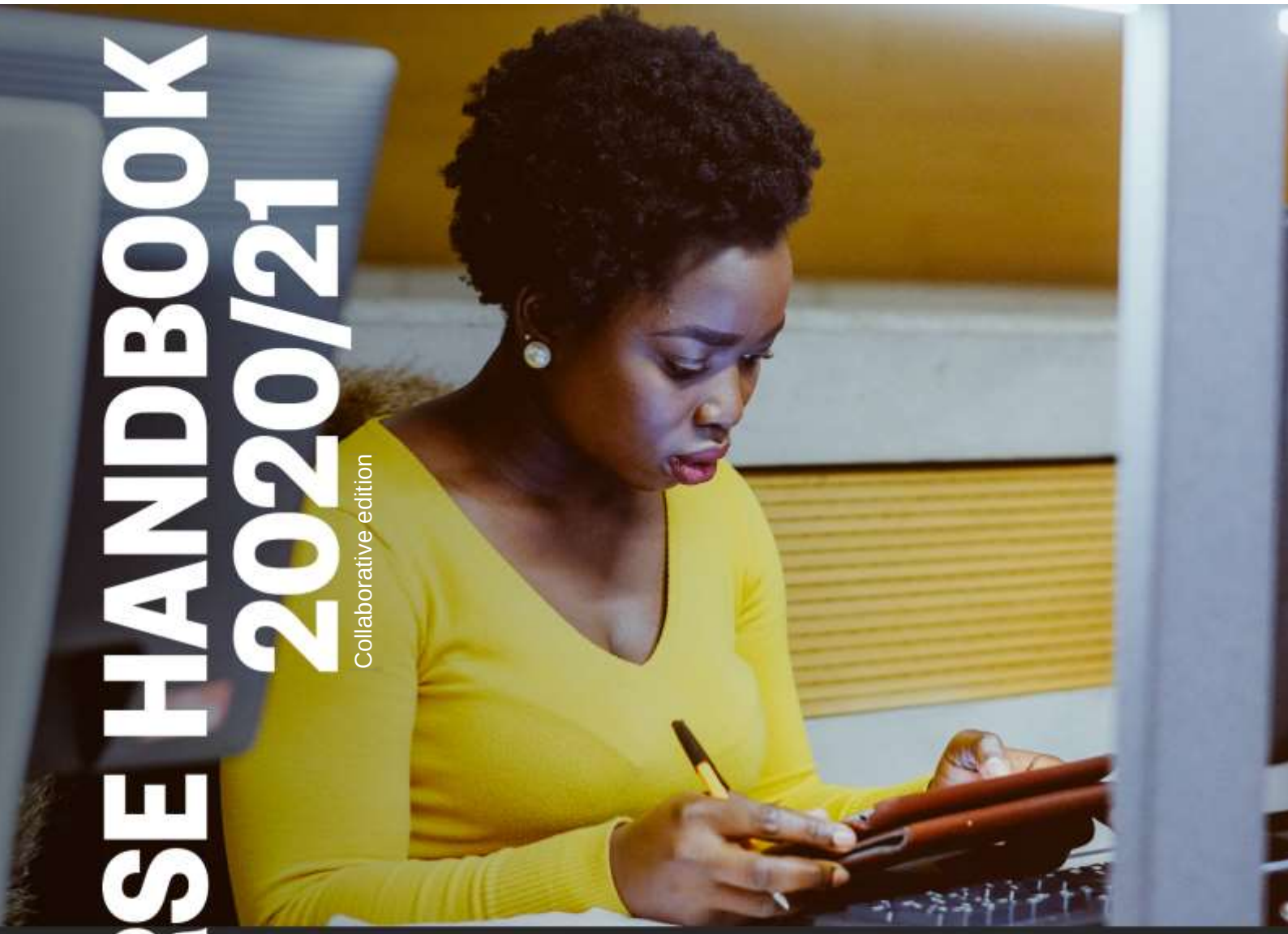
BSc (Hons) in Bioinformatics Technology

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) **Bioinformatics Technology** 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) Bioinformatic Technology 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) The Bioinformatics Technology Course focuses on computer science with scientific knowledge and applied research in bioinformatic problems (forensic medicine, personal and preventive treatment, pharmaceutical manufacturing, genetic and genetic applications). The BIO Course aims to graduate skilful specialists, who are capable of utilizing and developing new technologies in advanced bioinformatics areas, with solid understanding of exploring, analysing and interpreting contemporary biological data. The Course provides the student with broad and deep knowledge in the concepts and techniques related to the design, programming, and application of Bioinformatics.

Course Intended Learning Outcomes (ILOs)

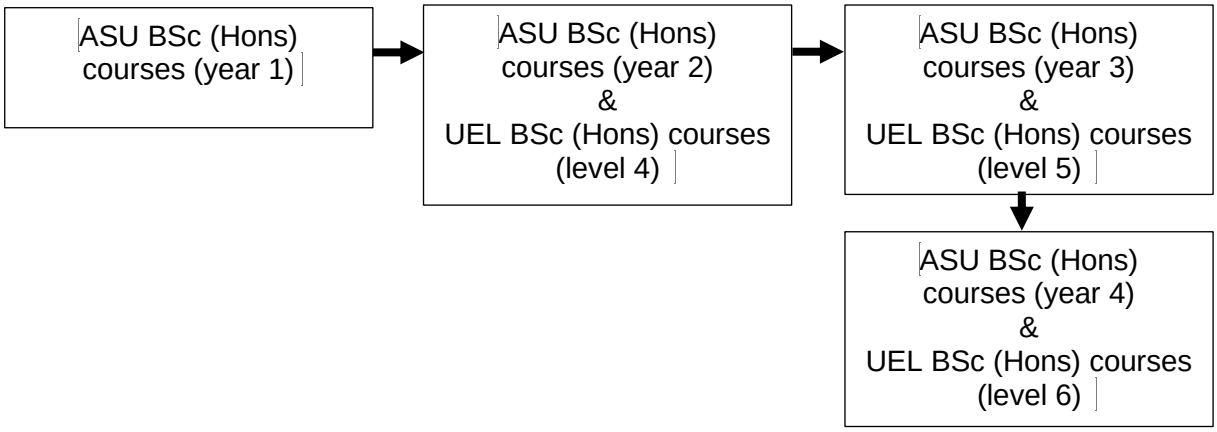
The graduates of the Bioinformatics Technology Course should be able to:

