BSc (Hons) in Cyber Security

FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS- ASU)

COURSE HANDBOOK 2020/21

Collaborative edition

University of East London

INTRODUCTION / WELCOME FROM THE PRINCIPAL

Credit Hour Programs – Faculty of Computer and Information Sciences are ones of the leading specialized programs in Computers and Information established in Egypt which offer high-quality and standard-based education. The FCIS – CHP aim to make progress in ICT in tandem with the information revolution and the knowledge economy, both at the level of development of current recent industrial and society needs, and at the concept of professional education, including curricula and applied materials taught to students, computer labs and specialized training. The FCIS–CHP learning environment focuses on enhancing the students' knowledge, practical and transferrable skills according to the latest recent learning and technological trends.

To ensure leadership and offer our students the best progressive careers, the faculty holds close relationship with industrial and international partners. The faculty regularly holds its annual employment day, scientific conference, and various events and programs to help students and researchers develop their technological and research capabilities, in addition to their personal skills.

Today, FCIS – CHP extend their success by providing a dual award of BSc (Hons) in its programs. Students enrolled onto the dual award Course means that they are students of FCIS – ASU, and also students of the Department of Engineering and Computing at the University of East London (one of the leading modern Universities in the UK for Engineering and Computing). The development of professionalism and career prospects that are fundamental aspects in UEL 2028 vision and in alignment with ASU ethos is guaranteed through well integrated mental wealth modules at the different levels of your Course. Both institutions work together, now and continuously, to ensure the quality and standards of the Course on which you are registered.

This handbook is intended for all students taking the BSc (Hons) **Cyber Security** dual award from ASU and UEL. You will find it a useful information guide at the start and during your study in the Course (Program). We trust that you will benefit and enjoy studying with our new programs and we warmly welcome you to FCIS – CHP.

Sincerely,
Prof. Dr. Nagwa Badr
Dean of Faculty of Computer & Information Sciences - Ain Shams University
Assoc. Prof. Dr. Sherine Rady
CHP Director, Faculty of Computer & Information Sciences - Ain Shams University

INTRODUCTION TO THE COURSE

Course Duration and Modes of Study

The dual award BSc (Hons) Cyber Security Course is a 3-year full-time course. The Course offers dual awards of Bachelor of Science Degree from both Ain Shams University and the University of East London.
The minimum allowed study duration is 6 main semesters. The maximum allowed study duration is 8 main semesters (4 years).

Course Aims and Objectives

The BSc (Hons) Cyber Security Course focuses on computer science with security theoretical concepts, techniques and the technological means. CSEC course aims to graduate qualified security specialists, who are capable of using and applying digital security theoretical concepts, techniques and the technological means, which prevent the unauthorized use, misuse and retrieval of electronic information and the information and communication systems they contain, in such a way to enhance the protection, confidentiality and privacy of data from the cyberspace risks.

Course Intended Learning Outcomes (ILOs)

The graduates of the Cyber Security Course should be able to:

- Define the mathematical foundations of computing, including logic, discrete mathematics, computability, and complexity.
- Identify the threats and risks to information security and the measures needed to protect access to data and ensure business continuity.
- Analyse computing system design problems of varying types and specify those problems, and proposed solutions, in a suitable formalism.
- Analyse risks and economical aspects in the management of cyber security projects.
- Evaluate alternative designs and solution techniques for a wide range of problems
- 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.

- Communicate effectively and think critically about a wide range of issues arising in the context of working constructively on cyber security projects.

Course Structure & Content

The Course conforms to UEL's Academic Framework structure for dual degree Courses. All modules will be taught by ASU academics in the Faculty of Computer and Information Sciences at Ain Shams University.

COURSE STRUCTURE

ASU BSc (Hons) courses (year 1) → ASU BSc (Hons) courses (year 2) & UEL BSc (Hons) courses (level 4) → ASU BSc (Hons) courses (year 3) & UEL BSc (Hons) courses (level 5) → ASU BSc (Hons) courses (year 4) & UEL BSc (Hons) courses (level 6)
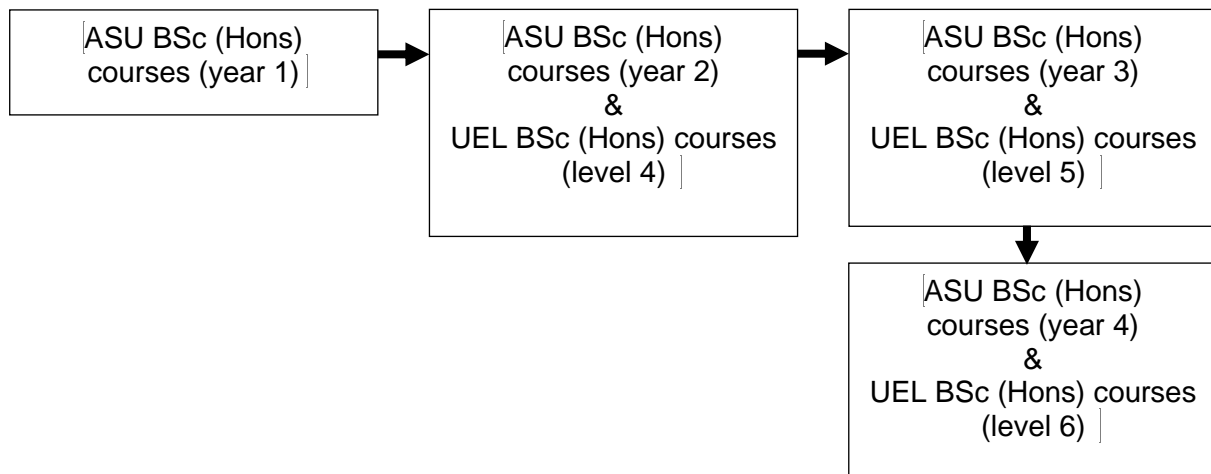
The Course structure can be seen in Table 2.1 (module codes are subject to change).

Table 2.1 BSc (Hons) Cyber Security Course Structure

Level	Year	Code	Module Title	Credit	Core/Option
4	2	AS4001	Fundamentals of Programming	20	Core
4	2	AS4002	Mathematics for Computer Scientists	20	Core
4	2	AS4056	Secure Web Development	20	Core
4	2	AS4004	Mental Wealth: Professional Life 1 (Operations Research and Communication Skills)	20	Core
4	2	AS4006	Computer Networks and Operating Systems	20	Core
4	2	AS4057	Statistics and Logic Design	20	Core
5	3	AS5058	Database Management and Security	20	Core
5	3	AS5059	AI and Internet of Things	20	Core

5	3	AS5060	Defensive Programming and Risk Assessment	20	Core
5	3	AS5061	Biometrics and Digital Forensics	20	Core
5	3	AS5062	System Design and Assembly Language	20	Core
5	3	AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20	Core
6	4	AS6063	Network and Cloud Security	20	Core
6	4	AS6064	Applied Computer Security Concepts	20	Core
6	4	AS6065	Mobile Big Data	20	Core
6	4	AS6066	Number Theory and Cryptography	20	Core
6	4	AS6020	Mental Wealth: Professional Life 3 (Project)	40	Core

Modules are allocated credits, with each year consisting of 120 credits. Over the three years this will give a total of 360 credits.

The credits for a module indicate the time a student will need to spend on a module (either in classes or in self-study), with 10 student hours for each unit of credit. Therefore, a 20-credit module will map onto 200 student hours for example. The final Graduation Project is a 40-credit module that is delivered over two semesters.

All modules are core, which means that they must all be passed in order to gain the final BSc (Hons) Cyber Security Award.

KEY STAFF, CONTACT DETAILS AND STAFF ROLES

The Key Staff and Contact Details are correct at point of publication. You will be notified of any changes.

Prof. Dr. Nagwa Badr
Dean of Faculty of Computer and Information Sciences - Ain Shams University
fcisdeanoffice@gmail.com
nagwabadr@cis.asu.edu.eg

Assoc. Prof. Sherine Rady
CSEC Course Leader and Contact Link ASU – FCIS
chp@cis.asu.edu.eg
srady@cis.asu.edu.eg

Dr. Mahmoud Mounir
CSEC Course Coordinator
mahmoud.mounir@cis.asu.edu.eg

Dr. Yasmine Afify
Academic Advisor
yasmine.afify@cis.asu.edu.eg

Mr. Mohamed Ayad & Mr. Amr Abdel Azim
CSEC Course Secretary and Students' Affairs
info.chp@cis.asu.edu.eg

Dr. Sin Wee Lee
Head of Partnerships, School of Architecture, Computing and Engineering, UEL
sinwee@uel.ac.uk

Students' Affairs Inquiries: +20-02-26855585 (ext.: 323)

Other Inquiries: +20-02-26855585 (ext. 174)

chp@cis.asu.edu.eg

UEL Academic Partnership Office:
+44 20 8223 2463 (apo@uel.ac.uk)

Link to the Student Handbook page for When to Contact UEL Directly:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/When-to-Contact-UEL-Directly.aspx

COURSE OPERATION AND STUDENT REGISTRATION

At level 4, there will be a reliance on traditional methods of delivery consisting of a lecture Course with tutorial support. In addition, other methods of delivery, such as Computer Underpinned Learning or research-based tasks, may be used; these styles are more student-centred and put more responsibility onto the students to achieve the intended learning outcomes.

Certain modules at level 4 lend themselves to group working and assessment or operate in a mode where written examinations are less appropriate. The Course team is very experienced in group assessment via its successful workshop modules.

At levels 5 and 6, whilst certain modules are delivered by traditional methods, there is more reliance on student-centred learning. Several modules take the opportunity to introduce students to research methods and encourage investigation of current published work.

You will be allocated to a tutorial group for each module of study. You are required to attend the group for which you are registered, and you may not attend an alternative group informally.

Assessment Regulations

The Module Handbooks each give detailed breakdowns of the weightings and volume of assignments. For a formal description of the assessment process you should refer to the Academic Framework Module Regulations at: ***www.uel.ac.uk/academicframework/***.

Assessment Boards

Assessment Boards control and consider all assessments undertaken by students. The Board comprises a Chair, all those substantially involved as tutors and/or examiners and the external examiner(s). For more detailed information about the terms of reference of Assessment Boards within the Academic Framework Modular Regulations, please see details at ***www.uel.ac.uk/academicframework/***

Examinations and other assessments undergo a rigorous quality assurance process as follows:

- Module lecturers write the questions and produce solutions with marking schemes.
- Another lecturer checks the assessment questions, solutions and marking scheme.
- Copies of the assessment questions, solutions and marking scheme are sent, via the University of East London, to one of the External Examiners for checking and approval.
- Following the examinations, student answers are marked by the module lecturers.
- A sample of students' marked work is reviewed for accuracy by

another lecturer.

- Marked samples of student submissions are sent to the University of East London for review.
- External Examiners visit the University of East London and check the students' work and the lecturers' marking.
- The results are considered at assessment boards at the University of East London.

Course Organisation

The organisation and administration of the Course will be carried out through the following:

The Dean of FCIS

Prof. Dr. Nagwa Badr is the Dean of FCIS - ASU. She has overall responsibility for maintaining the high standards of quality and innovation in all the academic teaching and research activities.

The Course Leader

Assoc. Prof. Sherine Rady is the Course Leader for the BSc (Hons) Cyber Security Course. The Course leader coordinates the day-to-day business of Course and has overall responsibility for students on the Course. The role of the Course leader is to ensure guidance and support for the Course and students through the Course duration and is the first port of contact when Course level issues occur. The Course leader's responsibility is to resolve any issues that may arise at the Course level and will mediate between module leaders & the academic support team to drive and resolve Course level issues. For problems at a particular module, which have not been resolved by talking to the Module Leader, the matter should be brought to the Course Leader to resolve. Course Leaders are also responsible for liaison with Course Representatives for the year. They also have other duties, which vary from year-to-year and are often connected with quality improvement projects.

The Course Coordinator

Dr. Mahmoud Mounir is the Course Coordinator for the BSc (Hons) Cyber Security. The Course coordinator is responsible for ensuring that the Course is efficiently running in terms of student and staff time and all assessment tasks (coursework, examinations, etc) are appropriately handled according to submission dates and mapped to the Course and Modules' learning outcomes. She is additionally responsible for meeting the proper delivery of formative and summative feedbacks to students. Course coordinator is additionally accountable for the delivery and the academic management of all modules of the Course.

The Module Leaders

Module Leaders are responsible for delivery and academic management of the module, including all module assessment tasks. The module leader is responsible for the delivery of an individual module and is tasked with providing the students with the necessary lecture and tutorial material and assessing the work submitted. They are also responsible for the module accompanied assessment criteria, tasks guidelines, submission dates and ensuring the information regarding return of work to be clearly published to students. As far as possible, any problems or questions concerning individual modules should be addressed to the Module Leader. General academic advice can also be obtained from them.

The Course Management Team

The Course Management Team consists of the Course Leader, Course Coordinator,Module Leaders, School Administrators, and the Student Representatives. They are collectively responsible for day-to-day running of the Course. The team forms Course committees who hold regular meetings to discuss any issues that arise throughout the academic teaching and/or other subjects and these happen at least once per term.

External Examiners

External Examiners are responsible for providing an independent check that proper standards are being maintained and are allocated to modules by subject area. They review each piece of assessment before it is available to students, review samples of work each semester, and review student feedback and results.

Circumstances in which student can access UEL directly

You will find that for most issues that arise during your studies academic and administrative staff at your location of study will be able to help, and further details are provided in this handbook. If, however you have concerns that lie outside the remit of these staff you can contact the UEL link person [see further details below] in the first instance who will be able to re-direct your enquiry as appropriate.

The UEL Academic Link Tutor is appointed to manage the relationship between the Course Leader at ASU-FCIS and UEL. Students may meet the UEL link person at Course committee meetings.

Please contact your local Student Support/Administrative Office if you have any queries, in the first instance. If you have been advised by your local office to contact UEL then please send an e-mail to the contact UEL then please send an e-mail to the UEL Academic Partnerships Office at apo@uel.ac.uk.

Study Timings and Registration

The academic year comprises two semesters:

☐ **First main semester (Fall)**: Begins early September and lasts for 15 weeks.
☐ **Second main semester (Spring)**: Begins early February and lasts for 15 weeks.

There is also an optional **summer semester** before the academic year, which begins late June and lasts for 7 weeks.

