

PROGRAMME SPECIFICATION, UNDERGRADUATE BACHELOR AND LLB

Programme Title	Cybersecurity		
UCAS/JACS Code	G400		
School/Subject Area	Engineering and Applied Science		
Final Award	BSc Honours		
Interim Award(s)	Certificate of Higher Education; Diploma of Higher Education;		
Attendance Pattern (Check as appropriate)	Full Time		Part time
	X		
Predominant delivery method (Check as appropriate)	Campus-based*	Work-based*	Online/distance
	X		
*Location of Study	Students will be located at Aston University except for their period of placement. The location of placements will be dependent upon the nature of placements available which will be subject to change.		
Normal Length of Programme	4 years (including placement)		
Total Credits	BSc (Honours): 480 credits (including 120 at Level P); Diploma of Higher Education: 240 credits (at the appropriate level); Certificate of Higher Education: 120 credits (at the appropriate level)		
Programme Accredited by	n/a		
Entry Requirements	Entry requirements for each individual student will be stated in their offer letter.		

Educational aims of the Programme	The Programme aims to:
	Provide a broad computing-based foundation with an emphasis on security that cuts across the range of cybersecurity specialisations.
	Produce graduates who possess essential cybersecurity knowledge and skills.
	Produce graduates who have strong ethical and professional responsibilities.
	Produce graduates who are highly attractive to employers and well prepared for a rewarding career as cybersecurity professionals, adaptable to a wide range of employment opportunities.
	Enable students to enhance their career preparation through a period of structured professional training.

Programme Structures and Requirements: Levels, Modules and Credits

Each credit of study is equivalent to 10 learning hours (e.g. 20cr reflects 200 hours of learning). The learning hours may include but are not limited to lectures, seminars, tutorials, lab sessions, practicals, online activity, reading, other independent study, reflecting on assignment feedback, field trips and work placements.

Availability of any optional modules will be subject to staff availability and a minimum number of students who express an interest in studying the optional modules.

STAGE 1						
Module title	Credits	Level	Module Code	Core or Option	Condonable? Y/N	Pre-requisite(s) (module code(s))
Information Systems and Databases	20	4	CS1050	Core	Y	N
Security Thinking and Fundamentals	20	4	CS11SF	Core	N	N
Introduction to Computer Systems	10	4	CS1170	Core	Y	N
Internet Computing	10	4	CS1240	Core	Y	N
Mathematics for Computing Professionals	10	4	CS1260	Core	N	N
Java Programming Foundations	20	4	CS1310	Core	N	N
Java Program Development	20	4	CS1410	Core	Y	N
Computer Systems Organisation	10	4	CS1420	Core	Y	N
TOTAL	120					

STAGE 2						
Module title	Credits	Level	Module Code	Core or Option	Condonable? Y/N	Pre-requisite(s) (module code(s))
Programming Language Concepts	10	5	CS2130	Core	Y	CS1310 CS1410
Professional and Social Aspects of Computing	10	5	CS2160	Core	Y	N
Operating Systems	10	5	CS2230	Core	Y	CS1170 CS1420
Secure Network Services	15	5	CS21SN	Core	Y	CS1240
Introduction to Distributed Systems	15	5	CS22DS	Core	Y	CS1410 CS21SN
Secure Software Team Project	30	5	CS212P	Core	N	CS1410
Data encryption, Data Integrity and Authentication	15	5	CS21DE	Core	Y	CS1260
Human Factors in Security	15	5	CS21HF	Core	Y	N
TOTAL	120					

STAGE 3P (Placement, short placement modules or study abroad)						
Select one of the following options:						
Module title	Credits	Level	Module Code	Core or Option	Condonable? Y/N	Pre-requisite(s) (module code(s))
EAS Industrial Placement Year	120	P	SEP002	Opt	N	N
EAS Study/Work Placement Year	120	P	SEP003	Opt	N	N
TOTAL	120					

STAGE F (Final)						
Module title	Credits	Level	Module Code	Core or Option	Condonable? Y/N	Pre-requisite(s) (module code(s))
Individual Project	30	6	CS312P	Core	N	N
Secure Programming	15	6	CS31SP	Core	Y	CS212P CS1410
Security Governance, Risk Management and Policy	15	6	CS32SG	Core	Y	N
Sub total	60					
Select 60 credits from the following options						
Delivering Secure Software	15	6	CS32SS	Opt	Y	CS31SP
System management, access and control	15	6	CS31SM	Opt	Y	N
Cyber Crime, Cyber Law and Privacy	15	6	CS31CC	Opt	Y	N
Digital Forensics	15	6	CS32DF	Opt	Y	N
System Administration	15	6	CS32SA	Opt	Y	CS1170 CS1420
Enterprise Application Technology	10	6	CS3160	Opt	Y	N
Image and Video Processing	10	6	CS3330	Opt	Y	N
Geographic Information Systems	10	6	CS3210	Opt	Y	N
Multimedia Information Retrieval	10	6	CS3320	Opt	Y	N
Data Mining	10	6	CS3440	Opt	Y	N
Advanced Database Systems	10	6	CS3800	Opt	Y	CS1050
Software Project Management	10	6	CS3360	Opt	Y	CS212P
TOTAL	120 Credits					

Programme learning outcomes

Achievement of programme learning outcomes is demonstrated through module assessment at the appropriate level/year of study.