- Have a solid understanding of computational and statistical biosciences.
- Analyse computing problems and their solutions in a precise scientific way.
- Design algorithms and numerical techniques for modelling mathematical, physical, and biological problems.
- Validate models for real-life problems using appropriate modelling and simulation techniques.
- Use quantitative analysis techniques appropriately and effectively.
- Build computational solutions using different technologies and architectures, in the context of different organizational structures, with demonstrated programming expertise.
- Reuse of publicly available software such as APIs or open source materials.
- Use tools to implement algorithms for solving bioinformatics problems related to other disciplines.
- Identify criteria to measure and interpret the appropriateness of a bioinformatic solutions for its current deployment and future evolution.
- Build safety-critical and real-time systems for bioinformatics problems.
- Appreciate the ethical, legal, and social responsibilities of a computing scientist.

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



The Course structure can be seen in Table 2.1 (module codes are subject to change).

Table 2.1 BSc (Hons) Bioinformatics Technology 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	AS4011	Molecular Physics and Genetics	20	Core
4	2	AS4004	Mental Wealth: Professional Life 1 (Operations Research and Communication Skills)	20	Core
4	2	AS4005	Mental Wealth: Professional Life 1 (Database Systems and Reports)	20	Core
5	3	AS5012	Introduction to Bioinformatics Algorithm	20	Core
5	3	AS5013	Software Engineering and Design	20	Core
5	3	AS5006	Computer Networks and Operating Systems	20	Core
5	3	AS5014	Artificial Intelligence in Data Mining	20	Core
5	3	AS5015	Mathematical Models in Genetics	20	Core

5	3	AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20	Core
6	4	AS6016	Computational Bioinformatics	20	Core
6	4	AS6017	Biomedical Image Processing	20	Core
6	4	AS6018	Application of Statistics in Biotechnology	20	Core
6	4	AS6019	Cloud Computing and Neural Networks	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) Bioinformatics Technology 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
BIO Course Leader and Contact Link ASU – FCIS
chp@cis.asu.edu.eg
srady@cis.asu.edu.eg

Assoc. Prof. Walaa Gad
BIO Course Coordinator
Walaagad@cis.asu.edu.eg

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

Mr. Mohamed Ayad & Mr. Amr Abdel Azim
BIO 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@ul.ac.uk)

Circumstances in which Student Can Access UEL Directly

You will find that for most issues that arise during your studies, the 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, 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.

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 **UEL Head of Partnership,** sinwee@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

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.

Assessment Regulations

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

Assessment Boards

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

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

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

- A sample of students' marked work is reviewed for accuracy by another lecturer.
- Marked samples of student submissions are sent to the University of East London for review.
- External Examiners visit the University of East London and check the students' work and the lecturers' marking.
- The results are considered at assessment boards at the University of East London.

Course Organisation

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

The Dean of FCIS

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

The Course Leader

Assoc. Prof. Sherine Rady is the Course Leader for the BSc (Hons) Bioinformatics Technology 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. Walaa Gad the Course Coordinator for the BSc (Hons) Bioinformatics Technology 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.

Study Timings and Registration

The academic year comprises two semesters:

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

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

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

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

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

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

Once you have gained admission to the course you must login to the UEL direct page using your student username which will be your UEL ID number and password and complete the on-line enrolment. 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, color, 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) <u>Students' Affairs Administration</u>

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 7^{th}-8^{th} 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. Define linear and non-linear data structures.
3. List data structures with their associated STL containers.

Thinking skills

4. Compare 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. Apply 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 model 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. Recognize 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. Solve a common problem and provide hardware solutions for basic computer tasks by working coherently with others in a small group. (SID)

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

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

Assessment methods which enable students to demonstrate the learning outcomes for the module; please define as necessary:	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio Continuous assessment tasks: In-class Test 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:** AS4011 **Level:** 4	**Module Leader**: Dr. Walaa Khaled

Molecular Physics and Genetics	**Credit:** 20 **ECTS credit:** 10	
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 discusses the synthesis and manipulation of DNA and the principles of gene expression at the molecular level. It also includes an introduction to the concepts of DNA replication, repair and packaging of the genome into chromosomes. It also explains the biophysical principles of automaticity and control of the body, how the different parts of the body operate in harmony.

Main topics of study:

- Introduction to control mechanism: Homeostasis, regulation, and gain.
- Introduction to molecular genetics and molecular biology.
- What is the central dogma and how DNA is discovered in prokaryotes and Eukaryotes?
- Transport ways and mechanism through cell membrane.
- Regulation of gene expression.
- Theoretical basis of bioelectrical phenomena and resting membrane potential
- Physical principles underlying electrical phenomena
- Electrical and mechanical properties of living cell
- Electromagnetic radiation and living matter

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 basic concepts of molecular genetics. (COI)
2. Explain the differences between engineering and biological systems control and communications systems. (COI)
3. Describe the regulation of gene expression at the molecular level. (DP, COI)

Thinking skills

4. Identify ways, methods and techniques of biophysics and their application in life. (COI, IC)
5. Recognize the ethics of some application such as cloning. (COI)

Subject-based practical skills

6. Implement laboratory experiments on the biophysical and molecular genetics properties of living matter. (DP)

Skills for life and work (general skills)

7. Demonstrate the ability to work in learning group. (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 basic molecular physics and genetics 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:**
For on campus students:		
Portfolio Continuous assessment tasks: In-class Test 50% (120 minutes) Assignments 40% (40 hours of student effort) Practical 10% (20 hours of student effort)	**100%**	**1-7**

Reading and resources for the module:

Core
Thomas Jue. (2009) *Biophysics: concept and Mechanics.* Humana Press
Benjamin A. pierce. W. H. Freeman (2020) *Genetics, a conceptual approach*. 7th edition, W. H. Freeman.

