark standards are defined at threshold, typical and excellent levels for bachelor's degrees:

**The threshold level:**

- 6.2 Set here at the bottom of the honours class the threshold level would be treated by many higher education providers as disappointing performance, given the entry qualifications of their students, and it is not the outcome expected of them.
- 6.3 On graduating with an honours degree in Computing at threshold level, students should be able to:
  - i. demonstrate a requisite understanding of the main body of knowledge for their programme of study
  - ii. understand and apply essential concepts, principles and practices of the subject in the context of well-defined scenarios, showing judgement in the selection and application of tools and techniques
  - iii. produce work involving problem identification, the analysis, design and development of a system with accompanying documentation, recognising the important relationships between these stages and showing problem solving and evaluation skills drawing on supporting evidence
  - iv. produce small well-constructed programmes to solve well-specified problems
  - v. demonstrate generic skills, an ability to work under guidance and as a team
  - vi. member.
  - vii. identify appropriate practices within a professional, legal and ethical framework and
  - viii. understand the need for continuing professional development.

**The typical level**

- 6.4 Set here at the middle of the honours class this typical level would be treated by many higher education providers as median performance across all students.
- 6.5 On graduating with an honours degree in Computing at typical level, students should be able to:
-

- i. demonstrate a sound understanding of the main areas of the body of knowledge within their programme of study, with an ability to exercise critical judgement
- ii. critically analyse and apply essential concepts, principles and practices of the subject in the context of loosely defined scenarios, showing effective judgement in the selection and use of tools and techniques
- iii. produce work involving problem identification, the analysis, the design or the development of a system, with appropriate documentation, recognising the important relationships between these
- iv. the work will show problem solving and evaluation skills, draw upon supporting evidence and demonstrate a good understanding of the need for a high-quality solution
- v. demonstrate generic skills with an ability to show organised work both as an individual and as a team member and with minimum guidance
- vi. apply appropriate practices within a professional, legal and ethical framework and identify mechanisms for continuing professional development and lifelong learning.

#### **Excellence**

- 6.6 While the Subject Benchmark Standards in this section are defined for threshold and typical levels, programmes in Computing will provide opportunities for students to achieve to their potential.
- 6.7 Such students:
  - i. will be able to contribute significantly to the analysis, design or the development of systems that are complex, recognising the important relationships between these
  - ii. will be creative and innovative in their application of the principles covered in the curriculum
  - iii. will be able to exercise critical evaluation and review of both their own work and the work of others.
  - iv. will be able to demonstrate team leadership skills

#### **Programme aims**

**Professional:** To prepare market ready Cyber Security graduates with 3 year's vocational experience on the latest technologies.

#### **Cyber Security:**

- Be able to research, analyse, model, assess and manage cyber security risks;
- Design, develop, justify, manage and operate secure solutions; and detect and respond to incidents.
- Work in accordance with applicable laws, regulations, standards and ethics

#### **Cloud and Computer Networks Security**

Develop a specialist understanding of computer hardware, network architecture, directory services, operating systems and virtual environments. Develop an in-depth understanding of vulnerabilities related to local and cloud-based networks.

#### **Web design and databases**

To develop comprehensive understanding and application of web-based database systems, Big Data, Data Lakes, Data Management and how to secure them.

#### Software Development

To gain requisite skills in software architecture, software development lifecycle and approaches to developing secure software.

#### Artificial Intelligence and Machine Learning

Develop a strong understanding of various models and how AI/ML work hand in hand to develop intelligent tools for security, decision making and automation.

### Programme Learning Outcomes

#### Programme Learning Outcomes

Level Four	Level Five	Level Six
<b>LO 1 Research/Inspiration</b> Demonstrate your capacity for information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.  <b>Related Principle: ORIGINATE</b>	<b>LO 1 Research/Inspiration</b> Analyse and interpret information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.  <b>Related Principle: ORIGINATE</b>	<b>LO 1 Research/Inspiration</b> Select and evaluate information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.  <b>Related Principle: ORIGINATE</b>
<b>LO 2 Concept/Ideation</b> Generate first concept ideas or strategic project themes drawing upon reference to acquired research materials  <b>Related Principle: ORIGINATE</b>	<b>LO 2 Concept/Ideation</b> Analyse research materials leading to the generation of the ideation and concepts that inform and lead to project development.  <b>Related Principle: ORIGINATE</b>	<b>LO 2 Concept/Ideation</b> Critically appraise and evaluate appropriate research materials to generate workable concepts or strategic project themes that inform and underpin project development. <b>Related Principle: ORIGINATE</b>
<b>LO 3 Development/Prototyping</b> Demonstrate a range of tests and solutions, informed by knowledge of the principles of	<b>LO 3 Development/Prototyping</b> Analyse a range of potential pathways that result in appropriate solutions, informed by an understanding of the	<b>LO 3 Development/Prototyping</b> Investigate potential pathways that result in appropriate solutions, informed by a systematic

