COURSE SPECIFICATION

Course Aim and Title	BSc (Hons) Cyber Security
Intermediate Awards Available	BSc, DipHE, CertHE, University Certificate
Teaching Institution(s)	Ain Shams University, Cairo, Egypt
Alternative Teaching Institutions (for local arrangements see final section of this specification)	N/A
UEL Academic School	Architecture, Computing and Engineering
UCAS Code	N/A
Professional Body Accreditation	N/A
Relevant QAA Benchmark Statements	Computing
Additional Versions of this Course	NA
Date Specification Last Updated	July 2020

Course Aims and Learning Outcomes

This course is designed to:

- Prepare graduates who can develop a deeper understanding of cyber security. The focus is on the principles, technologies and practices of cyber security that help graduates gain the appropriate skills for future research studies.
- Introduce student to develop knowledge in specialized and advanced topics in cyber security. Students can work with and learn from active researchers in computer science and cyber security.
- Introduce students with the versatility and personal qualities to manage, implement and assess the security of business activities in a global context.
- Gain understanding of the working of socio-technical systems in order to adequately prevent or respond to cyber security incidents.
- Understand fundamentals of Information security risk assessments, biometrics intrusion detection and prevention, number theory and cryptography and network security.
- Provide awareness of the key ethical issues affecting cyber security systems and their responsibilities as cyber security professionals.

What you will learn:
Knowledge
- Understand advanced computing methods and techniques.
- Define security problems based on underlying theoretical considerations.

- Know fundamental of computing concepts, including computer hardware, computer architecture, operating systems, programming, program design, fundamental algorithms, databases, networks and communications, human computer interaction, and many application areas such as e-commerce, graphics and artificial intelligence.
- Define the mathematical foundations of computing, including logic, discrete mathematics, computability, and complexity.
- Know the tools, practices and methodologies used in the specification, design, implementation and critical evaluation of cyber security systems.
- Identify the threats and risks to information security and the measures needed to protect access to data and ensure business continuity.
- Understand professional, legal, social, cultural and ethical issues related to computing and security and be aware of societal and environmental impact.

Thinking skills
- Evaluate the design of secure systems.
- Analyze criteria and specifications appropriate to specific problems.
- Plan different strategies for the solution of problems.
- Evaluate complex computer programs and systems in ways applicable to high security systems.
- Analyze computing system design problems of varying types and specify those problems, and proposed solutions, in a suitable formalism.
- Evaluate alternative designs and solution techniques for a wide range of problems.
- Evaluate research papers to realize the research problems and practices behind computing and cyber security.
- Analyze risks and economical aspects in the management of cyber security projects.

Subject-Based Practical skills
- Develop programs of varying levels of complexity using a number of different programming languages and paradigms.
- Develop and test security solutions to protect access to information and data using a range of hardware and software design tools.
- Investigate common attack techniques and make recommendations on how to defend against them.
- Evaluate many computing tools and techniques, such as database, web-based cryptography and network security techniques.
- Model computing problems mathematically.
- Analyze computing problems and devise appropriate solutions to them.
- Design high quality user interfaces.

Skills for life and work (general skills)
- Collaborate effectively in a multidisciplinary team.
- Work in stressful environment and within constraints.

- Prepare technical reports to a professional standard.
- Lead and motivate individuals.
- Work both individually and as part of a team to develop and deliver quality software artifacts.
- Reveal communication skills, public speaking and presentation skills, delegation, writing skills, oral delivery, and effectively using various media for a variety of audiences.
- Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for lifelong learning.
- Demonstrate critical thinking.
- Show analytical thinking and the ability to solve problems.

Learning and Teaching

Knowledge is developed through
- Guided reading
- Attending lectures / guest presentations
- Knowledge-based activities with feedback
- Online discussions and activities
- Preparation for examinations and timed controlled assignments

Thinking skills are developed through
- Reflective activities with feedback
- Tutorial activities and discussions
- Online discussions and activities
- Preparation of coursework assignments

Practical skills are developed through
- IT activities with feedback
- Research skills-based activities with feedback
- Seminar preparation and presentations
- Applying technical regulations to given scenarios
- Application to real life and simulated case studies

Skills for life and work (general skills) are developed through
- The demands of the study medium
- Planning activities with feedback
- Project and teamwork
- Using specialist ICT and software

