BSc (Hons) in Software Engineering

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 the 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 its 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) **Software Engineering** 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) Software Engineering 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) Software Engineering Course opens career opportunities to its graduates in the software systems' design and development, quality assurance, project management, software testing, web engineering, data analytics, and much more. It prepares graduates with the ability to produce software, test its quality, calculate its cost in accordance with the required quality standards and increase scientific awareness and practical research in the field of software engineering. The SWE course meets the increasing market demand for this specialization at the national, regional, and international levels.

Course Intended Learning Outcomes (ILOs)

The graduates of the Software Engineering Course should be able to:

- Apply systematic, disciplined, quantifiable approaches to the cost-effective development, operation, and maintenance of software systems to the satisfaction of their beneficiaries.
- Build software solutions using different technologies, and life-cycle approaches in the context of different organizational structures, with demonstrated programming expertise.
- Foster the development, adoption, and sustained use of standards of excellence for software practices.
- Differentiate software process models.
- Have hands-on experience of software analysis, modelling, design, and quality assurance of software systems.
- Evaluate software systems based on universal metrics.
- Apply software engineering methodologies in the different phases of the software engineering lifecycle.
- Assess and evaluate the performance of software systems.
- Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution.
- Build safety-critical and real-time software systems.
- Communicate effectively and think critically about a wide range of issues arising in the context of working constructively on software 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

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┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│ ASU BSc (Hons)      │      │ ASU BSc (Hons)      │      │ ASU BSc (Hons)      │
│ courses (year 1)    │ ───▶ │ courses (year 2)    │ ───▶ │ courses (year 3)    │
│                     │      │ &                   │      │ &                   │
│                     │      │ UEL BSc (Hons)      │      │ UEL BSc (Hons)      │
│                     │      │ courses (level 4)   │      │ courses (level 5)   │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
                                                                      │
                                                                      ▼
                                                           ┌─────────────────────┐
                                                           │ ASU BSc (Hons)      │
                                                           │ courses (year 4)    │
                                                           │ &                   │
                                                           │ UEL BSc (Hons)      │
                                                           │ courses (level 6)   │
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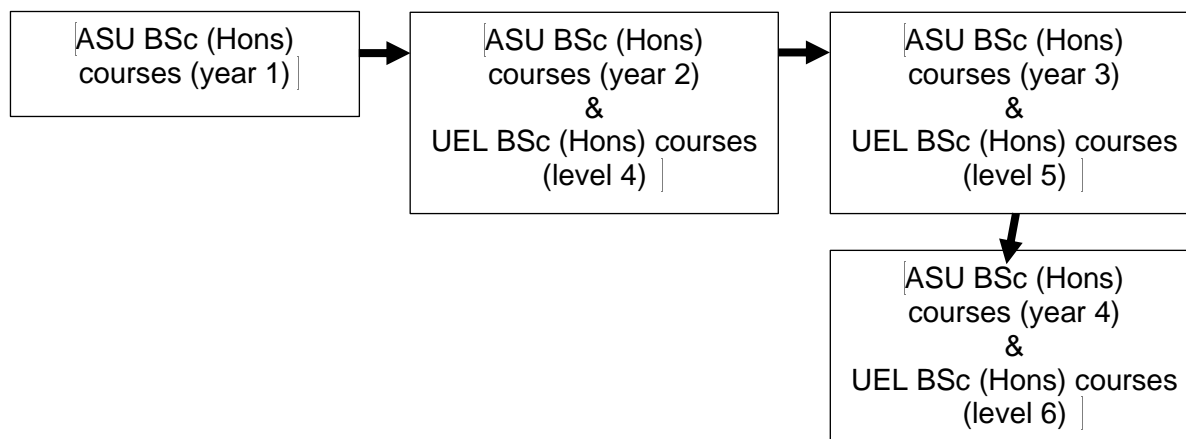
The Course structure can be seen in Table 2.1 (module codes are subject to change).

Table 2.1 BSc (Hons) Software Engineering 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	AS4003	Digital Design and Computer Architecture	20	Core
4	2	AS4026	Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	20	Core
4	2	AS4005	Mental Wealth: Professional Life 1 (Database Systems and Reports)	20	Core
4	2	AS4027	Statistical Data Mining	20	Core

5	3	AS5028	AI for Safety Critical Systems	20	Core
5	3	AS5029	Mental Wealth: Professional Life 2 (Software Requirements Engineering)	20	Core
5	3	AS5030	Algorithms and Design Patterns	20	Core
5	3	AS5006	Computer Networks and Operating Systems	20	Core
5	3	AS5031	Computer Graphics and Software Metrics	20	Core
5	3	AS5032	Real-Time Web Engineering	20	Core
6	4	AS6033	Agile Software Development and Maintenance	20	Core
6	4	AS6034	Software Testing and Management	20	Core
6	4	AS6035	Advanced Analytics and Interface Design	20	Core
6	4	AS6036	Software Development Models	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) Software Engineering 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
SWE Course Leader and Contact Link ASU – FCIS
chp@cis.asu.edu.eg
srady@cis.asu.edu.eg

Assoc. Prof. Safaa Ameen
SWE Course Coordinator
safaa.ameen@cis.asu.edu.eg

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

Mr. Mohamed Ayad & Mr. Amr Abdel Azim
SWE 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. 174)

Other Inquiries: +20-02-26855585 (ext.: 323)

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

4.1 Course Delivery

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.

4.2 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.

4.3 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) Software Engineering 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

Assoc. Prof. Safaa Ameen is the Course Coordinator for the BSc (Hons) Software Engineering Course. 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*.

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

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.

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:** ١٠	**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
Summary of module for applicants:		
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.		
Main topics of study:		
- 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)	**100%**	**1-7**

Assignments 40% (60 hours of student effort)		

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: Digital Design and Computer Architecture	Module Code: AS4003 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Manal Tantawy
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 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. It also gives an overview of the architecture and functions of computers and how the execution of the basic constructs takes place at the register level.