- New students' enrolment in the Courses starts two weeks before the starting of the Fall semester, after fulfilling all the Courses requirements and paying the enrolment fees, as recommend by the Courses Administration Council and set by the Council of the Faculty of Computer and Information Sciences.
- Registration for any semester takes place within two weeks before the starting day of the semester. Registration is not final until the full tuition fees of the semester are paid.
- Registration in the Summer semester is optional.
- The student must register 60 credits per semester. Registration is not final until the student pays the educational service fees for the semester.
- The student may register in the Summer semester in a maximum of two modules, unless it results in graduating the student conditional the approval of the academic advisor.
- Students enrolled in disciplinary program (formally known as mainstream) can transfer to CHP following the faculty transfer rules. In-between CHP transfer is also allowed. ASU modules' equivalency will take place for the modules studied in disciplinary programs or in the different CHP programs.
- The Course academic regulations are available at
  http:// chp-cis.asu.edu.eg/index.php/important-bylaw-regulations/
- The Local Attendance and Engagement policy is available at
  http:// chp-cis.asu.edu.eg/index.php/important-bylaw-regulations/
- UEL University's academic regulations are available at
  https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations

It is essential that you log in to UEL's web-based student record system, **UEL Direct**, and enrol with UEL using the UEL student number that you have be given prior to attending any lectures.

Once you have gained admission to the Course, you must login to the UEL direct page using your student username which will be your UEL ID number and password and complete the on-line enrolment. ASU – FCIS will assist and ensure that you complete your online enrolment

task promptly. UEL Direct is available at https://www.uel.ac.uk/students

For general enquiries concerning enrolment, you must contact your local Student Support/Administrative Office for guidance in the first instance and then if you are advised to contact UEL, please send an e-mail to the UEL Academic Partnerships Office at apo@uel.ac.uk.

Once you have gained admission to the course you must login to the UEL direct page using your student username which will be your UEL ID number and password and complete the on-line enrolment. FCIS-CHP will assist and ensure that you complete your online enrolment task promptly. UEL Direct is available at https://www.uel.ac.uk/students (click on 'new students')

For general enquiries concerning enrolment, you must contact your local Student Support/Administrative Office for guidance in the first instance and then if you are advised to contact UEL, please send an e-mail to the UEL Academic and Employer Partnerships Office at apo@uel.ac.uk.

EQUALITY AND DIVERSITY

ASU Equality and Diversity Strategy

➢ ASU commits to ensuring equality and diversity in its campus. Equality is ensured for everyone regardless any grounds of discrimination such as gender, age, colour, disability and religion.

➢ ASU supports a safe environment for both working and studying. The university environment must be free of bullying, harassment, and any form of discrimination. Any act of the aforementioned will not be tolerated, and any complaints will be taken seriously. Anyone who feels being subjected to these acts is encouraged to raise complaints.

➢ All academic staff members, students and employees are supposed to treat each other with mutual respect and fairness. Everyone should respect the presence of individual differences, diversity in culture, personal opinions and beliefs.

➢ Equal opportunities and access to facilities are allowed for all staff and students. Each staff member or student is given full support to develop their skills and talents. Selection for employment, promotion, training, or any other benefits will be based on aptitude and ability.

MORE INFORMATION

Link to the UEL Equality and Diversity Strategy:https://www.uel.ac.uk/-/media/main/images/about/temp_governance_prototype/polices-and-regulations/students/equality-and-diversity-policy-090615.ashx?la=en&hash=A1327CCC49248602E7683F626D9606B64550B646

COURSE MANAGEMENT

➢ Students' support and guidance are provided through a range of resources. A welcome and induction process is starting in their first week, where all students are guided to their Course studies.

➢ Special attention is paid to the learning management system that helps students and staff members to intercommunicate effectively in terms of course material, assignment, term-work marks … etc.

➢ The Course's learning management system is setup to have a page for each course studied during the semester. The student can access his courses from the main Course webpage.

➢ All electronic services provided to the students require the use of university e-mail, hence, it is created automatically for the student when he is first enrolled to the Course, and he retains this e-mail until he graduates.

➢ The Student Information System (SIS) is the place where students can access all their academic records. It can be reached on the main Course webpage, which also provides brief information about the mission and vision of the Course, and the important dates related to student academic activities.

➢ Every student is assigned an Academic Advisor who is one of the faculty members and may continue with the student for the whole study duration. The Academic Advisor should follow-up with the student, assist him in selecting courses each semester, and request to place the student under probation for one semester.

➢ For each hour (lectures or tutorials) the instructor should have an office hour. It could be twice a week for 1.5 hours each. Office hours will be determined in the first class and will be posted on the Instructor's office door.

➢ Students will be given a student handbook at the start of their Course study.

➢ Course Committees provide a formal structure for student participation and feedback on their Course of study. Course committees provide a forum in which students can express their views about the management of the Course, and the content, delivery and assessment of modules, in order to identify appropriate actions to be taken.

Students Involvement

There are different facilities that ensure students involvement:

a) Students' Affairs Administration

The students' affairs administration is chaired by the Vice-Dean for Education and Students' Affairs and is located in the faculty administration building. This administration has representatives at the Courses' administration offices (First Floor of the Extension Building). The secretariat of each Course (at the Courses secretariat office – First Floor of the Extension Building) also collaborates with the previous representatives in accomplishing the following tasks:

- Archiving of the students' files.
- Issuing the students' identity cards.
- Electronic recording of the students' course registration, add/drop, and withdraw.
- Processing the students' course evaluation at the end of each semester.
- Issuing the students' records at the end of each semester.
- Issuing the students' graduation certificates.
- Processing the students' appeals and requests.

b) Students' Union

The students' union is also under the general supervision of the Vice-Dean for Education and Students' Affairs. As part of the Faculty of Computer and Information Sciences, the Courses' students are members in the union and have similar rights and benefits as the mainstream students, including entering the union's yearly elections.

c) Financial Affairs Administration

The Courses' financial affairs administration, located at faculty administration building, is responsible for issuing the payment orders for the students' tuition fees at the beginning of each semester. The administration is also responsible for collecting the copies of the students' payment receipts, which should be presented by the students after making their payment at the Faculty treasury. Students who fail to present copies of the payment to the Courses' financial administration risk having no payment records at the Courses.

d) Library

The Faculty library provides a service specially designed to fulfil the requirements of all academic Courses. It is open for all Faculty members for reference use and borrowing. The faculty has a central library which serves students and researchers in various fields besides the Digital Library to provide an online service for users. There is (1) central library with (3) sections according to the following:

- The student library contains (1405) books.
- The teaching staff hall contains (3430) books.

- Digital Library Hall: The Digital Library serves to provide an online Service for users. It gives online access to the contents of the library, including books and theses. The digital library website: http://srv2.eulc.edu.eg/eulc_v5/libraries/start.aspx.

The students' library has multiple copies of textbooks available for short-term borrowing to students. According to the Computer and Information Sciences Faculties libraries development project, annexed to the Ministry of Higher Education, the library is interconnected through the Internet with all the libraries of Computer and Information Sciences faculties nationwide. Library software system has been installed which contains all the modules to provide library services to the Faculty community.

e) ASU-FCIS Information Systems

ASU-FCIS has a solid understanding of the importance of information systems in each aspect in the CHP academic environment. Hence, a comprehensive web portal has been created for CHP that has all information and services needed for the students, parents, and staff members. Learning Management System (LMS) is one of the available services at the ASU-FCIS portal for all students mainly to have their course materials posted regularly on it with a dedicated protected access to the courses. More importantly, a comprehensive Student Information System (SIS) is another service that is available on the portal to all parties involved in the system. The student can use SIS to access his academic records, do course registration, request to open courses that are not offered, or even request advising appointment with his academic advisor.

Course Committees provide a formal structure for student participation and feedback on their course of study. Course committees provide a forum in which students can express their views about the management of the course, and the content, delivery and assessment of modules, in order to identify appropriate actions to be taken.

MORE INFORMATION

The Committee's terms of reference is provided at:
https://uelac.sharepoint.com/LearningandTeaching/Pages/students-area.aspx

ATTENDANCE AND ENGAGEMENT
Teaching Policy

Language: English language should be used for lecturing, discussions, exams, and all verbal and electronic communications. Use of Arabic language is strictly forbidden even in one-to-one conversation between the instructor and the students.

Module Syllabus: Each module syllabus should contain: module objectives, textbook, outline, material, assessments, grading policy and outcome. Outline should contain sections covered every week with reference to chapters/sections in the textbook. The instructor should give the module syllabus to the students in the first class. The syllabus serves as a contract between the instructor and the students.

Textbook: The instructor is free to select/recommend a textbook, but it should be international and available. The textbook information should be provided to the administration office or the unit head before the first class of the module.

Attendance: Attendance is taken in lecture and tutorial classes. It is assigned a percentage based on the grading policy. Students should not be allowed to enter the class after 5 minutes from the scheduled time. No eating, drinking, or mobile use in the class. If the student wants to leave the class for any reason, he will not be allowed to come back to the class. The student's attendance should not be less than 75% during the course. Otherwise, the student should not be allowed to attend the final exam.

Assignments: Assignments are given every week (spelled out in the course syllabus), preferably from the textbook. Instructors are allowed to drop the least assignment from the grade. The assignment is collected at the end of the tutorial period of the next week. Instructors may grade only selected problems from the assignment. The graded assignment should be returned and discussed with the class.

Quizzes: Unannounced quizzes are given in the tutorials to force the students to study and be ready all time. The quiz is given at the end of the session for 15 minutes max. Up to 6 quizzes can be given and the least one can be dropped from the grade. The graded quiz and the model answer should be returned the following tutorial and discussed with the class.

Exams: One midterm exam should be given. Time should be indicated in the module syllabus. The midterm exam should be given during the 7th-8th week. This exam will be held during lectures/tutorials based on course progress. The graded midterm exam and its model answer should be returned and discussed with the class. The instructor can arrange for a bigger or more suitable room for the midterm exam. The final exam should be a comprehensive exam covering all material. Instructors may select to have all exams open-book or closed-book.

KEY DATES

- **The UEL Academic calendar is available at**
  https://www.uel.ac.uk/student-life/key-dates

- **The ASU-FCIS Academic calendar is available at**
  http:// chp-cis.asu.edu.eg/academic-calendar/

	ACTIVITY	FROM	TO
FALL 2021	Registration	10/10/2021	23/10/2021
	Classes	16/10/2021	6/1/2022
	Add / Drop	24/10/2021	30/10/2021
	Withdraw	31/10/2021	26/11/2021
	Midterm Exams	27/11/2021	2/12/2021
	Practical Exams	1/1/2022	14/1/2022
	Final Exams	15/1/2022	3/2/2022
	Inter-Semesters Recess	5/2/2022	18/2/2022
SPRING 2022	Registration	13/2/2022	19/2/2022
	Classes	19/2/2022	2/6/2022
	Add / Drop	20/2/2022	4/3/2022
	Withdraw	5/3/2022	5/5/2022
	Midterm Exams	7/5/2022	12/5/2022
	Practical Exams	28/5/2022	9/6/2022
	Final Exams	11/6/2022	30/6/2022
	Co-Op (Summer/ Field Training)	2/7/2022	21/7/2022
SUMMER 2022	Registration	2/7/2022	8/7/2022
	Classes	9/7/2022	1/9/2022
	Add / Drop	9/7/2022	14/7/2022
	Withdraw	16/7/2022	4/9/2022
	Practical Exams	20/8/2022	25/8/2022
	Final Exams	27/8/2022	8/9/2022

MODULE SPECIFICATIONS

Module specifications define each module of study on the course. They will include **learning outcomes** and the **aims** for each module. These documents form part of the 'definitive' documentation for the course. It is important to note that reading lists and indicative content are likely to change.

Module Specification

Module Title: Fundamentals of Programming	Module Code: AS4001 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Wedad Hussein
Pre-requisite: None	Pre-cursor: None	
Co-requisite: None	Excluded combinations: None	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This module introduces the main concepts of object-oriented programming (OOP) paradigm. It also familiarizes students with the syntax of an OOP language and improves their programming skills. Also, it provides the students with concepts of the commonly used data structures. Students can employ the OOP concepts and data structures to synthesize an efficient design for simple and medium sized programming problems. It also Improves the teamwork, and self-study skills of students. The module is taught from first principals and assumes no prior knowledge of the subject.

Main topics of study:

- Introduction to OOP Principles
- Class Templates and Functions
- Stacks
- Queues
- Lists
- Binary Search Trees
- Iterators
- Hash Tables
- The STL
- Graphs and Graph Algorithms
- Priority Queues
- Exception Handling
- Introduction to Basic Algorithm Analysis

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Describe the key object-oriented concepts of encapsulation, abstraction, information hiding, inheritance, and polymorphism.
2. Explain linear and non-linear data structures.
3. Explain data structures with their associated STL containers.

Thinking skills

4. Identify the different implementations (data structures) of the basic abstract data types in terms of storage and processing efficiency. (IC)

Subject-based practical skills

5. Implement classes, class templates, variety of data structures and use the associated STL classes in programs. (COI)
6. Use exception handling.

Skills for life and work (general skills)

7. Demonstrate the ability to efficiently work in teams and independently. (EID, SID)
8. Evaluate different data structures appropriateness to specific applications. (COI)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures will be used to introduce the fundamental programming concepts. Continuous practice and assessment during practical sessions will be used to reinforce the understanding of the material. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Portfolio Continuous assessment tasks: In-class Test 50% (120 minutes) Assignments 30% (20 hours of student effort) Practical 20% (40 hours of student effort)	**100%**	**1-8**

Reading and resources for the module:

Core
Wisnu Anggoro. (2018) *C++ Data Structures and Algorithms*. Packt Publishing Ltd.

Kingsley Sage. (2019) *Concise Guide to Object-Oriented Programming.* Springer.

Recommended
Dr. Basant Agarwal and Benjamin Baka. (2018) *Hands-On Data Structures and Algorithms.* Second Edition. Packt Publishing Ltd.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students would be designing and implementing a basic management system using data structures and object-oriented concepts.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	Lectures Labs
2. Student learning time: 104 hours	Essential and background reading, private study, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Mathematics for Computer Scientists	Module Code: AS4002 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Safaa Amin
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y

<table>
<tr><td colspan="3" align="center">Summary of module for applicants:</td></tr>
<tr><td colspan="3">This module aims at thinking logically and mathematically and acquiring the skill of problem solving. It also introduces the skill of using mathematical induction to prove results about positive integers. By the end of this module, student should be able to understand Integral Calculus, infinite Series, and ordinary differential equations, and their applications.</td></tr>
<tr><td colspan="3" align="center">Main topics of study:</td></tr>
</table>

- Introduction to Propositional Logic: Propositional Equivalences, Predicate Logic and Quantifiers and rules of Inference and Methods of Proofs
- Number Theory: Divisibility and modular arithmetic and primes and greatest common divisors.
- Relations and their properties.
- Linear System, Solution of Equations, Inverse Matrix and Cofactor.
- Linear Transformations and Diagraphs, Definitions and examples.
- Eigen Values and Eigen Vectors and Diagraphs, Diagonalization, Symmetric Matrices, Orthogonality
- First and second order differential equations.
- Solving Systems of linear differential equations.

•	Laplace transforms. Special functions.
•	Numerical Solutions of Ordinary Differential Equations.