Recommended
Kim Sneppen and Giovanni Zocchi. (2005) Physics in Molecular Biology. 1st Edition. Cambridge University Pres
Peter M. Hoffmann and Thomas M. Nordlund. (2019) Quantitative Understanding of Biosystems: An Introduction to Biophysics. Second Edition. 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 would be designing and implementing a basic genetics experiments by computer.

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

Summary of module for applicants:

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

Main topics of study:

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

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

Live, applied project ☐
Company/engagement visits ☒

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

Learning Outcomes for the module

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

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

Knowledge

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

Thinking skills

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

Subject-based practical skills

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

Skills for life and work (general skills)

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

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

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

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

Reading and resources for the module:

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

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

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

Company/engagement visits: Guest talk from industry

Indicative learning and teaching time (10 hrs per credit):	**Activity**
1. Student/tutor interaction 48 hours 24 hours	 Lectures Labs
2. Student learning time: 128 hours	 Essential and background reading, Tutorial preparation, Assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: *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 modeling 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: Introduction to Bioinformatics Algorithm	**Module Code:** AS5012 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Mahmoud Mounir
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 the basic concepts of bioinformatics and its applications. This module also provides a solid understanding of the scope of structural bioinformatics and drug design. Students will learn through implementing and applying the algorithms and tools used in bioinformatics to topical problems drawn from ongoing research and applications in a variety of fields.

Main topics of study:

- Introduction to bioinformatics.
- DNA sequencing and assembly.
- RNA and protein structure.
- Regulation of gene expression.
- Multiple sequence alignment.
- Phylogenetic analysis.
- Concepts for protein engineering and structure design.
- Protein Function Prediction.
- Sequence, gene, and protein databases.
- Web-based bioinformatics tools.
- Structural Bioinformatics in drug discovery.

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 application of computational methods to interpret the rapidly expanding amount of biological information. (DP)

2. Explain background and applications of structure-related bioinformatics computational methods used in protein modelling. (DP, IC)

Thinking skills

3. Analyse the protein sequence-structure-function relationship with emphasis on human disease and drug development. (DP, IC)
4. Evaluate 3D structure of a protein sequence based on an identified template and quality structures.
5. Analyse how sequence-structure relationships will form the bridge to protein structure. (DP, COI)

Subject-based practical skills

6. Use bioinformatics tools to solve real problems in medical domain. (IC, DP)

Skills for life and work (general skills)

7. Demonstrate the ability to work in teams to solve bioinformatics related problems. (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 basic concepts of bioinformatics. 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
Arthur M. Lesk, (2019) Introduction to Bioinformatics, 5th ed, Oxford University Press.
Jenny Gu and Philip E. Bourne. (2008) Structural Bioinformatics. 2nd Edition. Wiley-Blackwell.

Recommended
Rastogi. (2013) Bioinformatics: Methods and Applications: Genomics, Proteomics and Drug Discovery. 4th Edition. Prentice Hall.
Miguel Rocha and Pedro G. Ferreira. (2018) Bioinformatics Algorithms: Design and Implementation in Python. 1st Edition. Academic Press

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

Company/engagement visits: Guest talk from industry.

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

Module Specification

Module Title: Software Engineering and Design	**Module Code:** AS5013 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Nivin Atef
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:

The module aims to provide understanding of the fundamental skills of Information systems modelling and design using various Software Engineering techniques. It introduces concepts such as software processes and agile methods, and essential software development activities, from initial specification to system maintenance.

Main topics of study:

- Software Development Life Cycle
- Unified Modelling Language (UML)
- Data Flow Diagrams
- System Analysis and Design Methodologies
- Case Tools
- Computer Based Software Engineering
- Software Processes
- Requirements Engineering
- Agile Software Development
- Software Testing
- Technical Metrics for Software
- Software Maintenance

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 software life cycle. (IC)
2. Contrast different analysis and design methodologies, methods and tools used for the modelling, design, and development of information systems. (IC, DP)
3. Explain agile methods and component-based software engineering. (IC)

Thinking skills

4. Analyse and compare different methods used in system modelling. (COI)
5. Examine different engineering problems with alternative solutions using different system modelling. (COI)

Subject-based practical skills

6. Use a variety of diagram types from a CASE tool as part of the overall design process. (DP)
7. Use tools and implement techniques to support development and modelling of the different stages of software the development lifecycle. (DP)

Skills for life and work (general skills)

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

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

Lectures will be used to introduce software engineering and design concepts. Continuous assessment during practical sessions will be used to reinforce 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**

Coursework Practical 10% Assignments 40% (30 hours of student effort)	**50%**	**6-8**

Reading and resources for the module:

Core

Sommerville, I. (2016) *Software Engineering*", 8th Edition, Adison-Wesley.
Schach, S., (2010) *Object-Oriented and Classical Software Engineering,* 5E, McGraw Hill. Wesley.

Recommended

Pressman, R. (2014) *Software Engineering: A Practitioner's Approach*", 8th Edition, McGraw Hill.

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 software engineering and design applications based on the case studies of live industry projects. E.g.: software testing case studies in industry.

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	 seminar reading and preparation/assignment preparation/ on-line activities/group work
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Computer Networks and Operating Systems	**Module Code:** AS4006 **Level:** 4 **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 an understanding of computer networks' principles and design procedures. It also aims to provide a basic understanding of operating systems and

their role in the management of computer resources. This module builds on basic knowledge of fundamentals of programming.

