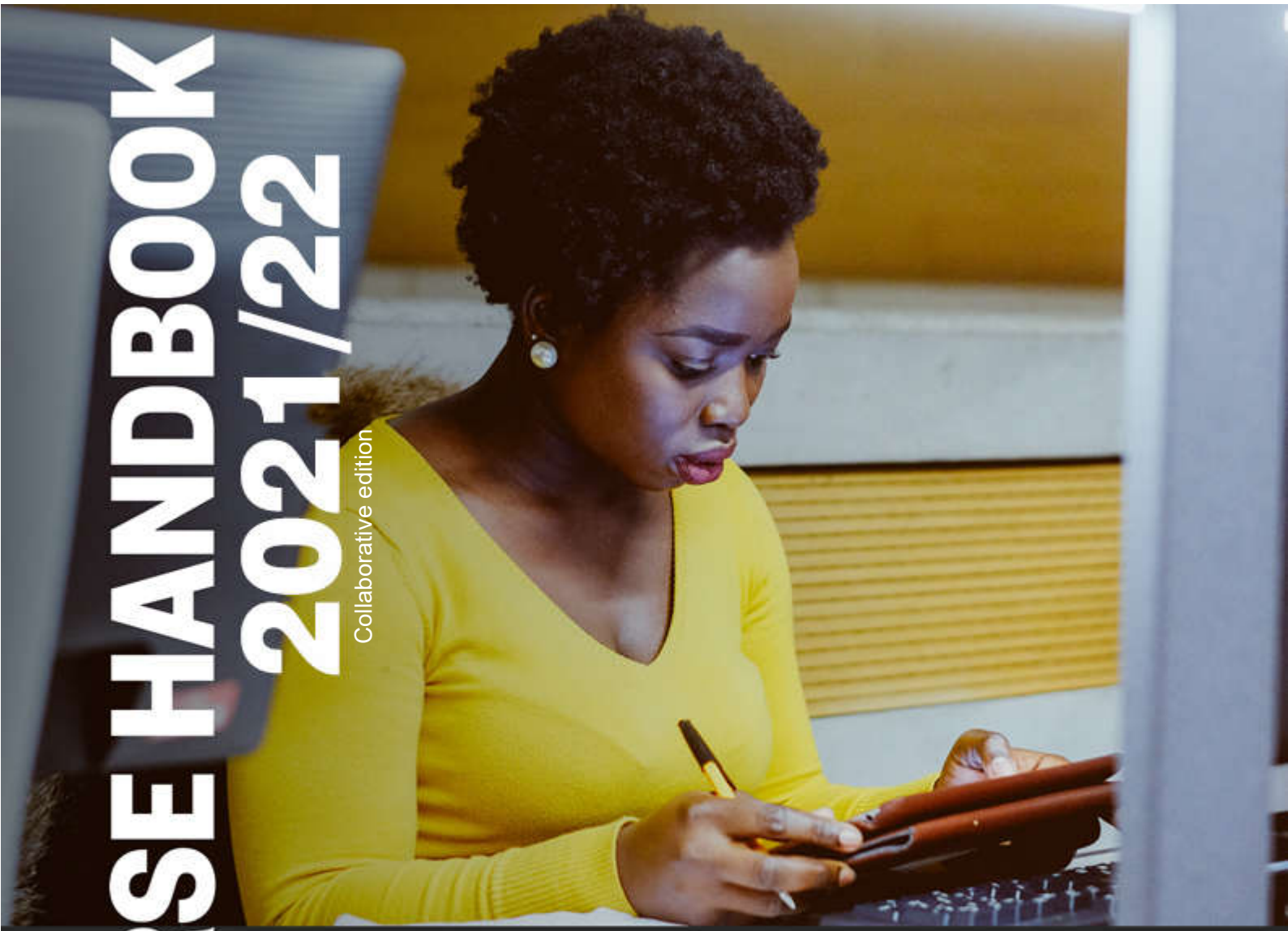
BEng (Hons) Manufacturing Engineering

Faculty of Engineering – Ain shams University



COURSE HANDBOOK 2021/22

Collaborative edition

NAF

University of East London

WELCOME AND INTRODUCTION

INTRODUCTION / WELCOME FROM THE PRINCIPAL

Congratulations on your enrolment into the BEng (Hons) Manufacturing Engineering programme – a programme that has been validated by the University of East London (UEL), our collaborative partner in the UK. UEL is an internationally renowned university which just like Ain Shams University (ASU) strives to achieve the highest possible standard of academic excellence. Apart from being one of the UK's most diverse and fastest growing universities, UEL is a global learning community with internationally recognised research. We are most confident that our collaboration with UEL will yield significant academic benefits both for ASU as an institution, and for the students who will enrol the BEng (Hons) Manufacturing Engineering programme.