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain the basic techniques of linear algebra. (DP)
2. Describe the different methods and rules of integration including finite and improper integrals. (DP)

Thinking skills

3. Identify the methods of integration, series summations and tests of convergence. (DP)
4. Identify the appropriate techniques to solve ordinary differential equations. (COI)

Subject-based practical skills

5. Use techniques of linear algebra in solving and handling practical problems. (DP, IC)
6. *Use techniques of integration, infinite Series, and ordinary differential equations in solving practical problems. (DP, IC)*

Skills for life and work (general skills)

7. Solve problems and work and manage time effectively as a member of a development team. (CC, COI)

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Portfolio Continuous assessment tasks: In-class Test 60% (120 minutes) Assignments 40% (60 hours of student effort)	100%	**1-7**

Reading and resources for the module:

Core:
Luis Manuel Braga da Costa Campos. (2019) Non-Linear Differential Equations and Dynamical Systems. CRC Press.
Robert Adams (2017) Calculus: a complete course. 9th edition. Pearson.
Dennis G. Zill (2019) A First Course in Differential Equations with Modelling Applications. 11th edition. Cengage Learning

Recommended
Oscar Levin (2019) *Discrete Mathematics: an open introduction*. 3rd Edition.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Company/engagement visits: Guest talk from industry

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hrs. 48 hrs.	Lectures Tutorials
2. Student learning time: 104 hours	Essential reading, private study, groupwork, practical work and assessment preparation
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Secure Web Development	Module Code: AS4056 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Wedad Hussein
Pre-requisite: N/A	Pre-cursor: AS4001 Fundamentals of Programming	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:
This module teaches students the concepts and techniques that enable web applications to maintain high performance in the face of numerous users and attackers. Students will learn and be able to apply computer security concepts to designing a web application which is robust to known and unknown attacks. Students will gain familiarity and facility with modern tools which enable creating applications that apply the aforementioned design, performance, and security concepts. This module assumes knowledge of basic programming knowledge.

Main topics of study:
- Security Fundamentals   - Creating web pages and running web servers

- Client-side attacks and defences
- Single Page Applications
- Web application backends
- Web application backing stores
- Advanced side channel attacks
- Web privacy
- Human factors / Usable web security
- Scaling and securing web applications
- Advanced tooling and performance techniques

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Describe the structure of a web page and its basic elements. (DP)
2. Explain the server side and client-side communication. (DP)
3. Explain the security principles related to web pages, servers and web application. (DP)

Thinking skills

4. Identify asynchronous client-server communications. (COI)
5. Identify fundamental principles and techniques involving in web development. (COI, IC)

Subject-based practical skills

6. Implement computer security concepts to design a web application. (DP)

Skills for life and work (general skills)

7. Demonstrate good time management, team working, presentation, problem solving and academic integrity skills. (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with concepts and techniques to build secure web pages and web applications. Practical sessions will be used to reinforce understanding

of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Portfolio Continuous assessment tasks: In-class Test 50% (120 minutes) Assignments 30% (20 hours of student effort) Practical 20% (40 hours of student effort)	**100%**	**1-7**

Reading and resources for the module:

Core:
Caravelli, j. and Jones, N. (2019). Cyber Security: Threats and Responses for Government and Business (Praeger Security International).

Recommended
Meeuwisse, R. (2015) Cybersecurity for Beginners, 2nd Edition.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students design and build a secured web application that fulfils specific requirements of a business domain.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: *Mental Wealth;* ***Professional Life*** *1* (Operations Research and Communication Skills)	Module Code: AS4004 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Safaa Amin
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		
Summary of module for applicants:		

This module aims to introduce students to using variables for formulating complex mathematical models in management science, industrial engineering and transportation science. It teaches them the basic methodology for the solution of linear programs and integer programs. The module also focuses on oral communications including listening, presentation skills, interviewing, meetings, and interpersonal communications. The content includes negotiation, intercultural communication, and the importance of communication in team building.

Main topics of study:

- Operation Research Model and decision variables
- Objective functions, objective criterion and constraints
- Mathematical program formulation
- Graphical solution of LP Models and Algebraic solution
- Simplex with two, three or artificial problem variables
- Minimization and Maximization
- Sensitivity analysis and Rounding method
- Communication skills and strengthening Communication Capability
- Building Relationships Based on Trust, Enabling Collaboration
- Preparation and Nonverbal Communication Skills
- Understanding Behavioural style
- Advanced Negotiation and Communication Strategies

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☐
Company/engagement visits ☒
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain the concepts of linear Mathematical programming problems. (COI)
2. Explain the techniques used in operations research to solve real life problem. (COI, IC)
3. Describe the influencing techniques that are most relevant to support negotiation processes. (SID)

Thinking skills

4. Identify operation research techniques to solve a particular problem. (COI, IC)
5. Identify the negotiation strategy, and relative techniques, that are most appropriate in the given situation. (COI, SID, UGB)

Subject-based practical skills

6. Use the linear optimization technique to solve linear programming problem. (COI, PID, DP)

Skills for life and work (general skills)

7. Solve common problems by workin in teams to exploit different competences and skills useful to conduct successful negotiation meetings. (CID, SID, EID, CC)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures are used to explain the main concepts of the module while lab sessions will be used to reinforce the understanding of the material. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Portfolio Continuous assessment tasks: In-class Test 50% (120 minutes) Assignments 40% (40 hours of student effort) Practical 10% (20 hours of student effort)	**100%**	**1-7**

Reading and resources for the module:

Core
Carter, M., Price, C.C. and Rabadi, G., 2018. *Operations research: a practical introduction*. Crc Press.
George Baisley, 2016. *Communication Skills: How to Master the Art of Negotiations*. Vol 3.

Recommended
Buhnia, A.K., Shaikh, A.A. and Sahoo, L., 2019. *Advanced optimization and operations research*. Springer.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Company/engagement visits: Guest talk from industry

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 24 hours	 Lectures Labs
2. Student learning time: 128 hours	 Essential and background reading, Tutorial preparation, Assignment

	planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Computer Networks and Operating Systems	Module Code: AS4006 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Tamer Mostafa
Pre-requisite: N/A	Pre-cursor: AS4001 Fundamentals of Programming	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to equip the students with knowledge of computer networks' principles, protocols, transmission and routing techniques and design procedures. It also aims to provide a basic understanding of operating systems and their role in the management of computer resources. The module focuses on multiprocessing, multithreading, deadlocks, concurrency, and scheduling techniques. This module assumes comprehensive knowledge of fundamentals of programming.

Main topics of study:

- Introduction to the operating system: structure, functions, and characteristics.
- Process management: process description, process states models and process control.
- Multiprocessing and multithreading.
- Deadlock and concurrency: the use of semaphores to synchronize the process executions, deadlock avoidance, and prevention techniques.
- Memory management.
- Virtual Memory concept and management.
- CPU scheduling techniques.
- Introduction to computer networking.
- Protocol Architecture, TCP/IP and OSI Model.
- Data and Media Transmission Techniques.
- Routing Concepts and Techniques.
- Network operating system (NOS).

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒

Company/engagement visits ☐

Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*

- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain the general structure of an operating system and its objectives and functions. (COI)
2. Identify the basic computer networking concepts and differentiate between different switching techniques and discuss protocols and addressing. (IC)

Thinking skills

3. Evaluate the main techniques and procedures for process management and scheduling appropriately. (DP)
4. Analyse the solutions of familiar and unfamiliar problems relevant to operating systems and computer networks. (IC, COI)
5. Evaluate the performance of different network topologies. (DP, SID)
6. Distinguish between transport layer protocols.

Subject-based practical skills

7. Implement the techniques and procedures appropriate to processes management and scheduling in operating systems. (DP)
8. Apply socket programming, subnetting, network requirement planning and IP management. (DP)

Skills for life and work (general skills)

9. Demonstrate good time management, team working, presentation, problem solving and academic integrity skills. (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures will be used to introduce the basic concepts of computer networks and operating systems. Continuous practice and assessment during practical sessions will be used to reinforce the understanding of the material. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	**Weighting:**	**Learning Outcomes demonstrated:**
Written Exam (120 minutes)	**50%**	**1-6**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**7-9**

Reading and resources for the module:

Core
Silberschatz, A., Galvin, P. B., & Gagne, G. (2018) *Operating system concepts*. 10th edn. John Wiley & Sons, Inc.
Kurose, J., & Ross, K. (2016) *Computer Networking: A Top Down Approach*. 7th edn. Pearson.

Recommended
Tanenbaum, A. S., & Bos, H. (2014) *Modern operating systems*. 4thedn. Pearson.
Stallings, W: (2013) *Data and Computer Communications*. Prentice-Hall.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students would be exposed to the design and simulation of a basic operating system and local area network.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	Essential and background reading, Tutorial preparation, Assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Statistics and Logic Design	Module Code: AS4057 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Prof. Hassan Ramadan Dr. Manal Tantawi
Pre-requisite: N/A	Pre-cursor: NA	
Co-requisite: NA	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This model introduces students to the basic concepts of statistics and illustrates the relevance of these concepts to practical problem solving. It also provides students with sufficient background on digital logic circuits and the ability to synthesize a given system starting with problem requirements, identifying and designing the building blocks, and then integrating blocks designed earlier. The module is taught from first principals and assumes no prior knowledge of the subject.

Main topics of study:

- Sample space, probability axioms
- Conditional probability, independence, and Bayes' theorem.
- Random variables; distribution functions, moments and generating function.
- Joint distribution, the Chebychev inequality and the law of large numbers
- The central limit theorem and sampling distributions.
- Numbering systems, Arithmetic operations, and logic gates
- Boolean algebra and canonical & standard forms

- Basic Combinational circuits design and analysis
- Decoders, encoders, demultiplexers and multiplexers
- Flip-flops, design, and analysis of sequential circuits
- Synchronous counters & frequency division
- Ripple counters, RAM, ROM and PLA

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Describe simple probability and statistical methods in modelling and prediction and stating them. (COI)
2. Explain the functions of TTL digital units and logical circuits and recognize the building logical units used in implementing Boolean functions. (COI)

Thinking skills

3. Identify simple probability and statistical methods in modelling and prediction. (COI)
4. Recognize different combinational and general-purpose sequential circuits. (COI)

Subject-based practical skills

5. Use statistical and probability methods in solving practical problems and concluding them. (COI)
6. Implement different functions using basic TTL logic gates and ICs, such as decoders or multiplexers. (IC)

Skills for life and work (general skills)

7. Solve a common problem by working coherently with others in a small group. (SID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures are used to explain the main concepts of the module while lab sessions will be used for hands-on practice. Continuous Assignments will be given to reinforce the understanding of the material. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Portfolio Continuous assessment tasks: In-class Test 60% (120 minutes) Assignments 40% (40 hours of student effort)	**100%**	**1-7**

Reading and resources for the module:

Core

McClave, J.T., Benson, P.G., Sincich, T. and Sincich, T,(2014). *Statistics for business and economics* (pp. 074-0188). Boston: Pearson.
Katz, R. Wakerly, I. andige, R. Nilsson, J. (2005) Digital Logic Design.

Recommended

Moore, D.S., Notz, W.I. and Notz, W., (2006). Statistics: Concepts and controversies. Macmillan.
Alam, M. Alam, B. (2016) Digital logic design, ISBN-978-81-203-5108-0

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: **Students will be required to work on a practical project that applies the basics concepts studied in this module**

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, Tutorial preparation, Assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Database Management and Security	Module Code: AS5058 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Huda Amin
Pre-requisite: N/A	Pre-cursor: AS4001 Fundamentals of Programming	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y

Location of delivery: ASU

Summary of module for applicants:

This module aims to provide students with the theoretical and practical knowledge of the design, implementation, and security of database management systems. It promotes the understanding of database systems in information management by providing technical skills that are required to implement and deploy a database management system using various languages and tools. It also provides understanding of the security issues of database systems and implement proper security measures in database systems. This module assumes knowledge of system development lifecycle and basic programming knowledge.

Main topics of study:

- Introduction to Databases and Database Users.
- Database System Concepts and Architecture.
- Data Modeling Using the Entity-Relationship (ER) Model.
- The Enhanced Entity-Relationship (EER) Model.
- The Relational Data Model and Relational Database Constraints.
- Relational Database Design by ER-and EER-to Relational Mapping.
- Functional Dependencies and Normalization for Relational Databases.
- Relational Algebra.
- Indexing Structures for Files.
- Query Processing and Optimization.
- Database Security and Authorization.
- Enhanced Data Models for Advanced Applications.

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Identify concepts of relational database, schema, functional dependencies, and normalization and assess the security, legal and ethical issues in database design. (COI)
2. Explain the techniques internally used by a DBMS to process, optimize, and execute high-level queries. (DP)
3. Contrast the allied advanced database architectures, and issues of database security.

Thinking skills

4. Analyse various database models and demonstrate the understanding of logical design and structure of a database. (COI)
5. Evaluate deployment techniques that satisfy specified requirements. (COI)

Subject-based practical skills

6. Design a database solution using industry standard DBMS and language. (IC)
7. Implement database administration tasks. (DP)
8. Design a database Entity Relational Diagram (ERD) and EERD. (COI, DP)

Skills for life and work (general skills)

9. Demonstrate good time management, team working, presentation, problem solving and academic integrity skills. (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with concepts of database design, modelling, and implementation techniques. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-5**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**6-9**

Reading and resources for the module:

Core
Basta, A. Zgola, M. Bullaboy, D.Whitelock, T. (2013) Database Secuirty, ISBN: 978-1-4354-5390-6
Elmasri, R., and Navathe, S.B. (2011) *Fundamentals of Database Systems*. Addison Wesley,6th edition, ISBN 0-321-36957-2.

Recommended
Date, C.J. (2009) *An Introduction to Database Systems*. Addison-Wesley, 8th edition.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students are required to design and build a database management system that fulfils specific requirements of a business domain.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction:	

| 48 hours | Lectures |
| 48 hours | Labs |

2. Student learning time: 104 hours	Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation.

Total hours (1 and 2):	200 hours

Module Specification

Module Title: AI and Internet of Things	Module Code:AS5059 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Sally Saad
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to provide students with the theoretical and practical knowledge that influences the AI science, AI applications and IoT systems. It gives a broad overview of AI techniques, so that when students go into industry or research, they will be able to choose the correct AI techniques for the problems which arise. This module also helps students to understand constraints and opportunities of wireless technologies for Internet of Things, how they communicate, how they store data, and the kinds of distributed systems needed to support them.

Main topics of study:

- Introduction to AI
- Knowledge engineering, expert systems and rule-based reasoning
- Intelligent Agents and Case-Based Reasoning (Automated Reasoning)
- Space Search (depth-first, breadth, backtracking algorithm), Heuristic Search (best-first, A*, AI Game Algorithms)
- Predicate Calculus and Uncertain Reasoning (First-order logic, fuzzy logic)
- Bayesian networks and AI probabilistic search algorithms
- Machine Learning – Symbol based (ID3 Induction Algorithm), Connectionist (Neural Networks), Social and Emergent (Genetic algorithms), and Unsupervised (Clustering)
- AI Planning Algorithms, and Association Analysis
- Introduction of IoT and how it works today.
- IoT definitions: overview, applications, potential & challenges, and architecture.