the creative process. <b>Related Principle: INTEGRATE</b>	principles of the creative process. <b>Related Principle: INTEGRATE</b>	understanding of the principles of the creative process. <b>Related Principle: INTEGRATE</b>
<b>LO 4 (Pre) Production</b>  Identify, select and apply an appropriate selection of processes, materials and methods that inform creative and academic practice.  <b>Related Principle: COLLABORATE</b>	<b>LO 4 (Pre) Production</b>  Employ relevant knowledge of production skills alongside a grasp of the creative potential of a selection of processes, materials and methods that inform creative and academic practice.  <b>Related Principle: COLLABORATE</b>	<b>LO 4 (Pre) Production</b>  Demonstrate systematic working knowledge, production skills, selection, application and understanding of a selection of processes, materials and methods that inform creative and academic practice. <b>Related Principle: COLLABORATE</b>
<b>LO 5 Presentation /Storytelling for Influence</b>  Evidence effective communication of projects, whether in visual, oral or written form.  <b>Related Principle: ADVOCATE</b>	<b>LO 5 Presentation /Storytelling for Influence</b> Select and employ effective methods of presentation and communication of projects in considering the audience/client and the purpose of the work, whether in visual, oral or written form. <b>Related Principle: ADVOCATE</b>	<b>LO 5 Presentation /Storytelling for Influence</b> Communicate projects creatively and professionally, whether in visual, oral or written form. Methods of presentation are appropriate to the audience/client and the purpose of the work. <b>Related Principle: ADVOCATE</b>
<b>LO 6 Critical and creative mindsets</b>  Demonstrate enquiry into what makes good practice - both creatively and academically  <b>Related Principle: ORIGINATE</b>	<b>LO 6 Critical and creative mindsets</b> Analyse conceptions of diverse practice and use this to inform a course of action  <b>Related Principle: ORIGINATE</b>	<b>LO 6 Critical and creative mindsets</b> Evaluate a range of critical approaches in order to form an independent position  <b>Related Principle: ORIGINATE</b>
<b>LO 7 Employability</b>  Evidence nurturing professional transferrable and employability skills, including the ability to manage time and work to clear briefs and deadlines, respond to set goals, and communicate effectively.  <b>Related Principle: CULTIVATE</b>	<b>LO 7 Employability</b>  Demonstrate professional transferrable and employability skills, including the ability to manage time and work to clear briefs and deadlines, respond to set goals, and communicate effectively.  <b>Related Principle: CULTIVATE</b>	<b>LO 7 Employability</b>  Effectively employ professional transferrable and employability skills, including the ability to manage time and work to clear briefs and deadlines, respond to set goals, and communicate effectively.  <b>Related Principle: CULTIVATE</b>
<b>LO 8 Professional Identity</b>	<b>LO 8 Professional Identity</b>	<b>LO 8 Professional Identity</b>

Evidence an emerging personal creative and professional identity	Investigate specific professional contexts to situate your own practice	Align your professional identity as a practitioner with a viable career context.
<b>Related Principle: CULTIVATE</b>	<b>Related Principle: CULTIVATE</b>	<b>Related Principle: CULTIVATE</b>

### Learning and Teaching methods

This programme is developed in partnership with AWS Educate programme. It will be delivered through class lectures, workshops and online resources.

The specific needs of industry vary significantly and require differentiated learning for their employees. This differentiation is achieved by supplementing the main core taught units with specialist tutorials and external lectures that provide deep and broad learning opportunities respectively.

The learning experience is an evolving journey starting in the first year at Level 4, an introductory level, progressing through the second year at Level 5, an intermediate level, and culminating in the third year at Level 6 with an advanced level of taught units and on a Final Major Project.