Main topics of study:

- Numbering systems, Arithmetic operations and logic gates
- Boolean algebra and canonical & standard forms
- Basic Combinational circuits design and analysis
- Decoders, encoders, demultiplexers and multiplexers
- Synchronous counters & frequency division
- Ripple counters, RAM, ROM and PLA
- Computer Abstraction and Technology
- Arithmetic for computers
- Assessing and Understanding Performance
- Enhancing Performance with Pipelining
- Exploiting Memory Hierarchy, Storage and other I/O topics
- Multicores and multiprocessors

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 different numbering systems, combinational logic and how to analyse and design combinational and sequential circuits. (DP)
2. Describe the register level machine and the interfacing and programming of sensors
   and actuators. (DP)

Thinking skills

3. Identify the steps needed to design different combinational and sequential circuits.
4. Identify the different levels of description of the same computational process and the criteria and specifications appropriate to specific problems, and plan strategies for their solution. (IC)

Subject-based practical skills

5. Design combinational and sequential circuits using different logic gates, decoders, multiplexers, and flip-flops. (COI)

6. Use RISC Processor with all its internal modules using a suitable hardware description language. (DP)

Skills for life and work (general skills)

7. Solving common problems by working coherently with others in a small group to provide hardware solutions for basic computer tasks. (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 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
LaMeres, B.J., 2019. *Introduction to Logic Circuits & Logic Design with VHDL*. Springer.
Patterson, D.A. and Hennessy, J.L., 2016. *Computer Organization and Design ARM Edition: The Hardware Software Interface*. Morgan kaufmann.

Live, applied project: **Students will be required to work on a simulation 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:	Module Code: AS4026	Module Leader:
Mental Wealth; **Professional Life** *1* *(*Software Engineering and Communication Skills)	**Level:** 4 **Credit:** 20 **ECTS credit:** 10	Dr. Huda 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 gives students a thorough introduction to software engineering and effective negotiation skills. This module enables students to understand and assess the potential, limitations, and the factors critical to the successful development of a software project on an organizational level. In addition, it helps students to improve their negotiation skills and communicate effectively among their colleagues. This module assumes no prior knowledge of the topic.

Main topics of study:

- Introduction to Software Engineering and Software Development Lifecycle (SDLC).
- Software Processes.
- Requirements Engineering.
- Analysis and Modelling.
- Architectural Patterns.
- Software Testing.
- Deployment and Maintenance.
- Technical Metrics for Software.
- Strategy and diplomacy in negotiation.
- Resolving Conflicts.
- Body language and emotions.
- Common Errors in Negotiation.
- Elements and tactics of successful negotiation.

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 major characteristics of software development projects. (IC)
2. Explain the different phases in the software development lifecycle. (IC)
3. Describe systematic approaches of negotiation planning. (PID)

Thinking skills

4. Identify problems from written descriptions to satisfy given requirements. (PID)
5. Recognize the importance of managing requirements in software development. (COI)
6. Identify pitfalls and common errors in negotiations. (EID)

Subject-based practical skills

7. Use tools and techniques to support the different stages of software development lifecycle. (DP)
8. Use different negotiation strategies. (CID, UGB)

Skills for life and work (general skills)

9. Solve and neutralize difficult negotiations. (SID, PID)

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

Lectures will be used to introduce the software development life cycle and the negotiation skills. Case studies will be used to reinforce the understanding of the material. Practical labs will focus on gaining the necessary practical skills of defining the pros and cons of different software models and negotiation approaches. 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%**	**1-9**

Reading and resources for the module:

Core
Sommerville, I. (2016) *Software Engineering.* 10th Revised edition. Pearson.
George Baisley. (2016) *Communication Skills: How to Master the Art of Negotiations.* Vol 3.

Recommended
Mall, R., 2018. *Fundamentals of software engineering.* PHI Learning Pvt. Ltd.

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

Live, applied project: Develop an information system following all development life cycle activities**.**

Indicative learning and teaching time (10 hrs per credit):	Activity

1. Student/tutor interaction:	
48 hours	Lectures
24 hours	Labs
2. Student learning time:	
128 hours	Essential reading, private study, groupwork, practical work and assessment preparation
Total hours (1 and 2):	200 hours

Module Specification

Module Title: *Mental Wealth;* ***Professional Life*** 1 (Database Systems and Reports)	Module Code: AS4005 Level: 4 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 allows the student to think in a systematic and methodological way about database (DB) issues, design relational database management systems and build reports related to them. It develops students' competence and equip them with specific writing and technical skills so that they can either work effectively as database professional designer and developer who have a strong awareness of the environment in which they operate and/or be able to pursue DB oriented academic/industry study. It also makes the students familiar with writing skills considering various kinds of job writing and the strategies appropriate to each. It also discusses technical reports, research techniques and practices different soft skills required for various job needs. This module assumes knowledge of system development lifecycle and basic programming knowledge.