Our vision at ASU is to provide our students with a holistic education to develop them into well-rounded individuals who excel both academically and professionally in areas such as leadership, entrepreneurship, social and personal development and growth. The programme is thus aligned closely with the tenets of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE). The framework for NAQAAE was established in 2006 by a presidential decree to enhance the quality of education in Egypt with a mandate to ensure the development of basic reference standards for education - National Academic Reference Standards (NARS).

According to the NARS, quality education that is based on well-defined standards is one of the most important determinants of national sustainable development in Egypt. Therefore, the requirements of the NARS form the basis for the development of Manufacturing Engineering programme at ASU. Thus, the programme is designed to inspire students to be innovative and creative by using appropriate teaching and learning technologies and pursuing independent and life-long learning. Graduates of the programme are expected to be able to apply knowledge of mathematics and natural sciences to develop ways to economically utilize the materials and forces of nature for the benefit of society.

Our graduates are expected to have productive and very rewarding careers in a variety of capacities. Graduates of the programme may work as Manufacturing managers, production line supervisors, mechanical designers and process planners for private and public organizations in multiple disciplines involving manufacturing and industry in its wide spectrum.

We are confident that you have made the right choice to continue your lifelong learning journey with ASU. We promise to make your time here with us a most enriching educational experience for you.

Dr. Mohammed M. El-Beheiry
Programme Leader

INTRODUCTION TO THE COURSE

Course Philosophy

Nowadays there are rising needs to modernize manufacturing industry to cope with the global challenges of producing cost-effective products, competing at international markets and adapting to rapidly changing technologies for modern industry. Manufacturing Engineering is a complex discipline that requires a great deal of diverse and specialized knowledge. Manufacturing engineers are required by companies involved in manufacturing any kind of products, ranging from machines, equipment and robotics to all consumer products. The Program provides a broad technical background for students, in addition to proficiency in engineering methods, problem-solving and decision-making skills to a variety of manufacturing engineering issues. The aim of the program is to produce manufacturing engineers who will be responsible for the design, selection of materials, specifications and the improvement of production processes and equipment. Responsibility for design and enhancement of manufacturing systems, production management and control, as well as plant maintenance are also required by manufacturing engineers.

Manufacturing engineering program aims to graduate engineers with the ability to deal with the latest developments in the fields of advanced manufacturing, various fields of mechanical, mechatronics and electronic to meet current moral and professional requirements both theoretically and practically. This is done by creating appropriate environment for the development of different skills of students and faculty members and cooperation with competent industrial and research bodies locally and internationally

BEng (Hons) in Manufacturing Engineering Program Graduates may seek jobs at companies involved in manufacturing any kind of products, ranging from machines, equipment and robotics to all consumer products. They often have their choice of challenging positions such as manufacturing engineer, production manager, design engineer, quality specialist, process analyst, maintenance engineer, operations manager, continuous improvement engineer, or technical sales engineer.

Furthermore, a validated degree via a UK HEI will provide the students with a richer competency and skills-set. Finally, the skills which the students will gain on the course will enhance the manufacturing engineering discipline in Egypt and build capacity for sustainable development of the industrial environment.

Course duration and modes of study

The BEng (Hons) Manufacturing Engineering course is a 4-year full-time degree course which includes a foundation year and three (3) years for the specialised courses.

The allowed study duration on the course is four years for full-time mode. In exceptional circumstances, this time limit may be extended to five (5) years, which does not include frozen semesters for reasons acceptable by the faculty, after which the student is expelled from the courses.

The students are allowed to register fewer number of modules to comply with Part time mode of UEL with maximum study duration of eight years after first enrolment on the course.

It is possible to move from full-time to part-time study and vice-versa to accommodate any external factors such as financial constraints or domestic commitments. Many of our students make use of this flexibility and this may impact on the overall duration of their study period and the fees students pay annually, depending on the agreed financial arrangements.