Induction consists of introductory seminars explaining the course structure and content, technical and learning resource inductions and individual tutorials for informal initial assessment.

The course uses a spiral approach in teaching where students are introduced to new concepts in first year at level 4, more advanced knowledge is then developed on these foundations in second year at level 5 and then final year students develop further analytical skills at level 6.

#### **Level 4 – Skills, technology and principles:**

At Level 4, your objective is to understand the computer fundamentals, cloud technologies, software development and the fundamental principles that underpin them. You will engage in a range of practical projects and lab-work, and investigate roles and technologies through hands-on experience relevant to the taught subject.

You will have practical, theoretical and technical knowledge and understanding of various elements of computing to address problems that are well defined but complex and non-routine. At this level you should be able to analyse, interpret and evaluate relevant information and ideas.

#### **Level 5 – ideas, development and exploration.**

You will consolidate your technical knowledge, develop new skills and experiment technically and creatively on increasingly challenging projects. You will collaborate with other courses to broaden your experience, and with industry practitioners to better understand the uses of cloud computing.

At this level you should have developed increased level of depth of knowledge and understanding of various areas of study.

#### **Level 6 – independent professional working.**

During the final year, you will consolidate your learning from Levels 4 & 5, and then focus on the analysis of emerging trends, technologies, and standards in the industry. Investigative techniques,



independent working and the application of academic and industry research form the core of Level 6 studies.

Through your Final Major Project and Dissertation and you create individual outcomes through self-initiated work and experimentation of ideas, and apply solutions that will prepare you for professional practice with confidence.

Teaching is normally undertaken by a team comprising full-time lecturers, part-time specialist tutors, industry experts and company practitioners. All tutors will have recent and relevant knowledge and experience.

Ravensbourne has adopted and developed a practice led approach to teaching and learning. This means that you are provided with opportunities to apply and practice the taught theory in real situations.

Teaching blends the following methods:

- Lectures (online and face to face)
- Tutorials
- Seminars & Workshops
- Visits & Masterclasses
- Laboratory & Practical Sessions
- Virtual Learning Environment Study and Interaction

The practice-led, hands-on approach employed by the tutors for the core units, the support gained by additional subject specialist tutorials, and the integration of the collaborative learning stream that brings contributions from industry experts are woven into an effective and unique format in this programme.

The course provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas.

On completion of the course students will have acquired:

- Knowledge and understanding is developed through lectures, tutorials, directed reading etc. and assessed via written reports, assignments etc.
- Intellectual skills are developed through more active learning processes such as projects, group assignments, problem solving tasks and workshops etc. It may be assessed via assignments, reports, presentations etc
- Practical skills are developed through practice in a subject specific field or work placement and assessment may be via demonstration of a skill or by providing evidence of having done so.
- Transferable skills are developed through active learning involving teamwork, communication, analytics, group working, leadership etc.

## Assessment Strategy

As you progress through your course, assessment points throughout the course enable you to practise and demonstrate the learning outcomes with confidence, and receive formative and summative feedback from tutors.

The methods of assessment and the submission deadlines will be specified in the Project Briefs issued at the start of each unit. Assessed work is usually submitted in electronic form, and will be graded against the assessment criteria using the University's grading descriptors. Part of the work will be assessed through presentation of the artefact or viva vouch by a panel, as specified in particular project briefs.

Typical assessment methods used during this programme may include:

- Presentations (Individual / Group)
- Demonstration of Artefact (Individual / Group)
- Coursework and portfolios
- Case studies
- Software Programme
- Course work

Every Taught Unit and Learning Activity has a dedicated page/section in the Virtual Learning Environment, containing all the information and documentation you require for that unit, including the Project Briefs. The information will include an overview of the unit subject content and coverage, rationale of the brief, expected Learning Outcomes, assessment criteria, assessment methods, work submission deadlines, relevant reading material, tutor availability for discussion etc.

There are two types of assessment feedback, Formative and Summative:

- **Formative assessment** is provided so that you can improve on your work and achieve the project learning outcomes in an effective manner. Formative assessments are not graded but include desired performance goals. Formative assessment and feedback are made either as written or verbal feedback and takes place well before the end of the unit so you have time to integrate the feedback in your final submissions.