Main topics of study:

- Introduction to the operating systems.
- Process management.
- Multiprocessing and multithreading.
- Deadlock and concurrency.
- 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. Describe the general structure of an operating system and its objectives and functions. (COI)
2. Explain the basic computer networking concepts and differentiate between different switching techniques. (IC)

Thinking skills

3. Identify the main techniques and procedures for process management and scheduling. (DP)
4. Analyze the solutions of familiar and unfamiliar problems relevant to operating systems and computer networks. (IC, COI)
5. Recognize the performance of different network topologies and different techniques used in operating systems. (DP, SID)

Subject-based practical skills

6. Implement the appropriate techniques and procedures to processes management and scheduling. (DP)
7. Use subnetting, network requirement planning and IP management. (DP)

Skills for life and work (general skills)

8. Demonstrate good team working, presentation, 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:**
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
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 required to design and implement a simulation of a basic operating system and local area network.

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

Module Specification

Module Title: Artificial Intelligence in Data Mining	**Module Code:** AS5014 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Prof. Tarek Gharib
Pre-requisite: N/A	**Pre-cursor: N/A**	
Co-requisite: N/A	**Excluded combinations:** N/A	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to provide a basic understanding of techniques and applications of machine learning techniques to data mining. It also examines methods that have emerged from both artificial intelligence and data mining fields and proven to be of value in recognizing interesting patterns and making predictions from an applications perspective.

Main topics of study:

- Introduction to knowledge discovery in databases
- Knowledge engineering, expert systems and rule-based reasoning
- Problem Solving: Informed & Optimal Search
- Adversarial Search
- Bayesian networks and AI probabilistic search algorithms
- Introduction to Neural Networks
- Mining Frequent Patterns, Associations, and Correlations
- Classification
- Cluster Analysis
- Outlier Detection
- Social Network 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. Contrast machine Learning methods, techniques and algorithms. (DP, COI)
2. Describe the data mining process as a KDD. (DP)

Thinking skills

3. Evaluate and compare the different artificial intelligence and data mining techniques. (COI))
4. Select the intelligent techniques and algorithms based on the problem context. (DP, COI)

Subject-based practical skills

5. Implement knowledge extraction approaches based on a selection for the intelligent or mining technique. (DP)
6. Use available AI tools, algorithms and select those appropriate to given applications. (DP, IC)

Skills for life and work (general skills)

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

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

Lectures will be used to introduce AI and data mining concepts. Continuous assessment during practical sessions will be used to reinforce 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
Mohammed J. Zaki and Wagner Meira. (2019) Data Mining and Machine Learning. 2nd Edition. Cambridge University Press

Recommended
John Paul Mueller and Luca Massaron. (2018) Artificial Intelligence for Dummies For Dummies.1st Edition
George F. Luger. (2011) *Artificial Intelligence: Structures and Strategies for Complex Problem Solving. 6th* Edition. Pearson.

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 AI and data mining applications based on the case studies of live industry projects. E.g.: Weather Forecasting Using Data Mining, Opinion Mining For Social Networking Site.	
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	 seminar reading and preparation/assignment preparation/ on-line activities/group work
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Mathematical Models in Genetics	**Module Code:** AS5015 **Level:** 5 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Safaa Amin
Pre-requisite: N/A	**Pre-cursor:** N/A	
Co-requisite: N/A	**Excluded combinations:** N/A	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims at understanding biological phenomena using mathematical models. Also, this model provides students with the major concepts necessary to an understanding of recombinant DNA and genetic engineering, genetic manipulation, and methods of studying the genome.

Main topics of study:

- Introduction to Genetic Engineering.
- Gene and Genome structure.
- Mathematical biology and Modelling.
- Model of species Competition.
  Continuous population models for single species.
- Non-depersonalisation of ordinary differential equations.
- Gene expression and regulation Models.
- Models of species Competition.
- Predator Prey Models such as: Lotka-Voltera model.
- Discrete Population Models and solving its difference equations.
- Applications of Genetic engineering in medicine and agriculture.

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 biological phenomena using mathematical models. (DP)
2. Identify the basic steps of gene cloning and modelling. (DP)

Thinking skills

3. Evaluate mathematical models by collecting data characterizing biological processes. (COI)

4. Analyse the traditional and genetic engineering models to the production of any genetically improved/ modified organism. *(IC, COI)*

Subject-based practical skills

5. Use databases and bioinformatics resources to search new genes and determine gene sequences and functions. (IC, DP)
6. Apply computer-based tools (e.g., Mathematica) to generate genetics models of biological phenomena. (DP)

Skills for life and work (general skills)

7. Demonstrate the ability to work in teams to solve problems involved in genetics mathematically *(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 basic concepts of mathematical modelling in genetics engineering. 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
Avner Friedman and Ching Shan Chou. (2016) Introduction to Mathematical Biology: Modeling, Analysis, and Simulations. 1st Edition. Springer.
Jamie Metzl. (2019) Genetic Engineering and the Future of Humanity. 1st Edition. Sourcebooks.

Recommended
Alison Etheridge. (2009) Some Mathematical Models from Population Genetics. Springer.

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 solving the genetic problems using mathematical modelling. Eg: Mathematical models that describe tumor growth in tissue, the immune response, and the administration of different therapies can suggest treatment strategies that optimize treatment efficacy and minimize negative side-effects.

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

Summary of module for applicants:

This module intends to provide students with the basic concepts and theories of algorithms, focusing on both the underlying mathematical theory and practical considerations of efficiency. It promotes to learn how to develop efficient algorithms for problems that arise in computing applications. The module also aims to broad the understanding and management of ethical, legal

and professional issues related to the discipline of computing and information technology. The module assumes no prior knowledge of the topic.