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒

Company/engagement visits ☐

Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Describe and evaluate the state principal, achievements and shortcomings of AI and assess the algorithms and techniques used in AI and applications of AI. (COI)
2. Contrast the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack. (DP, COI)

Thinking skills

3. Analyse the interpretation of intelligent frameworks for problem solving and application development. (DP, COI)
4. Analyse performance and reliability of existing IoT systems, and analyse IoT systems regarding sustainability, safety, integrity, and ethics. (COI)

Subject-based practical skills

5. Use available AI tools, algorithms and data structures and select those appropriate to the given application. (COI, IC)
6. Explain the system architecture and the life cycle for different existing technologies for IoT. (COI, DP)

Skills for life and work (general skills)

7. Demonstrate good time management, teamwork, presentation, problem solving and academic integrity skills and develop research skills and extend professional knowledge to clarify problems and take responsibility for furthering own learning (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with concepts of AI and IoT systems. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-4**
Coursework Practical 20%	**50%**	**5-7**

Assignments 30% (30 hours of student effort)		

Reading and resources for the module:

Core
Kapoor. A. (2019) Hands-On Artificial Intelligence for IoT. Packt Publishing.

Recommended
Tsiatsis, V. Karnouskos, S. Holler, J. Boyle, D. and Mulligan, C. (2018) Internet of Things Technologies and Applications for a New Age of Intelligence, 2nd edition.

Live, applied project: Students are required to design and build AI applications that fulfils specific requirements of a business domain.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Defensive Programming and Risk Assessment	Module Code: AS5060 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Islam Hegazy
Pre-requisite: N/A	Pre-cursor: AS4001 Fundamentals of Programming	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:
This module aims to teach students the advanced defensive programming techniques to ensure the functionality of software under unforeseen circumstances. The module focuses on identifying and practicing methods for risk assessment to produce a piece of software with high availability, safety and security. This module builds on comprehensive knowledge of programming fundamentals.

Main topics of study:
Defensive programming techniques

- Bugs lifecycle
- Social engineering strategies
- Data exfiltration techniques
- Escalating privilege and harvested credentials
- Reading, writing, and styling code best practices
- Hazard and operability (HAZOP) analysis
- Threat assessment techniques
- Cyber risk assessment
- Enterprise risk management techniques
- Error handling and recovery methods

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain examples of defensible methods. (COI)
2. Contrast software errors and handling techniques. (COI)

Thinking skills

3. Analyse the security threats to information systems. (IC)
4. Evaluate defensive techniques for handling untrusted behaviours. (COI)

Subject-based practical skills

5. Apply defensive programming best practices. (DP)
6. Discover and create attack vectors. (DP)
7. Use risk assessment tools. (DP)

Skills for life and work (general skills)

8. Assess software source code quality and security. (DP)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures will be used to introduce the defensive programming and risk assessment concepts. Case studies will be used to reinforce the understanding of the material. Practical labs will focus on gaining the necessary practical skills of applying the defensive programming and

risk assessment techniques. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-6**
Coursework Practical 10% Assignments 40% (30 hours of student effort)	**50%**	**7-8**

Reading and resources for the module:

Core
LEE T. OSTROM and CHERYL A. WILHELMSEN. (2019). *Risk Assessment: Tools, Techniques, and Their Applications*. 2nd Edition. Wiley. ISBN-10: 1119483468

Recommended
Wil Allsopp. (2017) *Advanced Penetration Testing: Hacking the World's Most Secure Networks.* Wiley. ISBN-10: 9781119367680
Georgi Popov, Bruce K. Lyon, Bruce Hollcroft. (2016) *Risk Assessment: A Practical Guide to Assessing Operational Risks*. 1st Edition. Wiley. ISBN-10: 1118911040

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Develop a software with a secure and comprehensive source code.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104hours	 Essential reading, private study, groupwork, practical work and assessment preparation.
Total hours (1 and 2):	200

Module Specification

Module Title: Biometrics and Digital Forensics	Module Code: AS5061 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Dina Khattab
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations:	Suitable for incoming study

	N/A	abroad? Y

Location of delivery: ASU

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Summary of module for applicants:

This module covers the fundamental concepts of information security. This module helps students build skills to identify information security threats which reflect on the security posture of the organization and implement general security controls. This module gives an overview of the key components of computer forensics. It provides a solid fundamental knowledge required for a career in computer forensics.

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Main topics of study:

- Introduction to Computer Forensics.
- Data recovery
- Digital evidence controls
- Computer Forensic tools
- Biometric Systems

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This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ⊠
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

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Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain the different types of digital forensics
2. Identify the advantages and disadvantages, issues and concerns, technology and devices, etc. of biometrics technology. (DP, IC)
3. Contrast the boundaries between privacy, security, and ethics in biometric systems. (IC, COI)

Thinking skills

4. Evaluate the strength and weaknesses of several biometric modalities. (COI)
5. Select proper approach to perform comprehensive investigation. (COI)

Subject-based practical skills

6. Use computer forensics tools and techniques for data recovery. (COI, DP)

Skills for life and work (general skills)

7. Reflect societal and legal impact of computer activity for extraction of legal evidence. (SID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:
Lectures will be used to introduce the Computer Forensics concepts and techniques. Case studies will be used to reinforce the understanding of the material. Practical labs will focus on gaining the necessary practical skills of applying biometrics and computer forensics techniques. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-4**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**5-7**

Reading and resources for the module:

Core
Senthil Kumar, A.V. (2019) Biometric Authentication in Online Learning Environments (Advances in Educational Technologies and Instructional Design. 1st edition, IGI Global.

Recommended
Kävrestad, J. (2018) Fundamentals of Digital Forensics, Theory, Methods, and Real-Life Applications, ISBN 978-3-319-96319-8
Mihailescu, M. I. Nita, S. L. (2015) Security of Biometrics Authentication Protocols: Practical and Theory Applications. LAP LAMBERT Academic Publishing.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Implement digital forensics using a suitable tool.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 lectures labs
2. Student learning time: 104 hours	 Essential reading, private study, groupwork, practical work and assessment preparation
Total hours (1 and 2):	200 hours

Module Specification

Module Title:	Module Code:AS5062	Module Leader:
System Design and Assembly Language	**Level:** 5 **Credit:** 20 **ECTS credit:** 10	Dr. Nivin Atef
Pre-requisite: N/A	**Pre-cursor:** AS4057 Statistics and Logic Design	
Co-requisite: N/A	**Excluded combinations:** N/A	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

The module aims to a basic understanding of computer architecture and the relationship between hardware and software components of a computer system and explains low-level programming in assembly language for the given computer architecture. It also constructs and interprets a variety of system analysis and design models. This module produces the required systems documentation including project plan at each point in the analysis and design of an information system

Main topics of study:

- Introduction to The Systems Development Environment, Rapid Application Development, Succeeding as a Systems Analyst.
- The Origins of Software, Managing the Information Systems Project and Identifying and Selecting Systems Development Projects.
- Determining System Requirements, Process Requirements, Logic Requirements, and Data Requirements.
- Designing Databases, Forms, Reports, Interfaces, Dialogues, Distributed and Internet Systems.
- Virtual machine concept, data representation, Boolean operations, x86 Computer Architecture, Memory, Input- Output.
- Adding and Subtracting Integers, Assembling, Linking, and Running Programs, Defining Data, Data-Related Operators, Directives, Indirect Addressing, JMP, LOOP Instructions, linking to an External Library, Stack Operations, Defining and Using Procedures
- Conditional Jumps, Conditional Loop Instructions, Conditional Structures, Conditional Control Flow Directives.
- Shift and Rotate Instructions, Stack Frames, Recursion, INVOKE, ADDR, PROC, and PROTO
- String Primitive Instructions, Two-Dimensional Arrays, Searching and Sorting Integer Arrays.
- Declaring & referencing Structure Variable, Defining & invoking Macros

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*

- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Describe a computer system in terms of its main components and their functionality, using real computer system, and describe the register level machine and basic assembly programming. (DP)
2. Explain testing and acceptance strategies for information systems. (DP, IC)

Thinking skills

3. Formulate, test and debug simple assembly-language programs involving the use of arithmetic expressions, loops, conditional branches, recursion and explain numbers in a computer. (COI, IC)
4. Analyse system requirements and legal constraints effect on system analysis and Identify risk assessment and its role in system design (COI)

5. Design graphical techniques to create conceptual system models of various types and Discover techniques for gathering information. (IC, DP)

Subject-based practical skills

6. Implement computer-based systems using simple assembly programs to solve complex real-world tasks. (DP, IC).
7. Implement testing and acceptance strategies for information systems. (DP)

Skills for life and work (general skills)

8. Demonstrate good time management, team working, presentation, problem solving and academic integrity skills. (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with concepts of system design, computer architecture, and implementation techniques. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-5**
Coursework Practical 10% Assignments 40% (30 hours of student effort)	**50%**	**6-8**

Reading and resources for the module:
Core Laplante, P. Ovaska, S. (2011) Real-Time Systems Design and Analysis, 4th edition. **Recommended** Wasson, S. (2015) System Engineering Analysis, Design, and Development, 2nd edition Chi-Fai Chau,Yu-Fai Fung (2011). A Tool for Self-Learning Assembly Language Programming and Computer Architecture: Design and Evaluation. Hyde, R. (2010) The Art of Assembzly Language, 2nd Edition

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students are required to design and build a system that fulfils specific requirements of a business domain.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: *Mental Wealth;* ***Professional Life** 2* (Algorithms and Professional Ethics)	Module Code: AS5007 Level:5 Credit: 20 ECTS credit:10	Module Leader: Dr. Yasmine Afify
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:
This module intends to provide students with the basic concepts and theories of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. It promotes to learn how to develop efficient algorithms for problems that arise in computing applications. The module also aims to broad the understanding and management of ethical, legal and professional issues related to the discipline of computing and information technology. The module assumes no prior knowledge of the topic.

Main topics of study:

- Algorithms and performance analysis
- Asymptotic performance
- Best, worst and average case analysis, growth of functions
- Algorithm design and analysis techniques
- Sorting Algorithms
- Master theorem
- Dynamic programming
- Greedy algorithms
- Graph algorithms
- P& NP complete problems
- Introduction to ethics and business code of conduct
- Ethical decision-making approaches and fighting corruption
- Ethics for IT workers
- Internet crimes
- Privacy and anonymity issues
- Developing quality software
- Intellectual property rights
- Global information networks and related legal aspects

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Explain the concepts and theories of algorithms and high-level programming languages for algorithms implementation. (DP, COI)
2. Explain strategic planning to solve computational problems. (COI)
3. Identify the basic concepts and principles about professional issues involved in Information technology. (EID, SID)

Thinking skills

4. Analyse the requirements of a computing system to select algorithms, methods and techniques that are appropriate for problems with in commercial and industrial constrains. (DP, IC)
5. Evaluate new ethical problems based on one or more major ethical theories. (SID, CID)

Subject-based practical skills

6. Solve problems using efficient algorithms through computational analysis and complexities. (COI)
7. Apply elements of ethical decision-making approaches on situations at work as an IT professional. (EID, SID, CC)

Skills for life and work (general skills)

8. Demonstrate good time management, team working, presentation, problem solving and academic integrity skills. (SID, EID, PID, UGB)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with the major concepts and techniques for analysis and design of algorithms in addition to the professional ethical and legal issues. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to computational problems. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-5**
Coursework Practical 10% Assignments 40% (30 hours of student effort)	**50%**	**6-8**

Reading and resources for the module:

Core
Reynolds, G.W. (2019) *Ethics in Information Technology*, 6th edn. MA cengage. Boston.

Recommended
Stamatellos, G. (2007) *Computer Ethics: A Global Perspective.* Jones and Bartlett.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students are requested to develop a project based on design methodologies, programming languages and algorithm.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 24 hours	 Lectures Labs
2. Student learning time: 128 hours	 Essential and background reading, private study, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 Hours

Module Specification

Module Title: Network and Cloud Security	Module Code: AS6063 Level: 6 Credit: 20 ECTS credit: 10	Module Leader: Dr. Alshymaa Abo Alian
Pre-requisite: NA	Pre-cursor: AS4006 Computer Networks and Operating Systems	
Co-requisite: NA	Excluded combinations: NA	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:
This module provides students with the fundamentals of network security, including basic cryptography, key management, authentication, cipher techniques and security protocols. It also aims to teach students the basic cloud computing concepts and service models. It describes the key considerations to build a cloud infrastructure. The module builds on basic knowledge of computer networks.

Main topics of study:
- Overview of Information Security and classical encryption techniques   - Data Encryption Standard, Multiple Encryption and Triple DES   - Introduction to Finite Fields   - Advanced Encryption on Standard, RC4 Ciphers   - Number theory and Public key cryptography and RSA   - Hashing and MAC Algorithms   - Introduction to cloud computing and building cloud infrastructure   - Physical and Virtual layer   - Control and Service layer   - Orchestration layer   - Business continuity and Security layer   - Service management

This module will be able to demonstrate at least one of the following examples/ exposures
Live, applied project ⊠ *Company/engagement visits* ⊠ *Company/industry sector endorsement/badging/sponsorship/award* ☐

Learning Outcomes for the module
Digital Proficiency - Code = (DP)   *Industry Connections - Code = (IC)*   *Emotional Intelligence Development - Code = (EID)*   *Social Intelligence Development - Code = (SID)*   *Physical Intelligence Development - Code = (PID)*   *Cultural Intelligence Development - Code = (CID)*   *Community Connections - Code = (CC)*   *UEL Give-Back - Code = (UGB)*   *Cognitive Intelligence – Code = (COI)*   At the end of this module, students will be able to:

Knowledge

1. Explain the standard security terminologies. (COI)
2. Contrast the functions of every layer in the cloud computing reference model. (COI)

Thinking skills

3. Critique computer security techniques and their relevance to different situations. (COI)
4. Contrast the main security attack types. (COI, IC)

Subject-based practical skills

5. Select virtual machines, templates, clones, and snapshots and configure virtual networks. (DP)
6. Execute resource monitoring and manage resource pools.
7. Implement a software security package of symmetric/asymmetric encryption, digital signatures, key management, hashing and digital signature techniques. (DP)

Skills for life and work (general skills)

8. Select the suitable cryptosystem according to the requested context. (COI)
9. Reflect on building different cloud deployment scenarios. (COI)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures are used to explain the main concepts of the module while lab sessions will be used for hands-on practice. Continuous Assignments will be given to reinforce the understanding of the material. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-4**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**5-9**

Reading and resources for the module:

Core
Chris Todson. (2019) *Practical Cloud Security: A Guide for Secure Design and Deployment.* 1st edition. O'Reilly Media.