- **Summative assessment** is usually scheduled at the end of the unit along with a mark or grade. Summative assessment allows you to reflect upon your achievements and performance and provides guidance on how to improve on future modules. Summative assessment is generally written feedback, and will be made available to you via the Virtual Learning Environment.

## BSc (Hons) Cyber Security

Order	Unit Code	Unit Title	Credits
	Level 4		
1.1	CLC20102	Computer Networks and Technologies (Term 1)	30
1.2	CLC20103	Web Design and Database Development (term 1)	15
1.3	CLC20104	Cloud Computing Principles (Term 2)	30
1.4	CLC20105	Software Design and Development (Term 3)	30
1.5	C18101	<b>** Themes for Contemporary Culture (Term 2 &amp; 3)</b>	15
	Level 5		
2.1	ECLC20202	Cyber Security for Creative Industries (Term 1) E	15
2.2	ECLC20203	Artificial Intelligence and Machine Learning (Term 1)	15
2.3	CLC20204	Media Streaming and Cloud	15
2.4	CLC20205	Cyber Security Principles (Term 2)	30
2.5		<i>*Cross Institutional Elective (Term 2)</i>	15
2.6	CYS20206	Ethical Hacking and Digital Forensics (Term 3)	30
2.7	C18201	<b>**Big ideas and Philosophies (Term 1 &amp; 3)</b>	15
	Level 6		
3.1	CYS20302	Risk and Project Management (Term 1)	15
3.2	C18301	Dissertation (Term 1)	30
3.3	CYS20303	Cyber Ethics, Regulations and Compliance	15
3.4	CYS20304	Advanced Secure Programming (Term 2 & 3)	30
3.5	CYS20305	Final Major Project	30
			360

\* All units on this course are mandatory. Students will have the opportunity to choose cross departmental elective – one unit from any other course run under the same school.

\*\* These are mandatory units across all departments

## Entry Requirements

Students will normally be expected to possess five GCSEs (grade C or above) or equivalent (including English and Maths) and also to hold at least one of the following or equivalent UK or international qualification:

- 2 A Levels (grades A-C) or 4 AS Levels (grades A-C)
- 2 vocational A Level (grades A-C)
- Level 3 Foundation Diploma or National Diploma
- Advanced Diploma (grades A-C)
- International Baccalaureate (28 points or above)

Where an applicant's first language is not English, proof of competence in English will be required. For undergraduate and postgraduate programmes, this will normally take the form of an approved English language test at B2 level in the Common European Framework of Reference. Any test for proficiency in English must have been achieved within 18 months preceding the date of entry. Individual programmes may have higher language requirements. Ravensbourne's international department will advise applicants on the language requirements for particular programmes.

### Selection Criteria

Ravensbourne will use a number of methods to assess an applicant's suitability for their course of choice. Primarily applicants are selected on the basis of:

- an applicant's prior academic achievement/qualifications and/or previous employment/life experience;
- assessment of the applicant's ability and aptitude to succeed on the course for which s/he has applied.

Students will be selected according to the generic criteria set out below:

#### Personal attributes

- shows commitment, enthusiasm and interest in the subject area
- initiative and problem solving
- ability to communicate

#### Creative process

- can generate ideas and use external sources to develop them
- ability to research an idea and follow it through to a finished product

#### Study skills

- can understand and organise information clearly
- can investigate and analyse information
- shows reasoning and intellectual curiosity

#### Professional skills

- has shown they can initiate and deliver projects
- can work in a team and with people with different skills
- has shown confidence with IT

#### Career aspirations

- understands the relevance of the course to her/his career ambitions
- understands current debates within industry

## Accreditation of Prior Learning

Applications are welcomed from those who may not possess formal entry qualifications, mature students, those with work experience or with qualifications other than those listed above. Such applicants should demonstrate sufficient aptitude and potential to complete the course successfully. Applicants will be assessed at interview in accordance with Ravensbourne's Accreditation of Prior Learning Policy and Procedure.

### 1+2 and 2+1 Routes

Students already possessing a HNC or equivalent maybe eligible for direct entry into 2<sup>nd</sup> year of the programme subject to 75% modules matching the subjects covered in 1<sup>st</sup> year of this course.

Students already possessing a HND or equivalent maybe eligible for direct entry into 3<sup>rd</sup> year of the programme subject to 75% modules matching the subjects covered in first two years of their students.