Stage 1 (First Year, should map to FHEQ¹ Level 4 equivalent to an interim award of Cert.HE)	
	On successful completion of this level, students will:
LO4.1	Be able to demonstrate computational thinking and problem solving ability
LO4.2	Be able to demonstrate an understanding of the basic principles of cyber security in the context of the general computing environment
LO4.3	Have acquired knowledge and understanding of cryptographic, computability, mathematical and statistical principles, with a particular focus on cyber security
LO4.4	Be able to demonstrate their ability to construct reliable, secure and usable software and information systems
LO4.5	Be able to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to computing and computer applications as appropriate to the programme of study
LO4.6	Be able to recognise and analyse criteria and specifications appropriate to specific problems and plan strategies for their solutions
LO4.7	Understand the purposes and general organisation of a computer system and the principles of computer hardware architecture
LO4.8	Be able to demonstrate basic knowledge of the architecture and construction of web-based systems, including their security vulnerabilities, threats and mitigations

Stage 2 (Second Year, should map to FHEQ Level 5 equivalent to an interim award of Dip.HE)	
	On successful completion of this level, students will:
LO5.1	Recognise the legal, social, ethical and professional issues involved in the exploitation of computer technology and be guided by the adoption of appropriate professional, ethical and legal practices
LO5.2	Demonstrate knowledge of information security threats and measures to mitigate those threats
LO5.3	Demonstrate knowledge and understanding of methods, techniques and tools for information modelling, management and security
LO5.4	Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to computing and computer applications in modelling and design
LO5.5	Deploy effectively the tools used for the construction and documentation of computer applications, with particular emphasis on understanding the whole process involved in the effective deployment of computers to solve practical problems
LO5.6	Demonstrate an ability to work as a member of a development team recognising the different roles within a team and different ways of organising teams
LO5.7	Demonstrate knowledge and understanding of systems architecture and related technologies for developing information systems
LO5.8	Be able to utilise intellectual skills in the context of: critical thinking; making a case; information literacy. The ability to construct well-argued, informed and grammatically correct documents which are correctly and accurately referenced and attributed.

¹ Framework for Higher Education Qualifications
<http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf>

Stage 3 (Placement Year, Level P (not mapped to FHEQ))	
	On successful completion of this level, students will:
LOP.1	Develop an understanding of their employer's business and the relevant commercial environment and their role within it.
LOP.2	Gain knowledge of key aspects of security, health and safety, equalities legislation, sustainability and associated good practice relevant to sectors utilising IT
LOP.3	Develop new knowledge and understanding appropriate to the industrial, business or research sector related to degree programme.
LOP.4	Communicate effectively in a variety of ways in a professional and industrial environment

Stage F (Final Year, should map to FHEQ Level 6 and a final award of BSc Hons)	
	On successful completion of their programme, students will be able to:
LO6.1	Analyse the extent to which a computer based-system meets the criteria defined for its current use and future development, with a particular focus on security
LO6.2	Deploy appropriate theory, practices and tools for the specification, design, implementation and evaluation of secure computer-based systems
LO6.3	Demonstrate a systematic understanding of the commercial and economic context of the development, use and maintenance of information systems
LO6.4	Demonstrate knowledge and understanding of the management techniques which may be used to achieve objectives within a computing context
LO6.5	Critically evaluate systems in terms of security and other quality attributes and possible trade-offs presented within the given problem
LO6.6	Recognise any risks or security aspects that may be involved in the operation of computing and information systems within a given context
LO6.7	Demonstrate the ability to make informed decisions on the methods and issues involved in deploying systems to meet business goals subject to security threats
LO6.8	Use appropriate theoretical and practical processes to specify and deploy, verify and maintain information systems, including working with technical uncertainty
LO6.9	Define a problem, research its background, understand the security threats, understand customer and user needs, make appropriate design trade-offs based upon risk, ensure fitness for purpose and manage the design process and evaluate outcomes

Assessment Types
The programme will be assessed through a combination of written and oral examinations, class tests, individual and group coursework, projects, presentations and practical assessments.

Approved Exemptions from General Regulations

None

General Regulations (<http://www1.aston.ac.uk/registry/for-staff/regsandpolicies/general-regulations/>) and the Regulations for the programme (above) take precedence over other information sources such as student handbooks if there is a conflict. If there is a conflict between General Regulations and Programme Regulations then General Regulations take precedence unless an exemption has been approved.

For administrative use only:

Dates Programme Specification Written and Revised	Written: December 2018
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