Recommended
Gupta, B. Martinez, M. Agrawal, D. and Gupta, D. (2020) Handbook of Computer Networks and Cyber Security, Principles and Paradigms, Springer International Publishing, 1st edition

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students will be required to work on team project that applies the basics concepts studied in this module.
Company/engagement visits: Guest talk from industry

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 48hours	Lectures Labs
2. Student learning time: 104 hours	Essential and background reading, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Applied Computer Security Concepts	Module Code: AS6064 Level: 6 Credit: 20 ECTS credit: 10	Module Leader: Dr. Alshymaa Abo Alian
Pre-requisite:	Pre-cursor: AS4001 Fundamentals of Programming AS6063Network and Cloud Security	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to provide students with the underlying security methods for the web and many other computer applications. It covers the design usage of cryptographic protocols for online and offline computing applications. Assuring the quality, validity and privacy of information is one of the key applications of cryptography. It also provides students with the significance of intrusion detection systems and their different techniques and enables students to use various tools for intrusion detection. This module assumes knowledge of basic programming fundamentals and network security.

Main topics of study:

- Overview of Computer Security Concepts.
- Computer Security Technology (Cryptographic Tools, User Authentication).
- Encryption Methods and Common Ciphers.
- Password Storage and Cracking.
- Digital Signatures.
- Cryptographic Algorithms (Symmetric Encryption, Public-Key Cryptography and Message Authentication).
- Introduction to Intrusion Detection (ID) & Incident Handling.
- Deployment, Reference Intrusion Mode.
- Host and Network Based Intrusion Detection Systems.
- Analysis Schemes for Intrusion Detection Systems.

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ⊠
Company/engagement visits ☐

Company/industry sector endorsement/badging/sponsorship/award □

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Identify cryptographic concepts, their security properties. (COI)
2. Explain the basics of Intrusion detection, advantages, and disadvantages of deception systems.

Thinking skills

3. Analyse descriptions of cryptographic systems and protocols in terms of black box cryptographic primitives. (COI)
4. Categorize threats against an IT system at a conceptual level. (COI)
5. Analyse intrusion detection alerts and logs to distinguish attack types from false alarms. (COI)

Subject-based practical skills

6. Implement a simple cryptographic protocol taking into consideration the difficulty and the dangers.
7. Develop response plan that incorporates attack tracing, evidence collection, and evidence analysis. (DP)
8. Develop a system that would be the best-fit for a company. (DP)

Skills for life and work (general skills)

9. Reflect on good time management, team working, presentation, problem solving and academic integrity skills. (SID, EID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures will be used for providing students with concepts of computer security, cryptography, and intrusion detection systems. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-5**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**6-9**

Reading and resources for the module:

Core
S. Geetha and Asnath Victy Phamila. (2019) *Countering Cyber Attacks and Preserving the Integrity and Availability of Critical Systems*. IGI Global. DOI: 10.4018/978-1-5225-8241-0

Recommended
Easttom, C. (2019) Computer security fundmentals, 4th edition.
Ghorbani, A. Lu, W. and Tavallaee, M. (2010) Network Intrusion Detection and Prevention, 1st edition

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students are required to build a cryptography project, and manage an intrusion detection system on a networked system of computers that fulfils specific requirements of a business domain.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation.
Total hours (1 and 2):	200

Module Specification

Module Title: Mobile Big Data	Module Code: AS6065 Level: 6 Credit: 20 ECTS credit: 10	Module Leader: Dr. Sherine Rady
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		
Summary of module for applicants:		

This module intends to cover the fundamental concepts of mobile computing, mobility and service management, data management, networks, and security issues for mobile systems that influence in the development of mobile applications. It also aims to provide students with the main principles and concepts of Big Data, Big Data ecosystem and Data Science. It aims to develop a comprehensive understanding for advanced concepts and varied data processing techniques in distributed systems and parallel processing technologies and qualify students to pass professional data scientist certifications.

Main topics of study:

- Introduction to Mobile Computing and Architecture
- Mobile Data Management
- Mobility Location Management
- Cellular systems
- Wireless networks
- Emerging networks
- Security, Privacy and Data Protection
- Introduction to Big Data, Big Data environment, and Data Science
- Data Analytics Lifecycle
- Exploratory Data Analysis
- Statistical Methods for Evaluation
- Advanced Data Analytics
- Technology and Tools: MapReduce and Hadoop.

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Contrast the principles and techniques of mobile computing applications development and select the different qualitative and quantitative testing techniques for mobile computing systems. (DP)
2. Explain the concepts, architectural components, tools, programming models and techniques which offer the potential of the specification, design and implementation of a Big Data Analytics project. (DP)
3. Select the machine learning techniques, which can be applied to analyse and extract useful information from complex data stores (COI).

Thinking skills

4. Justify the appropriate methodologies and techniques for the functionalities of mobile computing systems to solve mobile applications problems considering limitations and constrains. (COI, IC)
5. Evaluate the appropriate solutions concepts and evaluation methods to solve big data problems and validate outcomes/testing a developed system and compliance to initial requirements. (IC, COI)

Subject-based practical skills

6. Select full advantages of the capabilities of the adopted platform/framework to develop enterprise-level mobile solutions and applications. (IC)
7. Implement and use machine learning techniques and computing environment that are suitable for the applications under consideration, and statistical methods to assess and evaluate research or experimental test results. (DP)
8. Select and Implement an effective, original solution to a Big Data real-world problem using a wide range of big data tools, techniques, programming skills and visualization tools. (IC, COI)

Skills for life and work (general skills)

9. Reflect on good time management, team working, presentation, problem solving and academic integrity skills. (SID, PID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:

Lectures will be used for providing students with concepts of Bigdata, mobility, and service management. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-5**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**6-9**

Reading and resources for the module:

Core
EMC Education Services, (2015). *Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data*. Wiley.
Talukdar, A.K. (2010) *Mobile Computing*. 2nd edn. MacGraw Hill.

Recommended
Lin, J. and Dyer, C. (2010) *Data-Intensive Text Processing with MapReduce*. Morgan and Claypool.
EMC[2] . *Student Lab Guide*

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Students are required to design and build a mobile application and an analytical project satisfying the big data life cycle, which fulfil specific requirements of a business domain of choice.	

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, assignment planning and preparation, group work, private study, practical work and assessment preparation
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Number Theory and Cryptography	Module Code: AS6066 Level:6 Credit:20 ECTS credit: 10	Module Leader: Dr. Islam Hegazy
Pre-requisite: N/A	Pre-cursor: N/A	
Co-requisite: N/A	Excluded combinations: N/A	Suitable for incoming study abroad? Y
Location of delivery: ASU		

Summary of module for applicants:

This Module intends to provide students with the fundamentals of number theory, and to use this as a context in which to discuss the development of mathematics through examples, conjectures, theorems, proofs and applications which focus on computational aspects in cryptography. It also provides the major concepts and techniques of cryptography. This module assumes no prior knowledge of the topic.

Main topics of study:

- Preliminaries
- Divisibility and Factorization
- Solving Linear Diophantine Equations
- Primes
- The Theory of Congruences
- Solving Linear Congruences
- Fermat's Theorem and Euler's Generalization
- Primitive Roots
- Quadratic Congruences
- Introduction of Cryptography
- Cryptography Keys

This module will be able to demonstrate at least one of the following examples/

exposures

Live, applied project ☒
Company/engagement visits ☐
Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge

1. Recognize the fundamental mathematical concepts underlying digital signatures, encryption, and key establishment protocols. (COI)
2. Identify the fundamentals of cryptography, the various key distribution and management schemes. (COI)

Thinking skills

3. Evaluate hypotheses and conclusions of mathematical statements. (COI)
4. Evaluate the appropriate mathematical concepts and cryptography protocols to encrypt a message. (COI)

Subject-based practical skills

5. Implement techniques of Number Theory to a variety of problems. (COI)
6. Implement elementary number theory to cryptography. (COI)
7. Select primality tests and factorization techniques. (COI)

Skills for life and work (general skills)

8. Reflect on good time management, team working, problem solving and academic integrity skills. (SID, EID)

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lectures will be used for providing students with the major concepts and principles for number theory and cryptography. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to a real-life situation. Feedback will be provided throughout the module in the form of both formative and summative work.

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	Weighting:	Learning Outcomes demonstrated:
Written Exam (120 minutes)	**50%**	**1-4**

Coursework Practical 20% Assignments 30% (30 hours of student effort)	50%	5-8

Reading and resources for the module:

Core
Kraft, J. Washington, L. (2018) An Introduction to Number Theory with Cryptography (Textbooks in Mathematics) 2nd Edition
Silverman, J.H. (2013) *A Friendly Introduction to Number Theory.* Pearson.

Recommended
Loxton, J.H. (2013) Number Theory and Cryptography.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

*Live, applied project***:** Students would be designing and implementing projects that apply mathematical concepts and cryptography techniques to solve real-life problems.

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction 48 hours 48 hours	 Lectures Labs
2. Student learning time: 104 hours	 Essential and background reading, private study, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 Hours

Module Specification

Module Title: *Mental Wealth; **Professional Life 3*** (Project)	Module Code: AS6020 Level: 6 Credit: 40 ECTS credit: 20	Module Leader: Dr. Walaa khaled
Pre-requisite: Completing 90 credits in level 5	**Pre-cursor:** None	
Co-requisite: None	**Excluded Combination:** None	**Suitable for incoming study abroad?** Yes
Locations of delivery: ASU		

Summary of module for applicants:

This module aims to enable students to undertake a sizeable piece of academic work in an area of their own or recommended interest to enrich technical skills acquired in their

programme of study. The project requires appropriate research, analysis, design, implementation, quality assurance, evaluation and project management.

Main Topics of Study:

- Research methods
- Identification of a suitable project topic
- Project analysis
- Project design
- Project implementation
- Project validation and verification
- Project documentation and proper referencing

This module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project ☒

Company/engagement visits ☒

Company/industry sector endorsement/badging/sponsorship/award ☐

Learning Outcomes for the Module

- *Digital Proficiency - Code = (DP)*
- *Industry Connections - Code = (IC)*
- *Emotional Intelligence Development - Code = (EID)*
- *Social Intelligence Development - Code = (SID)*
- *Physical Intelligence Development - Code = (PID)*
- *Cultural Intelligence Development - Code = (CID)*
- *Community Connections - Code = (CC)*
- *UEL Give-Back - Code = (UGB)*
- *Cognitive Intelligence – Code = (COI)*

At the end of this module, students will be able to:

Knowledge
1. Investigate the problem domain and its current state of the art *(COI, IC)*
2. Construct the problem statement and motivation and define the objectives of the project *(COI)*

Thinking skills
3. Analyse and evaluate the features and limitation of existing work *(IC, COI)*
4. Make decisions regarding the project management *(SID, CID)*

Subject-based practical skills
5. Use the tools needed for the project analysis and design *(DP)*
6. Select and use appropriate tools to implement and test computer systems and software *(DP)*

Skills for life and work (general skills)
7. Include current research and academic publications in literature review (EID, CC)
8. Communicate arguments and results via several presentations *(PID, SID, UGB)*
9. Reflect on and evaluate own strengths, limitations and performance *(EID)*

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:

Lecture will be used to provide an overview of the project selection criteria, its requirements, milestones and an introduction to research methods, literature surveys and reference

management systems.

In addition, every team will be allocated a supervisor at an early stage within the module. The supervisor will support the team for the duration of the project through discussions.

Feedback, in the form of formative assessment, will be provided by supervisor on a regular basis. Moreover, team is requested to make several presentations in a scheduled seminar throughout the year to evaluate their progress. Feedback, in the form of summative assessment, will be provided by judges for each seminar.

Assessment methods which enable students to demonstrate the learning outcomes for the module: **Portfolio** Including 8000-word project report plus 20 minutes presentation (75%) intermediate deliverables (25%)	Weighting: 100%	Learning Outcomes Demonstrated 1-9

Reading and resources for the module:

Core
Latte, Björn, Henning, Sören and Wojcieszak, Maik (2019) *Clean Code: On the Use of Practices and Tools to Produce Maintainable Code for Long-Living*. In 6th Collaborative Workshop on Evolution and Maintenance of Long-Living Systems, 18.02.2019, Stuttgart.
Bob Hughes (2019) *Project Management for IT-Related Projects* (BCS)
Pears, R. and Shields, G (2013) *Cite Them Right.* Newcastle: Pear Tree Press.
Documentation template to be provided by the supervisor.

Recommended
R. Majumdar, R. Jain, S. Barthwal and C. Choudhary (2017) *Source code management using version control system. 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO),* pp. 278-281, doi: 10.1109/ICRITO.2017.8342438.

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

Live, applied project: Scheduled presentations are held to evaluate the necessary project deliverables.

Company/engagement visits: Some projects are mentored by industry partners.

Indicative Teaching and Learning Time (10 hrs per credit):	Activity
1.Student/Tutor interaction, some of which may be online: 100 hours	Lecture/ Supervision/ Seminars
2.Student Learning Time: 300 hours	Background reading, software/hardware tools and packages learning, seminar preparation, group work, project planning, implementation, testing and documentation.
Total hours (1 and 2):	400 hours

AWARD CERTIFICATES

- Issuing transcripts of results to students, and award certificates to successful students on Coursers.

- The student who achieves an accumulative GPA of 3.6 or higher after any semester and did not fail any course throughout his course of study is included in the Dean's List.

- Students who manage to fulfil all graduation requirements are awarded a dual B.Sc. degree from ASU–FCIS in Cyber Security and UEL in Cyber Security

MORE INFORMATION

Link to the University's **academic regulations**:
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations

TEACHING, LEARNING & ASSESSMENT

Details of Local Teaching and Learning Approaches

- The Course is a credit system leading to the Bachelor of Science Degree (Honours) after completing 360 credits. Student evaluation is based not only on final exam, but also on midterm exams, quizzes, assignments, course projects, presentations, essays, in/out of class participation and many other innovative activities.
- Course instructors in the Course are carefully selected from the distinct full-time world-class faculty members of the Faculty of Computer and Information Sciences at Ain Shams University.
- With most of the modules being delivered over the whole year there is excellent scope for formative assessment to stretch and extend. Thus, a key feature is the emphasis on formative feedback and guidance to enable students to develop full understanding of the topics of study, prior to assessment taking place. Feedback will be available within 15 days from the assessment date. Feedbacks are announced via different means (LMS, emails, student boards, etc,).
- Assessment for these Courses takes the form of examinations, course works, presentations and time constrained assessments.
- Each module syllabus should contain: course objectives, textbook, outline, material, assessments, grading policy and outcome. Outline should contain sections covered every week with reference to chapters/sections in the textbook. The instructor should give the module syllabus to the students in the first class. The syllabus serves as a contract between the instructor and the students.

Details of Assessment Arrangements

a) Passing Modules

The student must achieve a minimum of 40% in a module in order to pass a module.

b) Incomplete Modules

If a student does not pass the module, another set of assessments (resits) are conducted after the semester's final exams (during the resit period). The marks of the resit are capped at 40% unless extenuation is granted.

c) Modules opportunities

A module resit is considered a second opportunity. If a student fails at the second opportunity, they will be given a maximum of two further opportunities (opportunity three and opportunity four).