Main topics of study:

- Database system concepts and architecture.
- Data modelling using the Entity-Relationship (ER) and the Enhanced Entity-Relationship (EER) models.
- Relational database design by ER-and EER-to relational mapping.
- Functional dependencies and normalization for relational databases.
- Structured Query Language (SQL).
- Data organization and retrieval techniques.
- Transaction processing and management.
- Overview of query processing and optimization.
- Skills and techniques required for good technical writing.
- Manuscript preparation ethical issues.
- Professional communication (writing business letters, emails, etc.).
- Fundamentals of presentation.
- Writing in the field of computer science and database management 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. Explain technical writing properties and ethical issues. (EID)
2. Describe and evaluate the structure and underlying principles of a relational DBMS and assess the security, legal and ethical issues in database design. (DP)

Thinking skills

3. Identify the audience to meet their needs. (SID)
4. Assess technical communication for clarity, accuracy, and organization. (SID, CID)
5. Identify various database models and demonstrate the understanding of logical design and structure of a database. (COI)

Subject-based practical skills

6. Design, develop and implement a database solution using an industry standard DBMS and languages. (IC)
7. Use rules of professional writing ethics to create effective technical correspondences. (EID, PID, UGB)

Skills for life and work (general skills)

8. Solve problems by developing interpersonal skills through working, communicating, and collaborating via verbal and written forms. (SID, CC)

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

Lectures will be used to introduce the basic database management and reporting 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 40% (40 hours of student effort) Practical 10% (20 hours of student effort)	**100%**	**1-8**

Reading and resources for the module:

Core
Hering, H., Hering, H. and Baumann, 2019. How to write technical reports. Springer Berlin Heidelberg.
Raymond Greenlaw. (2012) *Technical Writing, Presentation Skills, Online Communication: Professional Tools and Insights*. Information Science Reference, ISBN 978-1-4666-0238-0.

Recommended
Gillenson, M. (2019) Fundamentals of Database Management Systems 2nd Edition
Bailey, S. (2011) Academic Writing A Handbook for International Students 3rd 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 asked to design and develop a database system for specific business domain and prepare its documentation.

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, assignment planning and preparation, group work and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Statistical Data Mining	Module Code: AS4027 Level: 4 Credit: 20 ECTS credit: 10	Module Leader: Dr. Wedad Hussein
Pre-requisite:	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 helps students to understand the concept of data mining and provides them with a sufficient background of statistical and inference methods used in analysing different types of data. This module encourages students to build the required knowledge in many recent areas like fuzzy algorithms, rough sets, genetic algorithms, and neural networks.

Main topics of study:
- Data Exploration Techniques
- Measures of Central Tendency and Variability
- Correlation and Regression
- Sampling, Point estimates, Central limit theorem.

- Statistical Inference, Confidence intervals for the sample mean and proportion, deciding the sample size.
- Tests of Hypotheses.
- Type I and Type II error.
- Inference about the variance, Chi-square distribution.
- Confidence Intervals.
- Data Mining Process.
- Association rules.
- Classification and Prediction Techniques.
- Clustering 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 different types of Data using graphical representation. (COI, DP)
2. Explain statistical and inference methods. (COI)
3. Describe data mining techniques. (COI)

Thinking skills

4. Identify hypothesis tests and types of errors. (COI)
5. Identify Data Mining techniques for decision making. (COI)

Subject-based practical skills

6. Use graphical representations for Data analysis. (DP)
7. Implement data mining techniques using appropriate tools. (DP)

Skills for life and work (general skills)

8. Demonstrate the ability to work in learning group to solve real applications. (CC, COI)

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

Lectures will be used to introduce the data mining techniques and statistics. Practical labs 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:
Devore, J.L., 2015. *Probability and Statistics for Engineering and the Sciences*. Cengage Learning.
Aggarwal, C.C., 2015. *Data mining: the textbook*. Springer.

Recommended
Pishro-Nik, H., 2016. Introduction to probability, statistics, and random processes.

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

Live, applied project: Develop a solution for real problem using mining and statistics techniques.

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 reading, private study, groupwork, practical work and assessment preparation
Total hours (1 and 2):	200 hours

Module Specification

Module Title: *Mental Wealth;* ***Professional Life*** 2 (Software Requirements Engineering)	**Module Code:** AS5029 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Huda Amin
Pre-requisite: N/A	**Pre-cursor:**	

	Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 helps students to understand and apply a variety of management and technical concepts that relate to developing information systems. This module builds on existing knowledge of software engineering basics. The module focuses on using information gathering techniques for requirements elicitation, requirements specification, requirements quality, and managing changing requirements and then goes on to building requirements specification and system models.

Main topics of study:

- Requirements Engineering
- Product vision and project Scope
- Requirements negotiation and risk management
- Techniques for writing high-quality requirements
- Documentation standards
- Techniques for analysis and modelling
- Techniques for requirements traceability, priorities, changes and baselines

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 requirements engineering process activities. (COI)
2. Contrast legal constraints effect on system analysis and design. (COI, IC, CID)

Thinking skills

3. Analyse requirements techniques for a given business domain. (IC, EID)
4. Evaluate different techniques for requirements specification. (COI)

Subject-based practical skills

5. Use different techniques for writing high quality requirements. (DP, PID)
6. Implement requirements validation strategies for information systems. (DP, SID)

Skills for life and work (general skills)

7. Evaluate requirements and gathering techniques in groups. (SID, CC, UGB)

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

Lectures will be used to introduce the requirements engineering process activities. 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 requirements engineering 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 10% Assignments 40% (30 hours of student effort)	**50%**	**5-7**

Reading and resources for the module:

Core:
Dennis, A., Wixom, B.H. and Roth, R.M., 2018. *Systems analysis and design*. John wiley & sons.
Dick, J., Hull, E. and Jackson, K., 2017. *Requirements engineering*. 4th edition. Springer.

Recommended
Laplante, P.A., 2017. *Requirements engineering for software and systems*. CRC Press.

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

Live, applied project: *Develop a requirements specification document for an information system.*

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

Total hours (1 and 2):	200

Module Specification

Module Title: AI for Safety Critical Systems	Module Code: AS5028 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Sally Saad
Pre-requisite: N/A	**Pre-cursor:** Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 gives students a broad overview of Artificial Intelligence (AI) techniques to help them to choose the correct AI techniques for designing human-machine interaction and safety critical systems. This module enables students to understand the specific issues, problems and techniques associated with analysis, design, development, and verification of safety critical systems. This module builds on knowledge of software engineering process activities.