Main topics of study:

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

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

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

Learning Outcomes for the module

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

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

Knowledge

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

Thinking skills

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

Subject-based practical skills

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

Skills for life and work (general skills)

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

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

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

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

Reading and resources for the module:

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

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

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

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

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

48 hours 24 hours	Lectures Labs
2. Student learning time: 128 hours	Essential and background reading, private study, group work, assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 Hours

Module Specification

Module Title: Computational Bioinformatics	**Module Code:** AS6016 **Level:** 6 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Mahmoud Mounir
Pre-requisite: N/A	**Pre-cursor:** N/A	
Co-requisite: N/A	**Excluded combinations:** N/A	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims at understanding genome structure, genes mapping and DNA sequencing. It also introduces computational molecular biology concepts and applied algorithms techniques. This module provides students the knowledge of parallel programming to enhance the performance of emerging computational problems in genomics.

Main topics of study:

- Introduction to computational biology and genomics.
- Review on biology and algorithms background.
- Genome sequencing and sequence comparisons.
- Comparative genomics.
- Shotgun sequencing and overlap alignment.
- Microarrays data analysis.
- Expression profiles.
- Analysis of gene expression data.
- String matching and suffix trees.

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 genome analysis strategies and technologies and their applications.
2. Explain genome structure and regulatory networks in controlling metabolic and developmental pathways and their application in drug design and other disciplines. (DP, IC)

Thinking skills

3. Contrast different genome sequences using bioinformatics techniques.
4. Critique the most used computational approaches to processing genomic data and their theoretical underpinnings. (COI)

Subject-based practical skills

5. Select and implement computational algorithms to process genomic data. (DP, COI)
6. Use online genomic analysis tools to solve genomic bioinformatics problems. (COI)

Skills for life and work (general skills)

7. Reflect on the ability to work among partners to present and solve biological problem in a scientific way. (CC, COI)

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

For on campus students:
Lectures will be used to introduce concepts of computational bioinformatics. 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
Tore Samuelsson. (2012) Genomics and Bioinformatics: An Introduction to Programming Tools for Life Scientists, 1st edn, Cambridge University Press.
Jeremy J. Ramsden. (2009) Bioinformatics: An Introduction (Computational Biology). 2nd Edition. Springer

Recommended
Xinkun Wang. (2016) Next-Generation Sequencing Data Analysis. Apple Academic Press Inc.
Neil C. Jones, Pavel A. Pevzner. (2004) An Introduction to Bioinformatics Algorithms. MIT Press.

Miguel Rocha and Pedro G. Ferreira (2018) Bioinformatics Algorithms: Design and Implementation in Python 1st Edition. Academic Press.
Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures ***Live, applied project:*** Students design and implement computational bioinformatics tool.

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

Module Specification

Module Title: Biomedical Image Processing	**Module Code:** AS6017 **Level:** 6 **Credit:** 20 **ECTS credit:** 10	**Module Leader**: Dr. Maryam Nabil
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 the basic concepts and methodologies of Digital Image Processing (DIP) and Biomedical Image Processing. It teaches students the practical and analytical skills to build biomedical image applications. Also, students apply image processing algorithms to solve real biological problems.

Main topics of study:

- Introduction to digital and biomedical images processing, fundamentals, and image acquisition.
- Image Enhancement using intensity transformation and spatial filtering.
- Image enhancement using edge-based and region based.
- Image Morphology.
- Enhancement in the Frequency Domain.
- Image Restoration.
- Image Representation & Description.
- Biomedical images analysis using different algorithms.

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 aspects of digital image processing concepts, primary steps, and advanced methods. (DP)
2. Appraise the central role of digital image processing in solving problems in biomedical applications. (PID)

Thinking skills

3. Analyse different digital image acquisition methods in biomedical domain. (COI)
4. Evaluate different transformations approaches for image enhancement, restoration and segmentation. (COI)

Subject-based practical skills

5. Implement theoretical concepts and practical techniques from related fields (mathematics, statistics, and signal processing …) to generate problem solutions. (IC)
6. Select and implement efficient algorithms/solutions for biomedical image processing and analysis problems. (COI)

Skills for life and work (general skills)

7. Reflect on communicating ideas and solutions of image processing and analysis problems effectively by oral, written, and visual means. (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 biomedical image processing. 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

Isaac Bankman. (2018) *Handbook of Medical Image Processing and Analysis* 2nd Edition. Academic Press.

Rafael C. Gonzalez and Richard E. Woods. (2017) *Digital Image Processing*. 4th edn. Prentice Hall.

Recommended

Shruti Jain and Sudip Paul. (2020) *Image and Signal Processing in Computer Vision* 1st Edition. Springer.

Rafael C. Gonzalez, Richard E. Woods, and Steven L. Eddins (2017) *Digital Image Processing Using MATLAB*. 4th Edition. 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 designing and implementing projects that apply image processing techniques to solve real biomedical 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, Tutorial preparation, Assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title:	Module Code: AS6018 Level: 6 Credit: 20 ECTS credit: 10	Module Leader: Dr. Mahmoud Mounir
Application of Statistics in Biotechnology		

Pre-requisite: NA	**Pre-cursor:**	
Co-requisite: NA	**Excluded combinations:** NA	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to provide students with sufficient biostatistics knowledge to serve in public health and the field of biotechnology. It also presents bioinformatics tools used in pharmaceutical and biotechnological fields. This module explores the faced problems during drug discovery and development.