Course aims and objectives

This Course is designed to give students the opportunity to:

- Use mathematical, physical and engineering sciences and system analysis tools in engineering products, machines and electro-mechanical systems design and manufacture.
- Demonstrate the ability to design, develop, implement, and improve manufacturing systems that incorporates people, materials, information and equipment.
- Apply and integrate knowledge and understanding of other engineering and non-engineering disciplines to support design activities.
- Plan, execute and undertake critical analysis of results of practical and/or simulation tests to design solutions and take decisions.
- Enhance students' understanding of innovative and pioneering approaches in engineering field and to be able to apply them to the solution of real-world problems developing new industrially relevant solutions.
- Analyse the interaction between managerial tasks, and the human elements in production and industry in general.
- Develop excellence in communication of technical and non-technical information in written, oral or graphical form and the duties associated with the status and code of practice of manufacturing engineer.
- Enhance active learning and establish a well-developed academic base and ethics that provides for further learning and professional development.

Course Intended learning outcomes (ILO's)

The graduates of the BEng (Hons) Manufacturing Engineering program should be able to demonstrate the knowledge and understanding of:

Knowledge

- The principles of mechanical and manufacturing engineering; application of appropriate mathematical, computational techniques and methods to model and analyse real-world engineering problems.
- Basic science and engineering fundamentals in mechanics, electronics and automation;
- The fundamental manufacturing processes and the most recent technologies that are used in that field. In addition to, the most important materials used in industry, their structure, and their modes of failure.
- Design process, design methodologies, manufacturing and operational practice.
- Management and business practices and engineers' roles in society.

Thinking skills

- Evaluate commercial risks and technical risks in unfamiliar circumstances.
- Interpret and analyse results, data and other information to present them in suitable forms.
- Select appropriate manufacturing method considering design requirements.
- Solve a wide range of problems related to the analysis, design, and construction of production systems.
- Analyse and solve the problems presented by industrial entities.

- Create solutions to mechatronics systems especially to manufacturing, maintenance and interfacing problems in a creative way, taking account of industrial and commercial constraints.

Subject-Based Practical skills

- The knowledge and skills to function effectively in industry to be able to progress in career and educational development.
- Prepare engineering drawings, computer graphics and specialized technical reports, process plans for manufacturing and communicate accordingly.

Skills for life and work (general skills)

- Personal development techniques and confidence in students' abilities to enable them to become a valued professional in the shaping of the community and society.
- Demonstrate efficient IT capabilities.
- Effectively manage tasks, time, and resources.

Course Structure & Content

The BEng (Hons) Manufacturing Engineering degree is a four-year UEL/ASU double award course, i.e. levels 3–6. The course conforms to UEL's Academic Framework structure. Essentially, this means that 20-credit modules will be delivered across two semesters (September – May). The modules have been repackaged from ASU existing course(s) and /or modules, in order to comply with criteria UEL's Academic Framework.

All modules will be taught/delivered and assessed in English. Each module will have a named Module Leader from ASU. The Course Leader, who has overall responsibility for the day-to-day running of the course is Dr. Mohammed M. El-Beheiry. Students will pay all tuition/study/workshop/Module field trip fees directly to ASU. Details of the course structure can be seen in below.

Intermediate Awards
If students are unable to complete their studies, the following awards can be made:
In order to gain a BEng. unclassified degree (ordinary degree) students will need to obtain a minimum of 300 credits including:

- A minimum of 120 credits at level four or higher
- A minimum of 120 credits at level five or higher
- A minimum of 60 credits at level six or higher

- In order to gain a Diploma of Higher Education students will need to obtain at least 240 credits including a minimum of 120 credits at level four or higher and 120 credits at level five or higher.

- In order to gain a Certificate of Higher Education students will need to obtain 120 credits at level four or higher.

- In order to gain an University Certificate student will need to obtain 40 credits at level three or higher.

Design of the Course

The design and content of the Manufacturing Engineering undergraduate course has been determined by a number of considerations including:

- to meet the national Benchmark Standards for Manufacturing engineering and the requirements of the National Framework for Higher Education Qualifications (see www.qaa.ac.uk for details).

- To meet the UEL Academic Framework Modular Regulations and other university policies (www.uel.ac.uk/academicframework).

- To reflect the research and professional interests of the staff. The options on offer are taught by staff who is specialists in those areas. In this way, you will be exposed to up to date research and also gain awareness of professional practice.