Main topics of study:

- Introduction to Artificial Intelligence
- Knowledge Engineering
- Expert Systems
- Rule-based and Case-based Reasoning
- Intelligent Agents
- AI Probabilistic Search Algorithms
- Machine Learning
- Developing Safety-Critical Systems
- Quality and Safety Plans
- Architectural Design
- Reliability and Modelling Techniques
- Risk Assessment

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 key methods, algorithms and techniques used in AI. (COI)
2. Explain variety of techniques for developing safety critical systems. (IC)

Thinking skills

3. Analyze a range of safety analysis techniques. (COI)
4. Analyze the Interpretation of intelligent frameworks for problem solving. (COI)

Subject-based practical skills

5. Implement a range of techniques to implement an intelligent system of a given specification. (DP, IC)
6. Explain the factors that lead to specific architectural design. (COI)
7. Use available AI tools. (DP)

Skills for life and work (general skills)

8. Solve problems in safety critical industrial applications. (IC)

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

Lectures will be used to introduce concepts of artificial intelligence techniques and safety critical systems development. Case studies will be used to reinforce the understanding of the material. Practical labs will focus on implementing and evaluating different tools and algorithms. 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
Flasiński, M., 2016. *Introduction to artificial intelligence*. Springer.
David Smith and Kenneth Simpson, 2016. *The Safety Critical Systems Handbook.* 4th Edition. Butterworth-Heinemann.

Recommended
Richter, M.M. and Weber, R.O., 2016. *Case-based reasoning* (p. 27). Springer-Verlag Berlin An.
Rausand, Marvin, 2014. *Reliability of Safety-Critical Systems: Theory and Applications.*

Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures
Live, applied project: Implement AI techniques using suitable tool and language.

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

Module Specification

Module Title: Algorithms and Design Patterns	Module Code: AS5030 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Walaa Khaled
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 an understanding of the fundamental concepts and paradigms of algorithms' complexity and algorithmic design. It also aims to provide a basic understanding of finding and describing concepts in the problem-solving domain and how to define software solutions that represent the analysis concepts and emphasize a logical solution based on objects. This module builds on existing knowledge of structured programming and data structures basics.

Main topics of study:
- Introduction to algorithms analysis, design and performance analysis   - Asymptotic performance & different sort algorithms   - Best, worst and average case analysis, growth of functions   - Recursion tree master theorem   - Order statistics algorithms   - Dynamic programming, Greedy algorithms, graph algorithms, P&NP complete problems   - Introduction to Object Oriented Analysis and Design (OOAD)   - Design Patterns: Elements of Reusable Object-Oriented Software, MVC Model

- Creational Design Pattern: Factory – Singleton – Builder – Prototype - Abstract Factory
- Structural Design Pattern: Adaptor – Bridge – Decorator – Composite -Façade – Flyweight – Proxy
- Behavioral Design Pattern: Chain of responsibility – Command - Interpreter - Iterator – Mediator – Memento – Observer – State – Null – Strategy – Template - Visitor

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 the concepts of time/space complexity, asymptotic analysis of algorithms and the fundamental techniques in algorithms design. (COI)
2. Contrast between different design patterns to be able to tackle the design activity. (COI)

Thinking skills

3. Analyze algorithms time complexity and interpret some useful applications of algorithms for the design paradigms. (COI)

4. Evaluate the solutions for a given problem to distinguish an appropriate solution. (COI)

Subject-based practical skills

5. Implement efficient algorithms for different medium sized problems using the studied techniques. (DP)
6. Use design patterns for solving real-life problems. (DP)

Skills for life and work (general skills)

7. Present both in written and oral forms the analysis and design of algorithms for solving problem in the correct scientific language and communicate with others effectively to build and defend projects. (DP, SID)

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

Lectures will be used to introduce the basic concepts of algorithms and design patterns. 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%**	**1-4**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**5-7**

Reading and resources for the module:

Core
Alsuwaiyel, M.H., 2016. *Algorithms: design techniques and analysis*. World Scientific.
Patterns, D., 2016. Elements of Reusable Object-Oriented Software.

Recommended
Braude, E.J. and Bernstein, M.E., 2016. *Software engineering: modern approaches*. Waveland Press.

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 different efficient algorithms and design patterns 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, groupwork, 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: AS5006 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. Analyze 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	Activity

(10 hrs per credit):	
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: Computer Graphics and Software Metrics	Module Code: AS5031 Level: 5 Credit: 20 ECTS credit: 10	Module Leader: Dr. Maryam Nabil
Pre-requisite: N/A		Pre-cursor: AS4002 Mathematics for Computer Scientists Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)
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 a broad exposure to the computer graphics field and the process of modelling and generating images of 2D and 3D objects. It then introduces the different types of metrics that can be used to measure software to conduct better project planning and cost estimation. Students will also have a working knowledge of software cost estimation and learn concepts and examples of software resource, process, and product. This module builds on existing knowledge of software engineering and applied mathematics basics.

Main topics of study:
- History of computer graphics and graphics systems   - Graphics output primitives   2D and 3D geometric transformations and viewing   - Three-dimensional object representations   - Visible-surface detection methods and surface-rendering methods   - Computer animation   - Overview and basics of software metrics   - Goal-based framework for software measurement   - Measuring internal product attributes: size and structure   - Measuring project cost, effort and reliability   - Software test metrics and object-oriented metrics

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 basic graphics systems, the main 2D and 3D graphics primitive, their attributes and transformations applied to them. (COI)
2. Identify the quantitative measurements of any software project and how they are used in decision making by software engineers. (IC)
3. Compare between the measure, measurement, metric and indicator. (COI)

Thinking skills

4. Analyse computing problems for different graphics algorithms, measure their performance and propose solutions to them. (COI)
5. Evaluate different types and scopes of software metrics and measure the effort and the cost of a software project using different estimation techniques. (COI)

Subject-based practical skills

6. Implement interactive graphics applications using graphics application programming interface that demonstrates 2D and 3D geometrical transformations, visibility detection and shading and illumination. (DP)
7. Design a full estimation workflow for different project types and advise with the appropriate estimation technique as per the proposed product nature.