Main topics of study:

- Fundamental Concepts and formulating of Design Models
- Fundamentals of Mixed Model Analyses
- Analysis of Variances, Covariance and Simple Experimental Designs
- Repeated Measures Designs
- Incomplete Block Designs with Confounding
- Fractional Factorial Designs and Response Surface Designs
- Representing molecules in computers
- Structure and Macromolecular Descriptors
- Principal Component Analysis for Biotechnology
- Use of Amino acid descriptors in quantitative structure activity relationship
- Bioinformatic databases for Biotechnology
- Computer assisted drug and carriers design and gene therapy

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 the appropriate bioinformatics tools that can be used within pharmaceutical and biotechnological problems. (DP)
2. Identify the concepts of computer-assisted drug and carriers design. (IC)

Thinking skills

3. Analyse information and data specific to the different biotechnological drugs and macromolecules and calculate the descriptors of all biotechnological elements using the appropriate software. (COI)
4. Judge experiments to achieve maximum benefit and interpret results efficiently. (DP)

Subject-based practical skills

5. Implement efficient molecular docking of compounds on carriers and/or targeted receptors on the body. (DP)
6. Select the appropriate biostatistics tools to solve real bioinformatics problems. (DP)

Skills for life and work (general skills)

7. Reflect on planning effective verbal and written presentations using different IT Technologies and adopt online computer searching. (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 statistics in biotechnology 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 10% Assignments 40% (30 hours of student effort)	**50%**	**5-7**

Reading and resources for the module:

Core
Keith, J.M., (2017). Bioinformatics: volume I data, sequence analysis and evolution (methods in molecular biology). Humana Press.
Glover, T., (2015). An Introduction to Biostatistics, International,3rd edn, Waveland Press.

Recommended
Dieter Rasch, Jurgen Pilz, and Rob Verdooren (2019). Applied Statistics: Theory and Problem Solutions with R. Wiley.

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

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

Indicative learning and teaching time	**Activity**

(10 hrs per credit):	
1. Student/tutor interaction 48 hours 24 hours	 Lectures Labs
2. Student learning time: 128 hours	 Essential and background reading, Tutorial preparation, Assignment planning and preparation and assessment preparation.
Total hours (1 and 2):	200 hours

Module Specification

Module Title: Cloud Computing and Neural Networks	**Module Code:** AS6019 **Level**: 6 **Credit:** 20 **ECTS credit:** 10	**Module Leader:** Prof. Hala Moushir
Pre-requisite: N/A	**Pre-cursor:** N/A	
Co-requisite: N/A	**Excluded combinations:** N/A	**Suitable for incoming study abroad?** Y
Location of delivery: ASU		

Summary of module for applicants:

This module aims to provide students with basic cloud computing concepts and service models. It describes the key considerations to build a cloud infrastructure. it also covers different structures of Neural Networks and the types of problems for which neural networks are used.

Main topics of study:

- Introduction to cloud computing and building cloud infrastructure
- Physical and Virtual layer
- Control and Service layer
- Orchestration layer
- Business continuity and Security layer
- Service management
- Introduction to Computational Intelligence and neural networks
- Single layer networks: linear and nonlinear classification problem
- Multilayer Perceptron (MLP) Network
- Radial Basic function and Principal Component Analysis
- Kohonen Self-Organizing Feature Map
- Support Vector Machine

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 the different deployment options for building cloud infrastructure. (DP)
2. Investigate the cloud computing reference model. (DP)

Thinking skills

3. Justify and evaluate the functions of every layer in the cloud computing reference model. (COI)
4. Analyse the fundamental concepts and methodology of Neural Networks and its applications to real-world problems in computer vision, remote sensing, medical diagnosis, business decision making. (IC, COI)

Subject-based practical skills

5. Use virtual machines, templates, clones, and snapshots and Configure virtual networks. (DP)
6. Select and use a neural network system to solve real problems and develop a simple project to implement it. (DP, IC)

Skills for life and work (general skills)

7. Reflect on working in groups to develop a project. (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%**	**1-4**
Coursework Practical 20% Assignments 30% (30 hours of student effort)	**50%**	**5-7**

Reading and resources for the module:

Core Du, Ke-Lin, Swamy, M. N. S. (2019). Neural Networks and Statistical Learning. Springer Chellammal Surianarayanan and Pethuru Raj Chelliah. (2019) Essentials of Cloud Computing. Springer **Recommended** Ray J. Rafaels. (2015) Cloud Computing: From Beginning to End. CreateSpace Independent Publishing Platform Mirjalili, Seyedali, Faris, Hossam, Aljarah, Ibrahim. (2020) Evolutionary Machine Learning Techniques: Algorithms and Applications. Springer
Provide evidence of how this module will be able to demonstrate at least one of the following examples/ exposures ***Live, applied project*: Students will be required to work on team project that applies the basics concepts of neural networks and cloud computing.** ***Company/engagement visits: Guest talk from industry***

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: *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:	**Weighting:**	**Learning Outcomes Demonstrated**
Portfolio Including 8000-word project report plus 20 minutes presentation (75%) intermediate deliverables (25%)	**100%**	**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

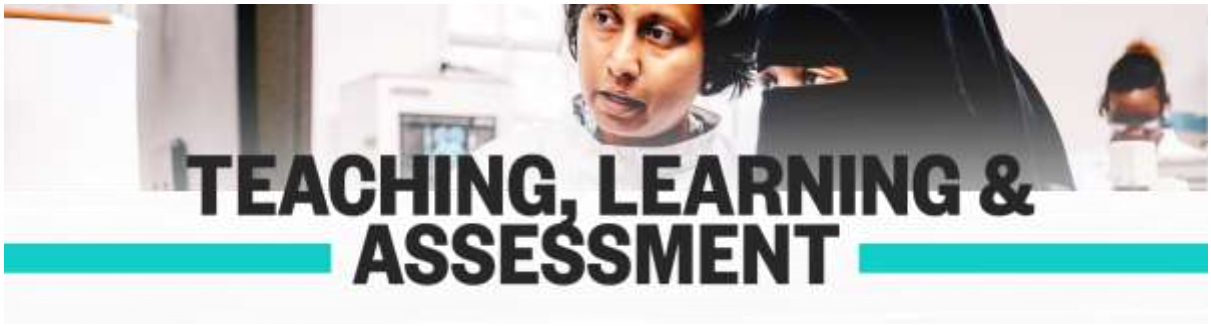
AWARD CERTIFICATES

- 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 Bioinformatics and UEL in Bioinformatics Technology.