The third opportunity requires full attendance of the module in the next academic year. The fourth opportunity will be a further resit. In each case the final mark is capped at 40% unless extenuation is granted.

Repeating a year

If a student fails to achieve 60 credits within an academic year they may, at the discretion of the Exam Board, be asked to leave the course. The student will only be allowed to repeat an academic year twice at most during their studies (with mark uncapped).

Degree Classification

Where a student is eligible for an Honours degree by passing a valid combination of modules to comprise an award and has gained a minimum of 240 UEL credits at level 5 or level 6 on the current enrolment for the Course, including a minimum of 120 UEL credits at level 6, the award classification is determined by calculating:

The arithmetic mean of the best 100 credits at level 6	x	0.8	+	The arithmetic mean of the next best 80 credits at levels 5 and/or 6	x	0.2

and applying the mark obtained as a percentage, with all decimal points rounded up to the nearest whole number, to the following classification

70% - 100%	First Class Honours
60% - 69%	Second Class Honours, First Division
50% - 59%	Second Class Honours, Second Division
40% - 49%	Third Class Honours
0% - 39%	Not passed

For full details of the University degree classification refer to
http://www.uel.ac.uk/wwwmedia/internal/qa/committees/documents/Academic-Framework---Assessment-Regulations---with-changes-approved-for-Transition-Group.doc

Grades of the Cyber Security Course modules

The points of each credit hour are computed as follows:

University of Ain Shams			University of East London
Percentage of Total Mark at ASU	Grade	Points for GPA	Percentage Equivalent at UEL
97% and Higher	**A+**	**4.0**	**95% and Higher**
93% to less than 97%	**A**	**4.0**	**82% to less than 95%**
89% to less than 93%	**A-**	**3.7**	**70% to less than 82%**
84% to less than 89%	**B+**	**3.3**	**66% to less than 70%**
80% to less than 84%	**B**	**3.0**	**63% to less than 66%**
76% to less than 80%	**B-**	**2.7**	**60% to less than 63%**
73% to less than 76%	**C+**	**2.3**	**56% to less than 60%**
70% to less than 73%	**C**	**2.0**	**53% to less than 56%**
67% to less than 70%	**C-**	**1.7**	**50% to less than 53%**
64% to less than 67%	**D+**	**1.3**	**45% to less than 50%**
60% to less than 64%	**D**	**1.0**	**40% to less than 45%**
Less than 60%	**F**	**0**	**Less than 40%**

References to Student Policies

ASU-FCIS student policy available at:
http:// chp-cis.asu.edu.eg/index.php/important-bylaw-regulations/
UEL available at:
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies

The electronic version of "Cite Them Right: *the essential referencing guide"* 9th edition, can be accessed whilst on or off campus, via UEL Direct. The book can only be read online and no part of it can be printed nor downloaded. Assessment and Feedback Policy available at:

https://ums.asu.edu.eg/App?redirectUrl=https%3A%2F%2Fums.asu.edu.eg%2F#Login

Assessment and feedback are fundamental parts of your learning experience. The UEL Assessment and Feedback Policy seeks to:

- actively promote student success and academic achievement;
- provide clear, accurate, accessible information and guidelines to all staff and students on assessment and feedback;
- maximise the potential for consistency and fairness in assessment;
- locate assessment and feedback as an integral part of learning and teaching processes.

Every component of assessment that contributes to an award, at all levels, is subject to internal and External Examiner moderation. This ensures the maintenance of standards both internally and in comparison, with similar

Courses delivered at other higher education institutions. The UEL Assessment and Feedback Policy outlines the process for the various stages of the marking process and is available at https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Assessment-and-Feedback-Policy

The UEL Skills Curriculum has been designed to ensure that you are taught, have the opportunity to practice, and are assessed in three skillsets: Learning Skills, Professional Skills and Research Skills. These Skills are developed within your Course of study. Further information is available at: https://www.uel.ac.uk/discover/governance/policies-regulations-corporate-documents/student-policies/skills-curriculum

The UEL Skills Portal has been designed to act as a single gateway to a whole range of skills support that will help you progress through your studies. From tips on academic writing, using IT, to guidance on time management and exam revision - all of the resources in the UEL Skills Portal have been designed to support your learning and achievement, refer to https://uelac.sharepoint.com/LibraryandLearningServices/Pages/Skllzone.aspx

As a student, you will be taught how to write correctly referenced essays using UEL's standard Harvard referencing system from Cite Them Right. Cite them Right is the standard Harvard referencing style at UEL for all Schools apart from the School of Psychology which uses the APA system. This book will teach you all you need to know about Harvard referencing, plagiarism and collusion. The electronic version of "Cite Them Right: *the essential referencing guide"* 9th edition, can be accessed whilst on or off campus, via UEL Direct. The book can only be read online and no part of it can be printed nor downloaded.

Further information is available at the weblinks below

> *Harvard referencing*
> https://uelac.sharepoint.com/LibraryandLearningServices/Pages/Harvard-Referencing-.aspx
>
> *Academic Integrity*
> https://uelac.sharepoint.com/LibraryandLearningServices/Pages/Academic-integrity.aspx

Assessment Criteria

A student's performance will be marked and graded according to pre-specified and clear assessment criteria. These will normally be presented in one document combining marking and grading criteria. Further details can be found in section 2.3 of the Assessment and Feedback Policy and can be found at: www.uel.ac.uk/qa/policies/assessmentpolicy/

As your degree progresses, you will be assessed in a number of different ways. In addition to examinations, you will have a range of coursework

assessments such as reports or presentations, for which you will be given clear guidance by the module leader including how you will be assessed for that piece of work.

The section below gives you a general guideline of what we are looking for at different levels of the Course.

Level 4

- You can present factual information.
- With some help, you can analyse and evaluate the information presented and draw some conclusions.
- You can follow guidelines in creating solutions to straightforward problems.

Work of a better standard usually reflects an approach where,

- You have required little guidance in producing your work.
- You have shown initiative where appropriate.
- You meet your obligations to others.
- You have fully appreciated the complexity of a task and managed your time and resources accordingly.
- Your work is presented with care and forethought.

Level 5

- Your work displays a detailed knowledge of the topic. You are aware of other contexts that can be applied to this knowledge.
- With some guidance, you can analyse data and situations in a range of different contexts.
- You can take information gathered or the ideas of others and re-format it to your own purpose.
- You can select appropriate evaluation techniques. You can use these to evaluate your own findings.

Work of a better standard usually reflects an approach where

- You have required minimal assistance if any assistance.
- You have been particularly creative in devising and implementing your chosen solution.
- You have identified the key elements of problems and chosen the appropriate strategies to resolve them.
- You have communicated your work in a clear and concise manner.

Level 6

- Your work displays a comprehensive and detailed knowledge of the topic with areas of specialisation showing depth of understanding.
- You are aware of current developments.
- Without guidance, you can analyse data and situations in a range of different contexts.
- You can develop creative and innovative solutions with little guidance.
- You can review evidence critically and use your findings to support conclusions and recommendations.

Work of a better standard usually reflects an approach where

- You have not required any assistance.
- You have proved you can manage your own learning and make full use of a wide range of resources.
- You have been confident in your ability to solve problems.
- You have communicated your work in a thoroughly professional and coherent manner.

MORE INFORMATION

Link to the Student Handbook page on Assessment and Feedback:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Assessment-and-Feedback.aspx

Link to Student Policies: https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies

REFERENCING

As a student you will be taught how to write correctly referenced essays. UEL's standard **Harvard referencing** system is from *Cite Them Right*. Cite them Right is the standard Harvard referencing style at UEL for all Schools, however professional body requirements will take precedence for instance the School of Psychology which uses the APA system.

MORE INFORMATION

Link to the Student Handbook page on *Cite Them Right*:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Cite-Them-Right.aspx

ACADEMIC MISCONDUCT & PLAGIARISM

For the purposes of University regulations, **academic misconduct** is defined as any type of **cheating** in an assessment for the purposes of achieving personal gain. Please follow the link below to learn more.

Academic Misconduct

For the purposes of university's regulations, academic misconduct is defined as any type of cheating in an assessment for the purposes of achieving personal gain. Examples of such misconduct are given below: the list is **not** exhaustive and the use of any form of unfair or dishonest practice in assessment can be considered potential misconduct.

Coursework Submitted for Assessment

For coursework submissions, academic misconduct means:

(a) The presentation of another person's work as one's own with or without obtaining permission to use it.

(b) The inclusion within one's own work of material (written, visual or oral), originally produced by another person, without suitable acknowledgment.

(c) The submission, as if it were one's own work, of anything which has been offered to you for your use, but which is actually not your own work.

(d) The inclusion within one's work of concepts paraphrased from elsewhere without citing your source.

(e) The inclusion in submitted work of sections of text, whether from electronic or hard copy sources, without appropriate acknowledgement of the source.

(f) The submission of work that the student, as the author, has previously submitted, without suitable acknowledgement of the source of their previous work; this should not normally be more than a short quotation as the same work cannot be submitted for different assignments.

(g) Including or quoting the work of other students in one's work, with the exception of published work, or outputs held in the library as a learning resource, which should be cited and acknowledged appropriately.

(h) Being party to any arrangement whereby the work of one candidate is represented as that of another.

(i) The submission, as your own work, of any work that has been purchased, or otherwise obtained from others, whether this is from other students, online services, "cheat sites", or other agents or sources that sell or provide assignments.

(j) Practices such as 'cutting and pasting' segments of text into your work, without citing the source of each.

(k) For work not intended to be submitted as a collaborative assignment: producing work with one or more other students, using study practices that mean the submitted work is nearly identical, overall or in part, to that of other students.

(l) Offering an inducement to staff and/or other persons connected with assessment.

Examinations

For examinations, academic misconduct means:

(a) Importation into an examination room of materials or devices other than those which are specifically permitted under the regulations applying to the examination in question.

(b) Reference to such materials (whether written or electronically recorded) during the period of the examination, whether or not such reference is made within the examination room.

(c) Refusing, when asked, to surrender any materials requested by an invigilator.

(d) The application of an electronic device, unless this has been expressly permitted for that examination.

(e) Copying the work of another candidate.

(f) Disruptive behaviour during examination or assessment.

(g) Obtaining or seeking to obtain access to unseen examination questions prior to the examination.

(h) Failure to observe the instructions of a person invigilating an examination or seeking to intimidate such a person.

(i) Offering an inducement to invigilators and/or staff and/or other persons connected with assessment.

Where academic misconduct is suspected, the matter will be dealt with under the *Procedure to be followed in the event of a suspected case of academic misconduct, Part 8, paragraph 4* of the Manual of General Regulations (available for view at
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations).

If it is determined that academic misconduct has taken place, a range of penalties may be prescribed which includes expulsion from the Course.

PLAGIARISM - A GUIDANCE NOTE FOR STUDENTS

1. Definition of Plagiarism

Our University defines plagiarism and other academic misconduct in Part 8 of the UEL Manual of General Regulations (to which all students are referred upon joining UEL), which is reprinted in "The Essential Guide to the University of East London". In this document, the following example of an assessment offence is given:

The submission of material (written, visual or oral), originally produced by another person or persons or oneself, without due acknowledgement*, so that the work could be assumed to be the student's own. For the purposes of these Regulations, this includes incorporation of significant extracts or elements taken from the work of (an)other(s) or oneself, without acknowledgement or reference*, and the submission of work produced in collaboration for an assignment based on the assessment of individual work. (Such misconduct is typically described as plagiarism and collusion.)

The following note is attached:
*(Note: To avoid potential misunderstanding, any phrase that is not the student's own or is submitted by the student for a different assessment should normally be in quotation marks or highlighted in some other way. It should also be noted that the incorporation of *significant* elements of (an) other(s) work or of one's own work submitted for a different assessment, even with acknowledgement or reference, is unacceptable academic practice and will normally result in failure of that item or stage of assessment.)

2. Plagiarism in Greater Detail

Work that students submit for assessment will inevitably build upon ideas that they have read about or have learnt about in lectures. That is perfectly acceptable, provided that sources are appropriately acknowledged. It should be noted, however, that the wholesale reproduction of the ideas and words of others, however well referenced, is likely to lead to failure at assessment (see section 6 below)

The submission of work that borrows ideas, words, diagrams, or anything else from another source (or sources), without appropriate acknowledgement, constitutes plagiarism. Plagiarism is not limited to unattributed cutting-and-pasting; it includes the reproduction, without acknowledgement, of someone else's work, taken from a published (or unpublished) article, a book, a website, a friend's (or anybody else's) assignment, or any other source.

When an assignment or report uses information from other sources, the student must carefully acknowledge exactly what, where and how s/he has used them. If someone else's words are used, they must be within quotation marks and a reference must follow the quotation. (See section 6 for further guidance on referencing.)

Where a concept or argument in another source is paraphrased (rather than directly quoted), quotations marks should not be used, but it will still be necessary to acknowledge the source. Remember, however, that the making of simple changes to the wording of a source, while retaining the broad structure, organisation, content and/or phraseology of the source, is unacceptable academic practice <u>and</u> will probably be regarded as plagiarism. (For helpful tips on how to avoid plagiarism, see "The Study Skills Handbook" by Dr Stella Cottrell, pages 122-125.)

3. **Collusion**

Collusion is the term used to describe any form of joint effort intended to deceive an assessor as to who was actually responsible for producing the material submitted for assessment. Clearly, students are encouraged to discuss assignments with their peers, but each student must always ensure that, where an individual assignment is specified, the report/essay submitted is entirely the student's own. Students should, therefore, never lend work (in hard or electronic copy) to friends. If that work is subsequently plagiarised by a "friend", an act of friendship might lead to a charge of collusion.

4. **When to Reference**

Our regulations do not distinguish between deliberate and accidental plagiarism, but you will not be accused of plagiarism, provided that you properly reference everything in your work that was said, written, drawn, or otherwise created by somebody else.

You need to provide a reference:

- when you are using or referring to somebody else's words or ideas from an article, book, newspaper, TV Course, film, web page, letter or any other medium;

- when you use information gained from an exchange of correspondence or emails with another person or through an interview or in conversation.

- when you copy the exact words or a unique phrase from somewhere.

- when you reprint any diagrams, illustrations, or photographs.

You do not <u>need</u> to reference:

- when you are writing of your own experience, your own observations, your own thoughts or insights or offering your own conclusions on a subject.

- when you are using what is judged to be common knowledge (common sense observations, shared information within your subject area, generally accepted facts etc.) As a test of this, material is probably common knowledge if

   - you find the same information undocumented in other sources;

   - it is information you expect your readers to be familiar with;

   - the information could be easily found in general reference sources.

5. **<u>How to Reference</u>**

Our University has agreed on a single version of the Harvard referencing system (the School of Psychology uses the American Psychological Association (APA) referencing style) and this (along with APA) can be found in Cite Them Right:

Pears, R. and Shields, G (2013) *Cite Them Right.* Newcastle: Pear Tree Press
Cite Them Right is available online and hard copies can be found in our libraries and bookshops.