Skills for life and work (general skills)

8. Evaluate the ethical, legal, and social responsibilities of a computing scientist in reporting the ultimate estimation technique for each type of project. (SID)
9. Work effectively as a member of a development team. (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:

Written Exam (120 minutes)	50%	1-5, 7
Coursework Practical 20% Assignments 30% (30 hours of student effort)	50%	6,8,9

Reading and resources for the module:

Core
Marschner, S. and Shirley, P., 2015. *Fundamentals of computer graphics*. CRC Press.
Fenton, N. and Bieman, J., 2014. *Software metrics: a rigorous and practical approach*. CRC press.

Recommended
Guha, S., 2018. *Computer Graphics Through OpenGL®: from theory to experiments*. CRC press.

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 real-life simulation 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, private study, assignment planning and preparation, groupwork and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Real-Time Web Engineering	Module Code: AS5032 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	Module Leader: Dr. Heba Khaled
Pre-requisite: N/A	**Pre-cursor:** Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 teaches students how to plan real-time systems in theory using established mathematical proofs and how to implement them in practice using the most common scheduling methods. It also provides web engineering fundamentals and examines systematic, disciplined, and quantifiable approaches to developing of high-quality, reliable and usable web applications. This module builds on previous knowledge of software engineering basics.

Main topics of study:

- Concepts, techniques, and standards in real time operating systems
- Task management and scheduling algorithms
- Queue and software timer management
- Interrupt and resource management
- Event groups and task notifications
- Low power and developer support
- Introduction to web engineering and web engineering processes
- Web applications modelling and design
- Web interaction and information design
- Web applications construction and deployment
- Web design patterns and testing web applications
- Content 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. Compare between hard, firm or soft real-time systems and demonstrate the impact of hardware architectures for real-time performance. (IC)
2. Recognize systematic methods for web systems development and identify the characteristics of web applications. (COI)

Thinking skills

3. Analyze the scheduling feasibility of a set of independent tasks and select resource policies and system services for inter tasks communication and synchronization. (COI)
4. Evaluate the different types of web design patterns and web testing strategies. (COI)

Subject-based practical skills

5. Develop efficient websites and use both backend and frontend web development tools. (DP)
6. Use different implementation choices and simulate executions. (DP)

Skills for life and work (general skills)

7. Work individually and within a team to solve new problems and plan and manage a project. (SID, EID)

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:
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
Hernández, J.E., Kravchenko, A., Zech, P., Minku, L.L., Grace, P. and Roy, R., 2019. Advances in Web Engineering. Advances in Web Engineering, p.361.

Recommended
Brandon, D.M. ed. (2008) *Software Engineering for Modern Web Applications: Methodologies and Technologies.* IGI Global.

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 real-life simulation 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, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title:	Module Code: AS6033	Module Leader:
Agile Software Development and Maintenance	**Level:** 6 **Credit:** 20 **ECTS credit:** 10	Dr. Huda Amin
Pre-requisite: N/A	**Pre-cursor:** Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 enables students to Identify the overall process of software maintenance and evolution as well as technical aspects of Agile. This module focuses on using agile software development techniques, factors influencing software maintenance, characteristics of agile development methods, long-term maintainability, and evolution. This module builds on comprehensive knowledge of software engineering process activities.

Main topics of study:

- Introduction to software maintenance
- Taxonomy of software maintenance and evolution
- Software maintenance models and standards
- Reengineering
- Legacy systems
- Impact analysis
- Agile project management
- Refactoring
- Test-driven development (TDD)
- Object calisthenics
- Pair programming
- Testing legacy code
- Design patterns

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. Select appropriate methodology for software maintenance. (COI)
2. Select appropriate solution for common problems encountered in adopting agile methods. *(IC)*

Thinking skills

3. Evaluate software performance. (COI)
4. Evaluate the purpose behind common agile practices. (COI)

Subject-based practical skills

5. Implement the red, green, refactor cycle of TDD to solve procedural problems (COI)
6. Use software tracking change management and versioning tools. (DP)
7. Select legacy code refactoring and apply the object calisthenics ruleset to bring it in line with modern Agile standards and enhance the software design (DP)

Skills for life and work (general skills)

8. Reflect the ability to participate effectively in agile practices/process for software development. (SID)

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

Lectures will be used to introduce maintenance and evolution process activities. Case studies will be used to reinforce the understanding of the material. Practical labs will focus on gaining the necessary practical skills of applying agile methods and software maintenance 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%**	**1-5**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**6-8**

Reading and resources for the module:

Core
Pedro M. Santos, Marco Consolaro, Alessandro Di Gioia. (2019) *Agile Technical Practices Distilled. Become agile and efficient by mastering software design.*
Tripathy, P. and Naik, K. (2014) *Software evolution and maintenance: a practitioner's approach.* John Wiley & Sons.

Recommended
Reifer, D.J., 2016. *Software Maintenance Success Recipes.* CRC Press.

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

Live, applied project: Develop an information system applying the agile methods*.*

Indicative learning and teaching time (10 hrs per credit):	Activity
1. Student/tutor interaction: 48 hours 72 hours	Lectures Labs and Tutorials
2. Student learning time: 80 hours	Essential reading, private study, groupwork, practical work and assessment preparation.
Total hours (1 and 2):	200

Module Specification

Module Title: Software Testing and Management	Module Code: AS6034 Level: 6 Credit: 20 ECTS credit: 10	Module Leader: Dr. Rasha Ismail
Pre-requisite: N/A	Pre-cursor: Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 study software project management as well as software quality areas, including quality definition, software quality assurance processes, software quality standards and software testing. This module helps students learn effective testing techniques and metrics for managing quality assurance in addition to identifying the impact of IT projects on the performance of the organizations. This module builds on comprehensive knowledge of the software engineering phases and activities.