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 Bioinformatics Technology Course modules

The points of each credit hour are computed as follows:

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

References to Student Policies

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

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

Assessment and Feedback Policy available at:
https://ums.asu.edu.eg/App?redirectUrl=https%3A%2F%2Fums.asu.edu.eg%2F#Login

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

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

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

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

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

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

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

Further information is available at the weblinks below

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

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

Assessment Criteria

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

As your degree progresses, you will be assessed in a number of different ways. In addition to examinations, you will have a range of coursework assessments such as reports or presentations, for which you will be given clear guidance by the module leader including how you will be assessed for that piece of work.

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

Level 4

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

Work of a better standard usually reflects an approach where,

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

Level 5

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

Work of a better standard usually reflects an approach where

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

Level 6

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

Work of a better standard usually reflects an approach where

- You have not required any assistance.
- You have proved you can manage your own learning and make full use of a wide range of resources.

- You have been confident in your ability to solve problems.
- You have communicated your work in a thoroughly professional and coherent manner.

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

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

Academic Misconduct

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

Coursework Submitted for Assessment

For coursework submissions, academic misconduct means:

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

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

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

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

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

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

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

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

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

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

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

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

Examinations

For examinations, academic misconduct means:

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

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

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

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

(e) Copying the work of another candidate.

(f) Disruptive behaviour during examination or assessment.

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

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

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

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

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

PLAGIARISM - A GUIDANCE NOTE FOR STUDENTS

1. Definition of Plagiarism

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

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

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

2. Plagiarism in Greater Detail

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

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

When an assignment or report uses information from other sources, the student must carefully acknowledge exactly what, where and how s/he has used them.

If someone else's words are used, they must be within quotation marks and a reference must follow the quotation.

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.)

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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.

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

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.

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

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.

Local Arrangements for Academic and Pastoral Care for Students

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

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

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

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

- Unit Heads agree on procedures and systems to manage Academic Advising. These will include:
  i. Allocation of Academic Advisors for all Levels.
  ii. Ensuring students are informed.
  iii. Delivery of Academic Advising.
  iv. Identification of students at risk.

Local Personal Tutor Support

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

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

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

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

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

Local Careers Advice

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

- Academic Advising is only a part of Learner Support:
  i. Employability Skills (through events)
  ii. Student Activities
  iii. The Library
  iv. Disability issues
  v. The Student Union

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

Local Arrangements for Supporting Students with Disabilities/Dyslexia

Faculty of Computer and Information Sciences provides support and equal opportunity for learning to its diverse community especially to those with disability. The faculty aimed that they experience the same level of equality and meet the same level of academic potential. The objectives are:

i. Ensure the accessibility to all faculty facilities.
ii. Ensure that admission requirements do not hinder anyone from enrolment by unnecessary barriers.
iii. Encourage people with disability to courses admission by providing any possible support.
iv. Determine the needs of the disable and support staff to deal with their needs.

The student should fill in the form describing his/her conditions to request for disability services. According to each case, the faculty can provide:

i. Quiet areas for exams equipped with the required physical changes.
ii. Providing staff members assisting for writing in exams.
iii. Extra exam time.
iv. Extended deadline for the assignments and attendance.
v. Providing special seating place in class.
vi. Providing large print hand-outs and verbal description for visual aids.

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.

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.

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

Extenuating Circumstances are circumstances which:

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

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

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

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

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

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

If granted by the panel, **Extenuation can**

(i) Allow students to hand in coursework up to 7 days late.

or

(ii) Allow students to proceed to their next attempt uncapped.

Extenuation doesn't

(i) Give students more attempts to pass a module
(ii) Reschedule exams
(iii) Uncap a capped module
(iv) Give students a higher mark.
(v) Allow students to hand in work over 7 days late

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

UEL decided that its procedures would be

- Evidentially based
- Handled centrally by a panel of senior staff (not devolved to various parts of the organisation)

- Retain student anonymity where possible

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

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

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

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

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

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

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

More information and student guidance notes can be found at:
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies/Extenuation-Procedures

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX A: ACADEMIC APPEALS

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

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

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

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

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

APPENDIX B: COMPLAINTS

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

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

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

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

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

The University of East London will conduct a review of the complaint in accordance with Stage 3 of its own Complaints Procedure. The University of East London Complaints Procedure is available at: https://www.uel.ac.uk/discover/governance/policies-regulations-corporate-documents/student-policies/manual-of-general-regulations

The University of East London will administer the Stage 3 review in accordance with its Complaints Procedure and, upon completion of the review, will issue a Completion

of Procedures Letter. If the complainant is still not satisfied with the outcome, they will be entitled to make a complaint to the Office of the Independent Adjudicator.

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

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

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

APPENDIX C: ASSESSMENT MAPPING TABLES

Bachelor of Software Engineering (Hons) (Ain Shams University)						
Code	**Module Name**	**Credit hour**	**C/W**	**C/W Weightage**	**Exam**	**Exam Weightage**
CIS250	Object Oriented Programming	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
CIS270	Data Structures	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
BSC221	Discrete Mathematics	3	In-class Test	15%	Final	60%
			Assignments	25%		
BSC225	Linear Algebra	3	In-class Test	15%	Final	60%
			Assignments	25%		
CIS260	Logic Design	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
CIS220	Computer Organization & Architecture	3	Practical	20%	Final	50%
			In-class Test	15%		
			Assignments	15%		
BIO211	Introduction to Biophysics	3	In-class Test	15%	Final	60%
			Assignments	25%		
BIO222	Molecular	3	Practical	20%	Final	50%

BSc Software Engineering (Dual Award)						
Module Code	**Module Name**	**Credit Weighting**	**C/W**	**C/W Weightage**	**Exam**	**Exam Weightage**
AS4001	Fundamentals of Programming	20	In-class Test (120 minutes)	50%		
			Assignments (20 hours of student effort)	30%		
			Practical (40 hours of student effort)	20%		
AS4002	Mathematics for Computer Scientists	20	In-class Test (120 minutes)	60%		
			Assignments (60 hours of student effort)	40%		
AS4003	Digital Design and Computer Architecture	20	In-class Test (120 minutes)	50%		
			Assignments (20 hours of student effort)	30%		
			Practical (40 hours of student effort)	20%		
AS4011	Molecular Physics and Genetics	20	In-class Test (120 minutes)	50%		
				40%		