6. **<u>Plagiarism, or Unacceptable Academic Practice</u>?**

If work that you submit for assessment includes substantial and significant elements of other sources and all of those sources are appropriately acknowledged, you will not have plagiarised, but you will be culpable of unacceptable academic practice, because there will be too little of your "own voice" to allow your knowledge to be assessed. Work that you submit for assessment must:

- use your own words.

- provide a critical commentary on existing literature.
- aim for novelty and originality.
- demonstrate your understanding of the subject area by paraphrasing.

Work that does not meet those criteria will fail.

MORE INFORMATION

Link to the Student Handbook page on Academic Misconduct and Plagiarism:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Academic-Misconduct-and-Plagiarism-Home.aspx

RESEARCH INTEGRITY

The University adheres to its responsibility to support and promote the highest standards of **rigour and integrity** and embed a culture of honesty, transparency and care and respect for all participants and subjects of research. The University is committed to ensuring that research is conducted with integrity and good research practices are upheld. Please follow the link below to learn more.

MORE INFORMATION

Link to the Student Handbook page on Research for On Campus programmes:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Research.aspx

Link to the Research Integrity and Ethics Document page:
https://uelac.sharepoint.com/ResearchInnovationandEnterprise/Pages/research-integrity-and-ethics-documents.aspx

PLACEMENT ARRANGEMENTS

Placements and volunteering provide opportunities for students to gain work experience, develop work-related skills, learn about professional sectors and how studies can be directly applied in the work environment. Some courses include placements as part of the formal course of study, and for others placements are a mandatory professional requirement.

SUPPORT FOR STUDENTS

Local Arrangements for Academic and Pastoral Care for Students

➢ Course teams must ensure that Academic Advisors have the knowledge and skills to carry out the role. The role includes helping students to understand:
  i. The academic and related skills required for successful study.
  ii. The need for self-direction and responsibility for own learning.
  iii. Their learning needs beyond their current courses and immediate assessments.
  iv. An opportunity to identify areas of weakness.
  v. Where to find information, help and support.
  vi. Clarification of aims and choices for progression, employment and further study [internship opportunities].

➢ Academic Advising in ASU-FCIS:
  i. Must exist for every year.
  ii. Must form part of the student induction process especially for General Level Year Students.
  iii. Must be used as a mechanism, to identify "students at risk".
  iv. Must happen at critical moments in each semester. [week 1 & 8]

➢ Course teams must carefully manage the Academic Advising system so that students understand its role and know how to access it.

➢ Academic Advising needs to be carefully managed with its importance being emphasised:
  i. During the induction period for each Level of the Course.
  ii. In student handbook.
  iii. By Academic Advisor.
  iv. By Course Instructors-via class announcements.
  v. Via email and SIS.

➢ Unit Heads agree on procedures and systems to manage Academic Advising. These will include:
  i. Allocation of Academic Advisors for all Levels.
  ii. Ensuring students are informed.

    iii. Delivery of Academic Advising.
    iv. Identification of students at risk.

Local Personal Tutor Support

➢ Course teams must meet the minimum requirements for delivery of Academic Advising.

- Meet in weeks 1 and 8 each semester.
- Identify issues and agree on strategies.
- Keep a record of meetings [SIS+ student copy].
- Feedback on issues and actions taken as appropriate.
- Advertise office hours when 1:1 appointments can be made according to Advisor and student Schedule.

➢ Advisor need to be clear about the focus of the meeting:
    i. Check that student has settled into the Course.
    ii. Identify any concerns the student may have.
    iii. Review student's progress [preferably quantitative].
    iv. Review and offer advice on student's performance in assessments/exams.
    iv. Address concerns about performance or attendance.
    v. Review progression or career plans [internship].

➢ Meeting -encouraging change
    i. Encouraging change -telling or helping?
    ii. Giving constructive feedback
    iii. Discussing options
    iv. Agreeing on actions –SMART targets
    v. Producing a realistic plan of action
    vi. Getting commitment
    vii. What's going well?
    viii. What could go better?

➢ Follow-up from meetings –ensuring action
    i. What actions are required by the student or by the Academic Advisor?
    ii. Does this involve liaison with:
       - Course Instructors?
       - Unit Heads?
       - Vice Director?

Local Careers Advice

➢ Course teams must ensure that staff acting as Academic Advisors are aware of relevant learner support services.

➢ Academic Advising is only a part of Learner Support:
    i. Employability Skills (through events)

ii. Student Activities
iii. The Library
iv. Disability issues
v. The Student Union

Employability and Career Development Centre (ECDC) is a Centre constructed through the collaboration between Ain Shams University and the American University, it has a permanent headquarter in Ain Shams University. It provides special training programs for students in order to develop their capabilities in the professional and employment fields. The centre aims to guide the trainee to his excellence and weaknesses points, and how to raise points of excellence and overcome weaknesses.

Local Arrangements for Supporting Students with Disabilities/Dyslexia

Faculty of Computer and Information Sciences provides support and equal opportunity for learning to its diverse community especially to those with disability. The faculty aimed that they experience the same level of equality and meet the same level of academic potential. The objectives are:
  i. Ensure the accessibility to all faculty facilities.
  ii. Ensure that admission requirements do not hinder anyone from enrolment by unnecessary barriers.
  iii. Encourage people with disability to courses admission by providing any possible support.
  iv. Determine the needs of the disable and support staff to deal with their needs.

The student should fill in the form describing his/her conditions to request for disability services. According to each case, the faculty can provide:
   i. Quiet areas for exams equipped with the required physical changes.
   ii. Providing staff members assisting for writing in exams.
   iii. Extra exam time.
   iv. Extended deadline for the assignments and attendance.
   v. Providing special seating place in class.
   vi. Providing large print hand-outs and verbal description for visual aids.

LIBRARY & RESOURCES

a) Local library and IT resources

ASU-FCIS has a central library which serves students and researchers in various fields besides the Digital Library to provide an online service for users. There is (1) central library with (3) sections according to the following:

- The student library contains (1405) books.
- The teaching staff hall contains (3430) books.
- Digital Library Hall: The Digital Library serves to provide an online Service for users. It gives online access to the contents of the library, including books and theses. The digital library website: http://srv2.eulc.edu.eg/eulc_v5/libraries/start.aspx.

Other learning resources are the Egyptian Bank of Knowledge (EBK) through the website: http://www.ekb.eg/ "Egyptian Knowledge Bank", is one of the largest national projects that is concerned with education in Egypt. It aims to provide huge and diversified sources for knowledge and culture for free. It comes after contracting with several international publishing houses to publish their contents in all scientific and cultural disciplines, to have the system for the new Egyptian Cultural Revolution completed. Generally, 25 global publishing house and specialised companies were contracted to provide their contents & technologies.
E-Mail Services involved a developed Cooperation of the University with Microsoft Corporation to Serve Undergraduate and Postgraduate Students offering new features for the official e-mail users.

b) Other Local Resources Relevant to Support the Course

The faculty offers students Training Support through the faculty's **iHub Unit,** which aims to be a centre for innovation in technology and entrepreneurship, as to form a link between academic study and labour market. It provides technical and professional development to the students by offering training Courses to serve students and graduates at the same time. These training Courses aim to develop the creative sense of the trainees in order to integrate them into creative and innovative works that would serve the Information Technology field and the community. It emphasizes on the overlap between the different disciplines in various fields and at various levels.

FCIS Graduates unit revives the post-graduation engagement. It focuses on the rehabilitation of the graduates to the work environment to meet the needs of national and international software houses and IT companies. The unit

aims to reach out for the graduates, make use of their expertise in the job market and get to know the required services that can be offered by the faculty to them.

Employability and Career Development Centre (ECDC) is a Centre constructed through the collaboration between Ain Shams University and the American University, it has a permanent headquarter in Ain Shams University. It provides special training Courses for students in order to develop their capabilities in the professional and employment fields. The centre aims to guide the trainee to his excellence and weaknesses points, and how to raise points of excellence and overcome weaknesses.

In general students have access to over 280 modern computers. Faculty members and employees have access to over 100 additional computers.
The databases and information systems of faculty staff members, their assistants, students, graduate students, expatriates, administrators and libraries have been developed and updated. The databases are continuously updated.

The Faculty of Computer and Information Sciences has a website through the main website of Ain Shams University. The website is: https://cis.asu.edu.eg/. The website provides various services for students and faculty members by presenting the internal regulations of the bachelor's degree courses as well as post-graduate education. The site is being developed and data recorded within it are consistently updated. The contents of the various educational materials are displayed. The course schedules and exam results are announced at the end of the semester. The site is available in Arabic and English so that the user can choose the appropriate language. This site is regularly updated by site administrators and college administration. E-mail access is also available to the faculty members and the assistant staff and the students on the website of the College.

In order to update the educational services to the international standards, an online portal was developed in order to open the access to students and staff members to perform efficiently online. Students can view their courses, submit coursework and view their grades. Staff members can upload their lectures, view the online submissions and grade online. An information technology unit was set up for the electronic portal of the college to be the main focus of interaction between students and faculty.

QUALITY AND STANDARDS

You are enrolled on a course of study leading to the award of a degree of the University of East London (UEL). As such, you are regarded as a student at the University of East London as well as FCIS-CHP and both institutions work together to ensure the quality and standards of the course on which you are registered.

The final responsibility for all quality assurance, validation and standards' matters rests with UEL.

MORE INFORMATION

Link to the Student Handbook page on *Quality and Standards*:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Quality-and-Standards.aspx

EXTENUATING CIRCUMSTANCES

Extenuating Circumstances are circumstances which:

- impair your examination performance or prevent you from attending examinations or other types of assessment, or
- prevent you from submitting coursework or other assessed work by the scheduled deadline date, or within 24 hours of the deadline date

The University of East London has agreed, through Academic Board, procedures governing extenuation for students concerning the assessment process.

This course will be subject to equivalent procedures, with the process being administered by, and the panel being held within, FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS- ASU).

General Information about extenuation can be found at
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Extenuation-Procedures

The University of East London has agreed, through Academic Board, procedures governing extenuation for students concerning the assessment process.

Digital Multimedia Course will be subject to equivalent procedures, with the process being administered by, and the panel being held within Ain Shams University – Faculty of Computer and Information Sciences.

- If granted by the panel, **Extenuation can**
  - Allow students to hand in coursework up to 7 days late.
    or
  - Allow students to proceed to their next attempt uncapped.

- **Extenuation doesn't**
  - Give students more attempts to pass a module
  - Reschedule exams
  - Uncap a capped module
  - Give students a higher mark.
  - Allow students to hand in work over 7 days late

- The basic principle is that extenuation should put you in the same position that you would have been in had you not missed the exam or handed in the assessment late – it does not confer any advantages.

- UEL decided that its procedures would be
  - Evidentially based
  - Handled centrally by a panel of senior staff (not devolved to various parts of the organisation)
  - Retain student anonymity where possible

- The extenuation procedures are intended to be used rarely by students not as a matter of course.

- The procedures govern circumstances which
  - Impair the performance of a student in assessment or reassessment
  - Prevent a student from attending for assessment or reassessment
  - Prevent a student from submitting assessed or reassessed work by the scheduled date

- Such circumstances would normally be
  - Unforeseeable - in that the student could have no prior knowledge of the event concerned
  - Unpreventable - in that the student could do nothing reasonably in their power to prevent such an event
  - Expected to have a serious impact

- Examples of circumstances which would normally be regarded as serious are:
  - *A serious personal illness* (which is not a permanent medical condition – this is governed by disability procedures)
  - *The death of a close relative immediately prior to the date of assessment*

- Examples of circumstances which would *not* normally be regarded as extenuating circumstances are:
  - Failure of computer equipment / USB stick
  - Transport problems, traffic jams, train delays
  - Misreading the exam timetables / assessment dates
  - Minor illnesses

- The judgement as to whether extenuation is granted is made by a panel of senior persons in the organisation who make this judgement on the basis of the evidence the student provides (not on their knowledge of the student) – where possible the identity of the student is not made available to the panel. The judgement is made on the basis that the circumstances could reasonably be thought to be the sort of circumstances which would impair the performance of the student etc. The actual performance of the student is not considered and is not available to the panel.

➢ It is the responsibility of the student to notify the panel, with independent evidential documentary support, of their claim for extenuation.

Link to the Student Handbook page on **Extenuation**:
https://uelac.sharepoint.com/sites/studenthandbooks/SitePages/Extenuation.aspx

KEY LINKS

Academic Appeals
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Student-Appeals

Academic Integrity
https://uelac.sharepoint.com/LibraryandLearningServices/Pages/Academic-integrity.aspx

Academic Tutoring
https://www.uel.ac.uk/centre-for-student-success/academic-tutoring

Accreditation of Experiential Learning
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations

Assessment and Feedback Policy
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies (click on other policies)

Centre for Student Success
https://www.uel.ac.uk/centre-for-student-success

Complaints procedure
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Student-Complaint-Procedure

Counselling
http://chp-cis.asu.edu.eg/index.php/c-administration/

Disability support
http://chp-cis.asu.edu.eg/index.php/c-administration/

Engagement & Attendance Policy
http://chp-cis.asu.edu.eg/index.php/important-bylaw-regulations/

Equality and Diversity Strategy
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies (click on other policies)

Extenuation Procedures
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Extenuation-Procedures

IT Support
https://ums.asu.edu.eg/

Library Resources
http://srv2.eulc.edu.eg/eulc_v5/libraries/start.aspx.

Manual of General Regulations
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations

Mentoring
https://www.uel.ac.uk/centre-for-student-success/mentoring

Referencing guidelines
https://uelac.sharepoint.com/LibraryandLearningServices/Pages/Harvard-Referencing-.aspx

Student Protection Plan
https://www.uel.ac.uk/-/media/main/files/uel_student_protection_plan_202021.ashx

Suitability Procedure (Manual of General Regulations – Part 13 – Suitability Procedure)
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Manual-of-General-Regulations

APPENDIX A: ACADEMIC APPEALS

- Students who wish to appeal against a decision of an Assessment /Progression Board may appeal in accordance with the procedure for Appeals against Assessment Board decisions (Manual of General Regulations: Part 7 Appeals Against Assessment Board Decisions).

- Disagreement with the academic judgement of a Board of Examiners' decision cannot -in itself- constitute a reason to Appeal. Academic judgement is a judgement that is made about a matter where only the opinion of an academic expert will suffice. For example, a judgement about assessment or degree classification or a judgement about a decision where a student is required to repeat or take further assessment will usually be academic judgement, and a student cannot appeal simply because they believe they ought to have received a higher grade or mark. For further information on the scope of this procedure, please refer to Part 7 of the Manual of General Regulations.