Main topics of study:

- Software development life cycle.
- Project and Process Metrics.
- Project management tools.
- Software quality definition.
- Software quality factors.
- Software testing strategies.
- Software quality assurance cost estimation.

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 the appropriate software project plan.
2. Select the scope of software quality assurance project. (COI)

Thinking skills

3. Critique testing techniques for given problems. (COI)
4. Evaluate the feasibility of a project and select the best solution.

Subject-based practical skills

5. Implement software testing principles and fundamental test processes. (DP)
6. Select project management software to manage the design, implementation, closure, and evaluation of IT projects. (DP)
7. Construct the software test plan (STP) and software test report (STR).

Skills for life and work (general skills)

8. Reflect on the importance of IT audits.

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:
Lectures will be used to introduce the project management and software testing process. Practical labs 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%**	**1-4**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**5-8**

Reading and resources for the module:

Core
Jorgensen, P.C., 2018. *Software testing: a craftsman's approach*. CRC press.
Meredith, J.R., Mantel Jr, S.J. and Shafer, S.M., 2017. *Project management: a managerial approach*. John Wiley & Sons.

<table>
<tr><td colspan="2">Recommended
Hass, A.M., 2014. <i>Guide to advanced software testing</i>. Artech House.</td></tr>
<tr><td colspan="2">Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures

<i>Live, applied project</i>: Develop a project plan for software system using project management tool.</td></tr>
<tr><td>Indicative learning and teaching time
(10 hrs per credit):</td><td>Activity</td></tr>
<tr><td>1. Student/tutor interaction:
48 hours
48 hours</td><td>Lectures
Practical labs</td></tr>
<tr><td>2. Student learning time:

 104 hours</td><td>Assignment preparation, private study, online search, and project group work.</td></tr>
<tr><td>Total hours (1 and 2):
200</td><td>200</td></tr>
</table>

Module Specification

<table>
<tr><td>Module Title:
Advanced Analytics and Interface Design</td><td>Module Code: AS6035
Level:6
Credit:20
ECTS credit:10</td><td>Module Leader:
Dr. Sherin Rady</td></tr>
<tr><td>Pre-requisite: N/A</td><td colspan="2">Pre-cursor:
AS5030 Algorithms and Design Patterns</td></tr>
<tr><td>Co-requisite: N/A</td><td>Excluded combinations:
N/A</td><td>Suitable for incoming study abroad? Y</td></tr>
<tr><td colspan="3">Location of delivery: ASU</td></tr>
<tr><td colspan="3" align="center">Summary of module for applicants:

This module intends 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. It also aims to provide students with the major models and techniques for the user interface designs. This module assumes no prior knowledge of the topic.</td></tr>
<tr><td colspan="3" align="center">Main topics of study:

Introduction to big data, big data environment, big data analytics and data science
Data analytics lifecycle into practice
Basic data analytic methods - i: exploratory data analysis
Basic data analytic methods - ii: statistical methods for evaluation
Basic data analytic methods - iii: visualization and plotting
Advanced data analytics
Technology and tools for big data
Introduction to UI design and why it matters</td></tr>
</table>

- Usability engineering
- Interaction styles and learnability
- Design principles and efficiency
- Human error and safety
- User interface software architecture
- User interface critique analysis
- Interface prototyping techniques
- Evaluation and user testing

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 the concepts, architectural components, programming models and techniques which offer the potential of the design and implementation of a big data analytics project. (COI)
2. Select the machine learning techniques, which can be applied to analyse and extract useful information from complex data stores.
3. Recognise prototyping and evaluation techniques that are required for creating interfaces that facilitate good user experiences.

Thinking skills

4. Evaluate the appropriate solutions concepts and evaluation methods to solve big data problems and validate outcomes of a developed system and its compliance to initial requirements. (COI)
5. Evaluate the appropriate concepts and techniques to design and evaluate interface for a wide variety of users from around the world. (IC)

Subject-based practical skills

6. Implement an effective solution to a big data real-world problem using a wide range of big data tools, techniques, programming skills and visualization tools. (DP)
7. Implement machine learning techniques that are suitable for the applications under consideration and statistical methods to assess experimental test results. (DP)
8. Select suitable techniques for the interface design, including requirements elicitation, prototyping and evaluation. (COI)

Skills for life and work (general skills)

9. Reflect on presenting experimental results orally. (PID, SID)

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 principles for big data analytics and user interface design. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to demonstrate and 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
Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., Elmqvist, N. and Diakopoulos, N., 2016. *Designing the user interface: strategies for effective human-computer interaction*. Pearson.
EMC[2]. (2015) *Data Science and Big Data Analytics: Discovering, Analysing, Visualizing and Presenting Data*. Wiley

Recommended
Erl, T., Khattak, W. and Buhler, P., 2016. *Big data fundamentals: concepts, drivers & techniques*. Prentice Hall Press.

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

Company sponsorship: Students apply for the EMC Proven Professional Data Scientist Associate (EMCDSA) certification

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

Module Specification

Module Title:	Module Code: AS6036	Module Leader:
Software Development Models	**Level:**6 **Credit:** 20 **ECTS credit:**10	Prof. Mostafa Aref
Pre-requisite: N/A	**Pre-cursor:** Mental Wealth: Professional Life 1 (Software Engineering and Communication Skills)	
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 focuses on designing a high-level architecture model for successful software systems. It aims to develop a comprehensive understanding of the importance of reusable architectural styles. It also aims to cover the main concepts and foundations of Component-Based Software Engineering (CBSE) and its related technologies which is based on the idea to develop software systems by selecting appropriate off-the-shelf components (COTS) and then to assemble them with a well-defined software architecture. This module builds on knowledge of software engineering process activities.