- To build up your knowledge and extend your skills as you go through the years. Each Year/Level of the course draws on and expands material presented at earlier stages. You will be expected to tackle more specialist topics and, in more breadth, and depth, to develop more critical evaluation and analysis of material, to begin to integrate material across modules, to rely less on basic text books and to read more original material, and to work more independently, with less guidance.

- To offer opportunities for you to develop career and work-related skills. Certain modules are specifically designed to help you with this, but all modules offer opportunities for practice and development.

- The module structure of this Course[1]:

Level	Year	Code	Module title	credit	Core/ Pathway Related
UEL Level 3 Modules Engineering Design BEng (Hons) – ASU Manufacturing Engineering Course					
3	1	MANF3001	Engineering Principles	20	Core
3	1	MANF3002	Engineering materials	20	Core
3	1	MANF3003	Thermofluids	20	Core
3	1	MANF3004	Engineering Mechanics	20	Core
3	1	MANF3005	Mechanical Engineering principles	20	Core
3	1	MANF3006	Thermodynamics	20	Core
UEL Level 4 Modules Engineering Design BEng (Hons) – ASU Manufacturing Engineering Course					
4	2	MANF4001	Engineering Design and Analysis	20	Core
4	2	MANF4002	Casting and Welding	20	Core
4	2	MANF4003	Machining Technologies	20	Core
4	2	MANF4004	Principles of Automations	20	Core
4	2	MANF4005	Mechanical Measurements	20	Core
4	2	MANF4006	Engineering skills and decision making	20	Core
UEL Level 5 Modules Engineering Design BEng (Hons) – ASU Manufacturing Engineering Course					
5	3	MANF5001	Work analysis and design	20	Core
5	3	MANF5002	Industrial Technologies	20	Core
5	3	MANF5003	Computer Aided Manufacturing	20	Core
5	3	MANF5004	Principles of Engineering Management	20	Core
5	3	MANF5005	Manufacturing Processes	20	Core
5	3	MANF5006	Entrepreneurial skills	20	Core
UEL Level 6 Modules Engineering Design BEng (Hons) – ASU Manufacturing Engineering Course					
6	4	MANF6001	Capstone Project	40	Core
6	4	MANF6002	Advanced Design	20	Core
6	4	MANF6003	Quality Engineering	20	Core
6	4	MANF6004	Sustainable Manufacturing	20	Core
6	4	MANF6005	Human Right and Engineering Ethics	20	Core
Additional details about the Course module structure: A core module for a Course is a module which a student must have passed (i.e. been awarded credit) in order to achieve the relevant named award. An optional module for a Course is a module selected from a range of modules available on the Course.					

[1] The listed modules' codes are temporary, and they will be updated latter according to the UEL partner Web Marks Entry (WME) system

FoE-ASU modify the courses bylaws every five years to cope with the advances in engineering technologies and/or enforcing corrective actions to face any deficiencies in the previous bylaws. The current enrolled students on the manufacturing engineering program are registered on the 2013 or 2018 bylaws, while the students who will register in the academic year 2021-2022 will be enrolled on the 2018 bylaws. As for students who will be enrolled on the 2018 bylaw and want to complete BEng (Hons) from UEL, they will register level UEL modules and follow either full time or part time study modes.

The following Table shows the content of each module of the MANF course modules, percentage weighting and the assessment method:

UEL Code	ASU Module Code	Module Name	Module Credit	Component(s) of Assessment	Percentage weighing	Assessment Method
Design Engineering Program (UEL)Level 3 –(ASU) Level 1						
	MANF3001	Engineering Principles	20	EPM116: Electrical Circuits and Machines	65%	Portfolio: Continuous Assessment of each single ASU course, including: For EPM116: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 39% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 26% of the total module grade. For PHM131: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade.
				PHM131: Rigid body dynamics	35%	
	MANF3002	Engineering materials	20	MDP151: Structures and properties of materials	40%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP151: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP152: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MDP152: Metallurgy and Material Testing	60%	