- Further information about the UEL appeals process, including copies of the formal Notification of Appeal Form, is available to view at
- https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Student-Appeals

- To help you decide whether your query would be an Appeal or Complaint, please refer to https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies

- If you would like to lodge a formal appeal or have any queries, please email the Institutional Compliance Office at appeals@uel.ac.uk

APPENDIX B: COMPLAINTS

If you feel that you have not received the standard of service which it would be reasonable to expect, you may be entitled to lodge a complaint. Complaints should be used for serious matters, and not for minor things such as occasional lapses of good manners or disputes of a private nature between staff and students

Separate procedures exist for the following, which therefore cannot form the substance of a complaint:

- appeals against the decisions of Assessment Boards (**Manual of General Regulations : Part 7 Appeals Against Assessment Board Decisions**);
- appeals against annual monitoring reviews, transfer of research degree registration or oral examination decision for postgraduate research students (**Manual of General Regulations: Part 9 Research Degrees**);
- appeals against the decisions of the Extenuation Panel (**Manual of General Regulations: Part 6 Extenuating Circumstances**);
- complaints against the Students' Union (see the **Complaints Procedure** in the **Students' Union constitution**);
- appeals against decisions taken under disciplinary proceedings **(Manual of General Regulations: Part 12**);
- complaints about businesses operating on University premises, but not owned by our university (contact the Deputy Vice-Chancellor and Chief Operating Officer);
- complaints about the behaviour of other students (see **Part 12 of the Manual of General Regulations this Manual**);
- appeals against the decisions of Academic Misconduct Panels (see **Part 8 of the Manual of General Regulations**)
- appeals against the decisions of Attendance Appeal Panels (see the **University's Attendance Policy**).

Students wishing to submit a complaint must, in the first instance, follow the complaints policy of which aligns to the Office of the Independent Adjudicator's good practice framework (https://www.oiahe.org.uk/media/96361/oia-good-practice-framework.pdf).
The FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS- ASU) complaints policy is available at:
https://elearning.cis.asu.edu.eg/undergraduate/

 FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS- ASU)will administer all stages of its complaints policy and, upon exhaustion of this policy, will issue a formal letter to the complainant notifying them that its complaints policy has been exhausted. If the complainant is still not satisfied with the outcome, they will be entitled to request that the University of East London undertake a review of their complaint.

The University of East London will conduct a review of the complaint in accordance with Stage 3 of its own Complaints Procedure. The University of East London Complaints Procedure is available at:

https://www.uel.ac.uk/discover/governance/policies-regulations-corporate-documents/student-policies/manual-of-general-regulations

The University of East London will administer the Stage 3 review in accordance with its Complaints Procedure and, upon completion of the review, will issue a Completion of Procedures Letter. If the complainant is still not satisfied with the outcome, they will be entitled to make a complaint to the Office of the Independent Adjudicator.

Complainants are strongly advised to make every reasonable effort to resolve their complaint informally through meeting with the member of FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS- ASU) staff most directly concerned with the matter, such as the Course or Module Leader, before submitting a formal complaint.

Complaints must normally be lodged within the set time limits outlined in the relevant complaints policy. This ensures that the people involved still remember the case, and the facts can be established.

If you would like to request that the University of East London undertake a review, following the exhaustion of the FACULTY OF COMPUTER & INFORMATION SCIENCES - AIN SHAMS UNIVERSITY (FCIS-ASU)complaints policy, please email the Complaints and Appeals Office at complaints@uel.ac.uk

APPENDIX C: ASSESSMENT MAPPING TABLES

Bachelor of Cyber Security (Hons) (Ain Shams University)							BSc Cyber Security (Dual Award)						
Code	Module Name	Credit hour	C/W	C/W Weightage	Exam	Exam Weightage	Module Code	Module Name	Credit Weighting	C/W	C/W Weightage	Exam	Exam Weightage
CIS270	Object Oriented Programming	3	Practical	20%	Final	50%	AS4001	Fundamentals of Programming	20	In-class Test (120 minutes)	50%		
			In-class Test	15%						Assignments (20 hours of student effort)	30%		
			Assignments	15%									
CIS250	Data Structures	3	Practical	20%	Final	50%				Practical (40 hours of student effort)	20%		
			In-class Test	15%									
			Assignments	15%									
BSC221	Mathematics (3)	4	In-class Test	15%	Final	60%	AS4002	Mathematics for Computer Scientists	20	In-class Test (120 minutes)	60%		
			Assignments	25%						Assignments (60 hours of student effort)	40%		
BSC225	Mathematics (4)	4	In-class Test	15%	Final	60%							
			Assignments	25%									
SEC230	Web Development	3	Practical	20%	Final	50%	AS4056	Secure Web Development	20	In-class Test (120 minutes)	50%		
			In-class Test	15%						Assignments (20 hours of student effort)	30%		
			Assignments	15%									
SEC410	Selected Topic 1 (Web Security)	3	Practical	20%	Final	50%				Practical (40 hours of student effort)	20%		
			In-class Test	15%									
			Assignments	15%									
SCC 230	Operation Research	3	Practical	20%	Final	50%	AS4004	Mental Wealth: Professional Life 1 (Operations Research and	20	In-class Test (120 minutes)	50%		
			In-class Test	15%									
			Assignments	15%									

Code	Course	Cr.	Assessment	%	Final/Exam	%		Code	Course	Cr.	Assessment	%	Exam	%
HUM118	Communication and Negotiation Skills	2	In-class Test	15%	Final	60%			Communication Skills)		Assignments (40 hours of student effort)	40%		
			Assignments	25%							Practical (20 hours of student effort)	10%		
SCC230	Operating Systems	3	Practical	20%	Final	50%		AS4006	Operating systems and Computer Networks	20	In-class Test (120 minutes)	50%		
			In-class Test	15%							Assignments (20 hours of student effort)	30%		
			Assignments	15%							Practical (40 hours of student effort)	20%		
SEC202	Introduction to Computer Networks	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
CSY260	Logic Design	3	Practical	20%	Final	50%		AS4057	Statistics and Logic Design	20	In-class Test (120 minutes)	50%		
			In-class Test	15%							Assignments (40 hours of student effort)	40%		
			Assignments	15%							Practical (20 hours of student effort)	10%		
BSC223	Probability and Statistics	3	In-class Test	15%	Final	60%								
			Assignments	25%										
INF370	Database Management	3	Practical	20%	Final	50%		AS5058	Database Management and Security	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC304	Database Security	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
CSC343	Artificial Intelligence	3	Practical	20%	Final	50%		AS5059	AI and Internet of Things	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										

Code	Course	Cr	Assessment	%		%		Code	Course	Cr	Assessment	%		%
			Assignments	15%										
SEC306	Internet of Things	3	Practical	20%	Final	50%					Assignments (20 hours of student effort)	30%		
			In-class Test	15%										
			Assignments	15%										
SEC302	Defensive Programming	3	Practical	20%	Final	50%					Practical (10 hours of student effort)	10%		
			In-class Test	15%				AS5060	Defensive Programming and Risk Assessment	20			Exam 120 minutes	50%
			Assignments	15%							Assignments (20 hours of student effort)	40%		
SEC301	Information Security Risk Assessment	3	In-class Test	15%	Final	60%								
			Assignments	25%										
SEC305	Biometrics	3	Practical	20%	Final	50%					Practical (10 hours of student effort)	20%		
			In-class Test	15%				AS5061	Biometrics and Digital Forensics	20			Exam 120 minutes	50%
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC303	Fundamentals of Computer Forensics	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
INF380	System Analysis and Design	3	In-class Test	15%	Final	60%					Practical (10 hours of student effort)	10%		
			Assignments	25%				AS5062	System Design and Assembly Language	20			Exam 120 minutes	50%
CSY350	Assembly Language	3	Practical	20%	Final	50%					Assignments (20 hours of student effort)	40%		
			In-class Test	15%										
			Assignments	15%										
CSC340	Analysis and Design of Algorithms	3	Practical	20%	Final	50%					Practical (10 hours of student effort)	10%		
			In-class Test	15%				AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20			Exam 120 minutes	50%
			Assignments	15%							Assignments (20 hours of student effort)	40%		
HUM216	Professional Ethics and Legal Aspects	2	In-class Test	15%	Final	60%								

Code	Name	Cr.	Component	%	Final	%		Code	Name	Cr.	Component	%	Exam	%
			Assignments	25%										
SEC403	Computer and Network Security	3	Practical	20%	Final	50%		AS6063	Network and Cloud Security	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC411	Selected Topic 2 (Cloud Computing)	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
SEC401	Applied Cryptography	3	Practical	20%	Final	50%		AS6064	Applied Computer Security Concepts	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC404	Intrusion Detection and Prevention	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
SEC405	Big Data Analytics	3	Practical	20%	Final	50%		AS6065	Mobile Big Data	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC402	Mobile Computing	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
SEC406	Introduction to Number Theory	3	Practical	20%	Final	50%		AS6066	Number Theory and Cryptography	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%							Assignments (20 hours of student effort)	30%		
SEC407	Number Theory and Cryptography	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										

PRO400	Project	6	8000-word project report plus 20 minutes presentation	75%			AS6020	Mental Wealth: Professional Life 3 (Project)	40	8000-word project report plus 20 minutes presentation	75%	
			Intermediate deliverables	25%								
TRNxxx	2 Summer Trainings	4	20 minutes presentation	25%						1000-word Intermediate deliverables	25%	
			Intermediate deliverables	75%								

An example for the assessment mapping between ASU and UEL is given for the Module "Computer Networks and Operating Systems". At the Egyptian Bylaw, the two-courses components are the practical, In-class test, Assignment and Final exam with their weights. The table shows an example for marks by a student for every component as both out of 100 and as assessment weightage on the ASU mark range. The marks by assessment weightage for the different categories can be assembled for the two ASU courses providing the student total marks out of 200 marks (155 for the example shown).

The assessment weightage of ASU is next mapped to the assessment weightage of UEL since two ASU courses forms a single UEL module. The table also shows the components' mapping visualized by colour. The student marks on the UEL mark range can be then calculated forming a student total mark out of 100 (77.5 for the example shown).

Since the ASU and UEL uses different grading and Pass/Fail systems as highlighted by the table on p. 65, the mark that the student obtained (77.5) is scaled on the UEL range to obtain the percentage equivalent according to the UEL Bylaw (61.13).

Description	ASU-FCIS									UEL		
	SEC 202 Introduction to Computer Networks				CSC 352 Operating Systems					AS4006 Computer Networks and Operating Systems		
	Practical	In-Class Test	Assignment	Final Exam	Practical	In-Class Test	Assignment	Final Exam		Practical	Assignment	Final Exam
Assessment weightage	20%	15%	15%	50%	20%	15%	15%	50%		20%	30%	50%

For example												
Marks by component (Full marks of 100) on ASU mark range	67	56	80	84	64	60	86	89				
Marks by Assessment weightage	13.4	8.4	12	42	12.8	9	12.9	44.5				

ASU-FCIS Assessment weightage category	ASU-FCIS total weightage	Marks by Assessment weightage cateogry			UEL Assessment weightage category	UEL total weightage	Marks by Assessment weightage cateogry
Practical	40%	26.2			Practical	20%	13.1
In-Class Test	30%	17.4			Assignment	30%	21.15
Assignment	30%	24.9			Final Exam	50%	43.25
Final Exam	100%	86.5				100%	77.5
	200%	155					

% Equivalent at UEL = 61.13

APPENDIX D: HEALTH AND SAFETY

- One of the principle roles of Ain Shams University administration is controlling dangers and risks. The University is aware that failures in health and safety administration can possibly prompt loss of life, injury, and damage to the University properties.

- According to the University, a fundamental standard of the Health and Safety policy is that it is in the hands of the individuals who cause the dangers and risks to manage and control them.

- The University appoints persons "capable to advice" to help with identifying, recognizing, and controlling health and security dangers and risks. They may work in any sector of the University.

- Each College of the University holds a responsibility regarding the management and use of its own health and security policies and strategies. Despite that, the University and Colleges are still obliged to coordinate on the mutual matters of health and security which affect the more extensive University community.

- Heads of the different Departments must set out their own organizational courses of action for the safety measures. In addition, they abide by the general University Health and Safety Policies and are responsible for their implementation and management in their own departments and domains of responsibility.

- Each Head of Department might set up a Departmental Safety Policy, which works hand in hand with this University Health and Safety Policy to satisfy the prerequisite Health and Safety at Work measures.

- Each Head of Department must guarantee that everybody who might be influenced by the activities of the Department, knows about the health and security policies and arrangements, and has sufficient knowledge, information, time, preparation and supervision authority to allow for the identification, recognition and control of the dangers and risks to health and security.

- The supervisor of any departmental activity (field trip, practical work, office work or teaching activities) must have a comprehensive understanding of the related dangers and risks and conduct the risk assessment suitable for the circumstances of the activity. This is to fulfil the requirements of the Health and Safety at Work Regulations and different measures which state that no work might be attempted unless reasonable and adequate risk assessment has been done to define a safe and secure system of work.

- All University staff members are expected to be fully aware of both the University and Department policies and know that they hold the responsibility of this aspect for all those under their supervision or management. This implies ensuring and promoting good working practices and environment. It also includes ensuring that practical and office work is done in safe spaces, equipment being maintained and checked in safe procedures, that the policies and strategies are being implemented and disseminated and that immediate reporting of any accidents or dangers takes place in order to take the necessary measures.

- The health and safety policy are also abiding to any private body or entity working inside the University premises. They must coordinate with the University on all matters related to health and safety management.

APPENDIX E: COURSE COMMITTEE (COLLABORATIVE)

Terms of Reference

To be responsible for assuring and enhancing the quality of the student experience at Course level by:

- Providing a forum in which students can express their views about the management of the Course, and the content, delivery and assessment of modules, or equivalent, in order to identify appropriate actions to be taken in response to the issues raised and to ensure that the implementation of these actions is tracked.

- Providing formal yearly student feedback on the Course as input into the preparation of the Course REP.

- Reviewing Course questionnaire results and making recommendations and changes arising from these.

- Receiving, considering, and approving the Course REP and identifying responsibilities for action to be taken before it is considered by School Learning and Teaching Quality Committee.

- Reviewing progress on REP action plans at each meeting.

- Reviewing the relevant documentation and other evidence prepared for Academic and collaborative Institutional Review and other external review processes.

- Reviewing proposals for modification of the Course structure (validated Courses only) and noting implementation arrangements for modifications.

- Advising the Course Leader on mechanisms by which University policy statements, which have an impact on Course design and delivery, are implemented.

MEMBERSHIP

Course Leader (Chair)
Administrator/Servicing Officer (ex-officio)
Course staff making a significant teaching contribution to the Course
Learning Support Services representative
Technician representative (for laboratory-based Courses)
Dean of School/department or equivalent (ex officio)
UEL Dean of School/Associate Dean of School, or equivalent (ex officio)
UEL link person (ex officio)
Two student representatives for each level and at least one part-time student (where appropriate)

The meeting will be held once per semester/term and will be quorate if 40% of the members are present.