Main topics of study:

- Introduction to Software Architecture
- Quality Attributes Concepts, Details and Requirements Trade-off Analysis
- The Concept of Reference Architecture
- Distributed Software Engineering
- Service-Oriented and Aspect-Oriented Architectures
- Introduction and objective of CBSE
- Commercial Off-the-Shelf Software
- Advantages and Disadvantages of Component-based development
- Characteristics of Components, Interfaces and Models
- Software Reuse
- Reusability, Sustainability and Extensibility
- Middleware support
- 10 Excellent Platforms for Building Mobile Apps
- Services and Content providers
- Broadcast receivers

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 major concepts of Architectural Patterns in addition to Reference, service-oriented and aspect-oriented architectures.
2. Select the component-oriented tools and languages, approaches for implementation of CBSE, including designing, building, assembling, and deploying reusable components.

Thinking skills

3. Evaluate the alternatives to make the appropriate design decision. (COI)
4. Evaluate the different CBSE models. (COI)

Subject-based practical skills

5. Implement solutions of a range of software tools in support of the component-based software.   (DP)
6. Use Industrial reference architectures. (DP, IC)
7. Select UML notations in architectural models and produce documentation of architecture models with the proper views. (COI)

Skills for life and work (general skills)

8. Reflect the ability to construct systems by assembling ready-made components, and thereby   reduce production cost and time-to-market, whilst increasing software reuse. (IC)
9. Reflect working in a team effectively and efficiently considering time management. (SID, EID)

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 principles for high-level architecture models and the importance of component-based software development. Practical sessions will be used to reinforce understanding of the material and provide hands on experience to apply concepts to real-life situations. 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

Khaled, O.M. (2017) *Pervasive Computing Reference Architecture from a Software Engineering Perspective*. Ph.D. Dissertation. The American University in Cairo. Cairo. Egypt.

Bass, L., Clements, P., Kazman, R. (2003) *Software Architecture in Practice*. 2nd edn. Addison Wesley.

Lau, K. and Cola, A.D. (2017) *An Introduction to Component-Based Software Development*. World Scientific.

Cloutier, R., Muller, G., Verma, D., Nilchiani, R., Hole, E. and Bone, M. (2010) *The Concept of Reference Architectures.* Syst. Eng.

Recommended

Reussner, R.H., Becker, S., Happe, J., Heinrich, R., Koziolek, A., Koziolek, H., Kramer, M. and Krogmann, K., 2016. Modeling and simulating software architectures: The Palladio approach. MIT Press.

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

Live, applied project: The module will be assessed on the development of application based upon distributed systems architecture design.

Company/ sponsorship: *Seminar on popular Reference Architecture with Cloud* followed by competition for best projects.

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, assignment planning, group work 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 course 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 Software Engineering and UEL in Software Engineering.

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
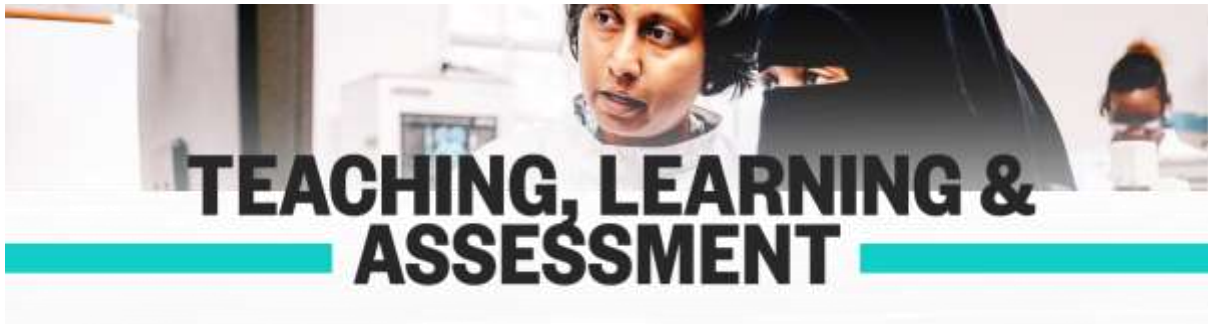
Details of Local Teaching and Learning Approaches

- 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.

d) 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 Software Engineering 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

Also detailed in Appendix B which provides full information on referencing and the avoidance of plagiarism.

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.

- 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

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 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 and 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 need 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. **How to Reference**

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.   Plagiarism, or Unacceptable Academic Practice?

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.
 v. Address concerns about performance or attendance.
 vi. 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:

1. impair your examination performance or prevent you from attending examinations or other types of assessment, or
2. 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).

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

- **Extenuation doesn't**
    o Give students more attempts to pass a module
    o Reschedule exams
    o Uncap a capped module
    o Give students a higher mark.
    o 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
    o Evidentially based
    o Handled centrally by a panel of senior staff (not devolved to various parts of the organisation)
    o 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
    o Impair the performance of a student in assessment or reassessment
    o Prevent a student from attending for assessment or reassessment
    o 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.