### 3+1 route

Select number of students already possessing a degree in computing or related field may apply for final year top-up to obtain specialist degree in this field. This is subject to demonstration of sufficient prior knowledge or work experience to the course team.

	Level 4					Level 5					Level 6				
Cours e LOs	C L C 2 0 1 0 2	C L C 2 0 1 0 3	C L C 2 0 1 0 4	C L C 2 0 1 0 5	C 1 8 1 0 1 2	E C L C 2 0 0 2	E C L C 2 0 0 3	C L C 2 0 0 4	C L C 2 0 0 5	C I E 1 2 2 0	C Y S 2 0 2 6	C 1 8 2 0 1 2	C Y S 2 0 3 3	C Y S 2 0 3 4	C Y S 2 0 3 5
LO1	x	x	x	x	x	x	x	x	x		x	x	x	x	x
LO2	x		x	x	x			x				x	x	x	x
LO3	x	x		x				x							X
LO4		x	x		x		x	x		x					X
LO5				x	x	x			X		x	x			X
LO6		x	x			x	x		X	x	x	x	x	x	X
LO7							x			x			x		X
LO8									x		x				x

### Description of the Course

*BSc (Hons) Cyber Security is developed in partnership with AWS-Educate programme. This degree provides students with first-hand knowledge and understanding of industry standard tools and practices for Cyber Security. The course is designed in such a way that it will provide students with the flexibility and agility needed to keep pace with the technological developments.*

*You will learn about a range of Cyber Security technologies including computer forensics, secure programming, networking and operating systems, ethical hacking etc.*

*The course prepares you to work in emerging sector of Cyber Security and Digital Forensics. Since the foundation of this course revolves around computing concepts such as networking, programming, web development and database, it gives a wide range of options for career development in various industries and sectors.*

## Academic Framework – Course Diagram

	Term1	Term2	Term 3
<b>Level 4</b>  120 credits	Induction (Inc. contribution from Theory)  0 credits	<i>Themes in Contemporary Culture</i> 15 credits	
	Web Design and Database Development  15 credits	Cloud Computing Principles  30 credits	Software Design and Development  30 credits
	Computer Networks and Technologies  30 credits		
<b>Level 5</b>  120 credits	Part 1 <i>Big Ideas and Philosophies</i> (7.5 out of 15 credits)		Part 2 <i>Dissertation Proposal</i> (remaining 7.5 out of 15 credits)
	Elective Cyber Security for Creative Industries  Or Elective  Artificial Intelligence and Machine Learning  <i>15 Credits</i>	Elective 2: <i>Cross-Institutional elective</i>  15 credits	Artificial Intelligence and Machine Learning  30 credits
	Media and Cloud Streaming  15 credits	Ethical Hacking and Digital Forensics  30 credits	
<b>Level 6</b>  120 credits	Dissertation  30 credits	Advanced Secure Programming  30 credits	
	Final major Project 30 Credits (over 3 terms)		FMP presentation
	Cyber Ethics, Regulations and Compliance  15 credits		Risk and Project Management  15 credits

## Mapping with CyBOK area of knowledge

Unit Code	Unit Title	CyBOK Knowledge Area
<b>Level 4</b>		
101CC	Computer Networks and Technologies	Physical Layer Security and Telecommunications Cyber-Physical Systems Security Hardware Security
102CC	Cloud Computing Principles	Operating Systems and Virtualisation Network Security
103CC	Software Design and Development	Software Security Secure Software Lifecycle
104CC	Web Design and Databases	Web & Mobile Security
C18101	Themes for Contemporary Culture	
<b>Level 5</b>		
201CC	Cyber Security Principles	Malware & Attack Technologies Authentication, Authorisation & Accountability (AAA) Security Operations & Incident Management
202CC	Artificial Intelligence and Machine Learning	Web & Mobile Security Forensics
203CC	Digital Forensics and Ethical Hacking	Forensics
C18201	Big ideas and Philosophies	
<b>Level 6</b>		
301CS	Risk Assessment and Project Management	Risk Management and Governance
302CS	Advanced Secure Programming	Cryptography Software Security Secure Software Lifecycle
303CS	Cyber Ethics, Regulations and Compliance	Human, Organisational and Regulatory Aspects Law & Regulation Human Factors Privacy & Online Rights
304CS	Final Major Project related to Cyber Security	Overall CyBOK Framework
305CS	Dissertation	Overall CyBOK Framework