	Genetics		In-class Test	15%							Assignments (40 hours of student effort)			
			Assignments	15%							Practical (20 hours of student effort)	10%		
CIS280	Database Management Systems	3	Practical	20%	Final	50%	AS4005	Mental Wealth: Professional Life 1 (Database Systems and Reports)	20	In-class Test (120 minutes)	50%			
			In-class Test	15%										
			Assignments	15%										
HUM113	Report Writing	2	In-class Test	15%	Final	60%				Assignments (40 hours of student effort)	40%			
			Assignments	25%						Practical (20 hours of student effort)	10%			
CIS320	Operations Research	3	Practical	20%	Final	50%	AS4004	Mental Wealth: Professional Life 1 (Operations Research and Communication Skills)	20	In-class Test (120 minutes)	50%			
			In-class Test	15%										
			Assignments	15%										
HUM118	Communication and Negotiation skills	2	In-class Test	15%	Final	60%				Assignments (40 hours of student effort)	40%			
			Assignments	25%						Practical (20 hours of student effort)	10%			
BIO321	Introduction to Bioinformatics	3	Practical	20%	Final	50%	AS5012	Introduction to Bioinformatics Algorithm	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%	
			In-class Test	15%										
			Assignments	15%										
BIO332	Structural Bioinformatics	3	Practical	20%	Final	50%				Assignments (20 hours of student effort)	30%			
			In-class Test	15%										
			Assignments	15%										
CIS380	Software Engineering	3	Practical	20%	Final	50%	AS5013	Software Engineering and Design	20	Practical (10 hours of student effort)	10%	Exam 120 minutes	50%	
			In-class Test	15%										

			Assignments	15%										
CIS290	System Analysis & Design	3	In-class Test	15%	Final	60%					Assignments (20 hours of student effort)	40%		
			Assignments	25%										
INF311	Data Mining	3	Practical	20%	Final	50%	AS5014	Artificial Intelligence in Data Mining	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%	
			In-class Test	15%										
			Assignments	15%										
CIS243	Artificial Intelligence	3	Practical	20%	Final	50%				Assignments (20 hours of student effort)	30%			
			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%										
CIS353	Operating Systems	3	Practical	20%	Final	50%				Assignments (20 hours of student effort)	30%			
			In-class Test	15%										
			Assignments	15%										
BIO 333	Mathematical Biology	3	Practical	20%	Final	50%	AS5015	Mathematical Models in Genetics	20	Practical (10 hours of student effort)	20%	Exam 120 minutes	50%	
			In-class Test	15%										
			Assignments	15%										
BIO311	Genetic Engineering	3	Practical	20%	Final	50%				Assignments (20 hours of student effort)	30%			
			In-class Test	15%										
			Assignments	15%										
CIS340	Analysis & Design of Algorithms	3	Practical	20%	Final	50%	AS5007	Mental Wealth: Professional Life 2 (Algorithms and Professional Ethics)	20	Practical (10 hours of student effort)	10%	Exam 120 minutes	50%	
			In-class Test	15%										
			Assignments	15%										
HUM216		2	In-class Test	15%	Final	60%				Assignments	40%			

	Professional Ethics & Legal Aspects		Assignments	25%							(20 hours of student effort)			
BIO421	Genomic Bioinformatics	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%	AS6016	Computational Bioinformatics	20	Practical (10 hours of student effort) Assignments (20 hours of student effort)	20% 30%	Exam 120 minutes	50%
BIO432	Computational Biology	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%							
CSC420	Image Processing	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%	AS6017	Biomedical Image Processing	20	Practical (10 hours of student effort) Assignments (20 hours of student effort)	20% 30%	Exam 120 minutes	50%
BIO441	Biomedical Image Informatics	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%							
BIO442	Biostatistics	2	In-class Test Assignments	15% 25%	Final	60%	AS6018	Application of Statistics in Biotechnology	20	Practical (10 hours of student effort) Assignments (20 hours of student effort)	10% 40%	Exam 120 minutes	50%
BIO411	Applications of Biotechnology	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%							
INF412	Cloud Computing	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%	AS6019	Cloud Computing and Neural Networks	20	Practical (10 hours of student effort) Assignments (20 hours of student effort)	20% 30%	Exam 120 minutes	50%
SCO411	Neural Networks & Deep Learning	3	Practical In-class Test Assignments	20% 15% 15%	Final	50%							

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

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

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

Since the ASU and UEL uses different grading and Pass/Fail systems as highlighted by the table on p. 64, 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 are also abiding to any private body or entity working inside the University premises. They must coordinate with the University on all matters related to health and safety management.

APPENDIX E: COURSE COMMITTEE (COLLABORATIVE)

Terms of Reference

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

- Providing a forum in which students can express their views about the management of the Course, and the content, delivery and assessment of modules, or equivalent, in order to identify appropriate actions to be taken in response to the issues raised and to ensure that the implementation of these actions is tracked.
- Providing formal yearly student feedback on the Course as input into the preparation of the Course REP.
- Reviewing Course questionnaire results and making recommendations and changes arising from these.
- Receiving, considering, and approving the Course REP and identifying responsibilities for action to be taken before it is considered by School Learning and Teaching Quality Committee.
- Reviewing progress on REP action plans at each meeting.
- Reviewing the relevant documentation and other evidence prepared for Academic and collaborative Institutional Review and other external review processes.
- Reviewing proposals for modification of the Course structure (validated Courses only) and noting implementation arrangements for modifications.
- Advising the Course Leader on mechanisms by which University policy statements, which have an impact on Course design and delivery, are implemented.

MEMBERSHIP

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

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