MORE INFORMATION

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:

i. appeals against the decisions of Assessment Boards (**Manual of General Regulations: Part 7 Appeals Against Assessment Board Decisions**);

ii. 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**);

iii. appeals against the decisions of the Extenuation Panel (**Manual of General Regulations: Part 6 Extenuating Circumstances**);

iv. complaints against the Students' Union (see the **Complaints Procedure** in the **Students' Union constitution**);

v. appeals against decisions taken under disciplinary proceedings **(Manual of General Regulations: Part 12**);

vi. complaints about businesses operating on University premises, but not owned by our university (contact the Deputy Vice-Chancellor and Chief Operating Officer);

vii. complaints about the behaviour of other students (see **Part 12 of the Manual of General Regulations this Manual**);

viii. appeals against the decisions of Academic Misconduct Panels (see **Part 8 of the Manual of General Regulations**)

ix. 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 Software Engineering (Hons) (Ain Shams University)							BSc Software Engineering (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
CIS250	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%									
CIS270	Data Structures	3	Practical	20%	Final	50%				Practical (40 hours of student effort)	20%		
			In-class Test	15%									
			Assignments	15%									
BSC221	Discrete Mathematics	3	In-class Test	15%	Final	60%	AS4002	Mathematics for Computer Scientists	20	In-class Test (120 minutes)	60%		
			Assignments	25%									
BSC225	Linear Algebra	3	In-class Test	15%	Final	60%				Assignments (60 hours of student effort)	40%		
			Assignments	25%									
CIS260	Logic Design	3	Practical	20%	Final	50%	AS4003	Digital Design and Computer Architecture	20	In-class Test (120 minutes)	50%		
			In-class Test	15%						Assignments (20 hours of student effort)	30%		
			Assignments	15%									
CIS220	Computer Organization & Architecture	3	Practical	20%	Final	50%				Practical (40 hours of student effort)	20%		
			In-class Test	15%									
			Assignments	15%									
CIS380	Software Engineering	3	Practical	20%	Final	50%	AS4026	Mental Wealth: Professional Life 1 (Software	20	In-class Test (120 minutes)	50%		
			In-class Test	15%									

Left side

Code	Course	Credits	Assessment	%	Final	Final %
			Assignments	15%		
HUM118	Communication and Negotiation Skills	2	In-class Test	15%	Final	60%
			Assignments	25%		
CIS280	Database Management Systems	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
HUM113	Report Writing	2	In-class Test	15%	Final	60%
			Assignments	25%		
INF311	Data Mining	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
CIS240	Statistical Analysis	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
CIS243	Artificial Intelligence	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
SWE342	Safety Critical Software Systems	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		

Right side

Code	Course	Credits	Assessment	%	Exam	Exam %
	Engineering and Communication Skills)		Assignments (40 hours of student effort)	40%		
			Practical (20 hours of student effort)	10%		
AS4005	Mental Wealth: Professional Life 1 (Database Systems and Reports)	20	In-class Test (120 minutes)	50%		
			Assignments (40 hours of student effort)	40%		
			Practical (20 hours of student effort)	10%		
AS4027	Statistical Data Mining	20	In-class Test (120 minutes)	50%		
			Assignments (20 hours of student effort)	30%		
			Practical (40 hours of student effort)	20%		
AS5028	AI for Safety Critical Systems	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			Assignments (20 hours of student effort)	30%		

Code	Course	Cr	Component	%		%		Code	Course	Cr	Component	%		%
CIS290	System Analysis & Design	3	In-class Test	15%	Final	60%		AS5029	Mental Wealth: Professional Life 2 (Software Requirements Engineering)	20	Practical (10 hours of student effort)	10%	Exam 120 minutes	50%
			Assignments	25%							Assignments (20 hours of student effort)	40%		
SWE311	Software Requirements Engineering	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
CIS340	Analysis & Design of Algorithms	3	Practical	20%	Final	50%		AS5030	Algorithms and Design Patterns	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%		
SWE322	Software Design Patterns	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
CIS365	Computer Networks	3	Practical	20%	Final	50%		AS5006	Computer Networks and Operating Systems	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%		
CIS353	Operating Systems	3	Practical	20%	Final	50%								
			In-class Test	15%										
			Assignments	15%										
SCO311	Computer Graphics	3	Practical	20%	Final	50%		AS5031	Computer Graphics and Software Metrics	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%										
SWE352	Software Metrics	3	Practical	20%	Final	50%					Assignments	30%		
			In-class Test	15%										

Code	Course	Credits	Assessment	Weight			Code	Course	Credits	Assessment	Weight	Exam	Weight
			Assignments	15%						(20 hours of student effort)			
SWE332	Web Engineering & Development	3	Practical	20%	Final	50%	AS5032	Real-Time Web Engineering	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%		
SWE321	Development Real-time Software	3	Practical	20%	Final	50%							
			In-class Test	15%									
			Assignments	15%									
SWE404	Agile Software Development	3	Practical	20%	Final	50%	AS6033	Agile Software Development and Maintenance	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%		
SWE423	Software Maintenance	3	Practical	20%	Final	50%							
			In-class Test	15%									
			Assignments	15%									
SWE411	Software Testing & Quality Assurance	3	Practical	20%	Final	50%	AS6034	Software Testing and Management	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%		
SWE421	Software Project Management	3	Practical	20%	Final	50%							
			In-class Test	15%									
			Assignments	15%									
SWE407	Big Data Analytics	3	Practical	20%	Final	50%	AS6035	Advanced Analytics and Interface Design	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%									
			Assignments	15%									
SWE41	User Interface	3	Practical	20%	Final	50%				Assignments	30%		

Code	Name	Cr	Component	%	Final	%		AS Code	AS Name	Cr	Component	%	Exam	%
2	Design		In-class Test	15%							(20 hours of student effort)			
			Assignments	15%										
SWE402	Component-based Software Development	3	Practical	20%	Final	50%		AS6036	Software Development Models	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%
			In-class Test	15%										
			Assignments	15%										
SWE422	Reusable Software Architecture	3	Practical	20%	Final	50%					Assignments (20 hours of student effort)	30%		
			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 color. 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. 68, 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		
	CIS365 Computer Networks				CIS353 Operating System				AS5006 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
Practical	40%	26.2
In-Class Test	30%	17.4
Assignment	30%	24.9
Final Exam	100%	86.5
	200%	155

UEL Assessment weightage category	UEL total weightage	Marks by Assessment weightage cateogry
Practical	20%	13.1
Assignment	30%	21.15
Final Exam	50%	43.25
	100%	77.5

% 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 is 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.