	MANF3003	Thermofluids	20	MEP111: Thermal Physics	35%	Portfolio: Continuous Assessment of each single ASU course, including: For MEP111: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade. For MEP212: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 39% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 26% of the total module grade.
				MEP221: Fluid Mechanics and Turbomachinery	65%	
	MANF3004	Engineering Mechanics	20	MDP111: Mechanical Engineering Drawing	40%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP111: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP121: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MDP121: Mechanics of Machines	60%	
	MANF3005	Mechanical Engineering principles	20	PHM112: Differential Equations and Numerical Analysis	60%	Portfolio: Continuous Assessment of each single ASU course, including: For PHM112: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade. For MDP182: • One major assessment task that represent the student's learning achievement which is project and/or lab reports (30 hours of student effort) equivalent to 39% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 26% of the total module grade.
				MDP 182: Metal Forming Theory and Processes	40%	
	MANF3006	Thermodynamics	20	MEP211: Thermodynamics	100%	Portfolio: Continuous Assessment of each single ASU course, including: MEP212:

						• One major assessment task that represent the student's learning achievement which is assignment and/or lab report (30 hours of student effort) equivalent to 60% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 40% of the total module grade.
Design Engineering Program (UEL)Level 4 –(ASU) Level 2						
	MANF4001	Engineering Design and Analysis	20	MDP112: Machine Construction	40%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP112: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP212: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MDP211: Machine Elements Design	60%	
	MANF4002	Casting and Welding	20	MDP251: Casting and Welding (1)	60%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP251: • One major assessment task that represent the student's learning achievement which is Project and/or lab reports (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade. For MDP252: • One major assessment task that represent the student's learning achievement which is project and/or lab reports (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade.
				MDP252: Casting and Welding (2)	40%	
	MANF4003	Machining Technologies	20	MDP281: Metal Cutting Theory and Technologies	65%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP281: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 39% of the total module grade.

				MDP282: Non-Conventional Processing	35%	• In addition to Written Exam (2 hours) equivalent to 26% of the total module grade. For MDP282: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade.
	MANF4004	Principles of Automations	20	ECE215: Introduction to Electronics	40%	Portfolio: Continuous Assessment of each single ASU course, including: For ECE215: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MCT211: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MCT211: Automatic Control	60%	
	MANF4005	Mechanical Measurements	20	PHM111: Probability and Statistics	50%	Portfolio: Continuous Assessment of each single ASU course, including: For PHM111: • One major assessment task that represent the student's learning achievement which is Assignments (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MEP231: • One major assessment task that represent the student's learning achievement which is lab report (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MEP231: Measurements and Instrumentation	50%	
	MANF4006	Engineering skills and decision making	20	ASU112: Report Writing and Communication skills	60%	Portfolio: Continuous Assessment of each single ASU course, including: For ASU112: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours)

				MDP231: Engineering Economy	40%	equivalent to 24% of the total module grade. For MDP231: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade.
Design Engineering Program (UEL)Level 5 –(ASU) Level 3						
	MANF5001	Work analysis and design	20	MDP233: Work Study and Plant Layout	100%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP233: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 60% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 40% of the total module grade.
	MANF5002	Industrial Technologies	20	MDP351: Industrial Furnaces and Heat Treatment	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP351: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP444: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MDP441: Industrial technologies	50%	
	MANF5003	Computer Aided Manufacturing	20	MDP387: Metrology	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP387: • One major assessment task that represent the student's learning achievement which is lab report(s) (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP386: • One major assessment task that represent the student's learning achievement which is lab report(s) (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MDP386: Computer Aided Manufacturing	50%	

	MANF5004	Principles of Engineering Management	20	MDP232: Industrial Project management	40%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP232: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP334: • One major assessment task that represent the student's learning achievement which is assignments and/or report (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MDP334: Principles of Operation Management	60%	
	MANF5005	Manufacturing Processes	20	MDP462: Polymer Processing Techniques	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP462: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP385: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MDP 385: Manufacturing Processes	50%	
	MANF5006	Entrepreneurial skills	20	ASU321: Innovation and Entrepreneurship	50%	Portfolio: Continuous Assessment of each single ASU course, including: For ASU231: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For ASU333: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				ASU333: Introduction to Marketing	50%	
Design Engineering Program (UEL)Level 6 –(ASU) Level 4						