Assessment

The assessment methods to achieve the different learning outcomes are as follows:

Knowledge is assessed by

- Project work
- Coursework
- Reports
- Examinations
- Individual oral presentations

Thinking skills are assessed by

- Project work
- Coursework
- Time controlled assessments
- Individual oral presentations

Practical skills are assessed by

- Project work
- Practical reports
- Portfolio completion
- Timed controlled assessments

Skills for life and work (general skills) are assessed by

- Project work
- Group work
- Coursework

Students with disabilities and/or particular learning needs should discuss assessments with the course leader to ensure they are able to fully engage with all assessment within the course.

Work or Study Placements

We encourage full time students to seek work experience during their academic course, especially during the summer vacations period.

Course Structure

The Course follows the British system: One academic year covers 120 credits.

All modules are credit-rated to help you to understand the amount and level of study that is needed.

One credit is equal to 10 hours of directed study time (this includes everything you do e.g. lecture, seminar and private study).

Credits are assigned to one of 5 levels:

3 Equivalent in standard to GCE 'A' level and is intended to prepare students for year one of an undergraduate degree course.
4 Equivalent in standard to the first year of a full-time undergraduate degree course.
5 Equivalent in standard to the second year of a full-time undergraduate degree course.
6 Equivalent in standard to the third year of a full-time undergraduate degree course.
7 Equivalent in standard to a Masters degree.

Courses are made up of modules that are each credit weighted.

The module structure of this course:

Level	Module Code	Module Title	Credit Weighting	Core/Option	Available by Distance Learning? Y/N
4	AS4001	Fundamentals of Programming	20	Core	N
4	AS4002	Mathematics for Computer Scientists	20	Core	N
4	AS4056	Secure Web Development	20	Core	N
4	AS4004	Mental Wealth: Professional Life 1 (Operations Research and Communication Skills)	20	Core	N

4	AS4006	Computer Networks and Operating Systems	20	Core	N
4	AS4057	Statistics and Logic Design	20	Core	N
5	AS5058	Database Management and Security	20	Core	N
5	AS5059	AI and Internet of Things	20	Core	N
5	AS5060	Defensive Programming and Risk Assessment	20	Core	N
5	AS5061	Biometrics and Digital Forensics	20	Core	N
5	AS5062	System Design and Assembly Language	20	Core	N
5	AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20	Core	N
6	AS6063	Network and Cloud Security	20	Core	N
6	AS6064	Applied Computer Security Concepts	20	Core	N
6	AS6065	Mobile Big Data	20	Core	N
6	AS6066	Number Theory and Cryptography	20	Core	N
6	AS6020	Mental Wealth: Professional Life 3 (Project)	40	Core	N

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, in order to create the best learning experience.

Additional detail about the course module structure:

A core module for a course is a module which a student must have passed (i.e. been awarded credit) in order to achieve the relevant named award. An optional module for a course is a module selected from a range of modules available on the course.

The overall credit-rating of this course is 360 credits. If for some reason you are unable to achieve this credit you may be entitled to an intermediate award, the level of the award will depend on the amount of credit you have accumulated. You can read the university student policies and regulations on the ASU website.

Course Specific Regulations

NA

Typical Duration

This is a full-time study course. The minimum allowed study duration is 3 Years / 6 terms.

Further Information

More information about this course is available from:
- The ASU web site (http://cis.asu.edu.eg/)
- The course handbook
- Module study guides
- For further information, contact the CHP-CIS course via email:
CHP@cis.asu.edu.eg

All faculty of Computer and Information Sciences, Ain Shams University courses are subject to thorough course approval procedures before we allow them to commence. We also constantly monitor, review and enhance our courses by listening to student and employer views and the views of external examiners and advisors.

Tuition Fees

- Tuition fees, set per 120 credits, are specified yearly by the University administration based on the recommendation of the Courses Administration Council and the approval of the Council of the faculty.
- The student will sign a pledge to abide by the educational service charges proposed by the faculty, and approved by the University, with the commitment of timely payment of fees from admission until graduation.
- The tuition fees are paid every year (the first semester of each year) based on 120 credits registered by the student.
- The educational service fees for the summer semester are determined separately.

Alternative Options of Delivery

NA