	MANF6001	Capstone Project	40	MDP401: Design and Production Engineering Graduation Project (1)	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP401: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • Final presentation and report submission (2 hours) equivalent to 20% of the total module grade. For MDP402: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • Final presentation and report submission (2 hours) equivalent to 20% of the total module grade.
				MDP402: Design and Production Engineering Graduation Project (2)	50%	
	MANF6002	Advanced Design	20	MDP490: Die Design	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP490: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP414: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MDP414: Product Design and Development	50%	
	MANF6003	Quality Engineering	20	MDP439: Lean Manufacturing System	50%	Portfolio: Continuous Assessment of each single ASU course, including: For MDP439: • One major assessment task that represent the student's learning achievement which is case assignment (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP440: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.
				MDP440: Quality Assurance and Six Sigma	50%	

	MANF6004	Sustainable Manufacturing	20	ASU 114: Selected Topics in Contemporary Issues	40%	Portfolio: Continuous Assessment of each single ASU course, including: For ASU114: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP433: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				MDP433: Quality Control	60%	
	MANF6005	Human Right and Engineering Ethics	20	ASU 111: Human Rights	40%	Portfolio: Continuous Assessment of each single ASU course, including: For ASU111: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For ASU113: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.
				ASU113: Professional Ethics and Legislations	60%	

The course specification can be found at the following link:
https://eng.asu.edu.eg/download?sid=N%2FESEqoPr8p5OBQqa9LURnE9pdpTqBpEneS9zm3GRr8%3D
https://eng.asu.edu.eg/education/undergraduates/international-programs/uel/Uel_programs_Specs

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.

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

The Dean of Faculty of Engineering

Prof. Omar El-Houssieny is the Dean of Faculty of Engineering at ASU. He has overall responsibility for maintaining the high standards of quality and innovation in all our teaching and research activities.

The Course Leader

Dr. Mohammed m. El-Beheiry is the course leader for the BEng (Hons) Manufacturing Engineering course. The course leader represents the academic interests of the course, 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 guide each student registered on the course through the duration of the course and is the first port of contact when course level issues occur. The course leader, in conjunction with the academic support team, is responsible with the day-to-day running of the course. The course leader is there to resolve any issues that may arise at the course level and will mediate between module leaders & the academic support team to resolve any course level issues. If you have a problem with a particular module and have not been able to resolve it by talking to the Module Leader, you should bring the matter to the Course Leader. 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 Management Team

The Course Management Team consists of the Course Leader, Module Leaders, School Administrators and the Student Representatives, are collectively responsible for day-to-day running of the course. We have Course Committees and Meetings to discuss any issues that arise throughout the academic teaching and/or other subjects and these happen at least one per term.

The Module Leaders

Your 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 will deliver all of the lectures for their module. As far as possible any problems or questions concerning individual modules should be addressed to the Module Leader. In most cases this can be done within seminars, workshops or practical sessions. General academic advice can also be obtained from them.

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 the course of 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- FoE 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 and Employer Partnerships Office at apo@uel.ac.uk.

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

COURSE OPERATION AND STUDENT REGISTRATION

Study Timings and Registration

The academic year will comprise of two main 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.

- New students' enrolment in the programme starts two weeks before the starting of the Fall semester, after fulfilling all the programmes requirements and paying the enrolment fees, as recommend by the Programs Administration Council and set by the Council of the Faculty of Engineering.
- 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, after consulting the academic advisor, at the time of registration and according to the yearly rules issued by the Faculty and published in the student's guide. Registration is not final until the student pays the educational service fees for the semester.
- Late registration is not final unless there is a vacancy in the courses, and the student should pay late registration fees besides the prescribed academic service fees, in accordance with the recommendations of the Programmes Administration Council and approval of the Council of the Faculty of Engineering regarding this issue.
- The student may not register in any module without fulfilling all its prerequisites.

- The programme academic regulations are available at https://eng.asu.edu.eg/BylawsAndRegulations
- The Local Attendance and Engagement policy is available at https://eng.asu.edu.eg/uploads/uploadcenter/asu_594_file.pdf
- UEL University's academic regulations are available at: Academic Framework Regulations (see Manual of General Regulations, Part 3)
- 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 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 programme 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-FoE 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 and Employers Partnerships Office at apo@uel.ac.uk.

It is essential that you log in to UEL direct and enrol with UEL using the UEL student number that you have be given prior to attending any lectures.

Once you have gained admission to the course you must login to the UEL direct page using your student username which will be your UEL ID number and password and complete the on-line enrolment. Faculty of Engineering – Ain Shams University 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.
- The university supports a safe environment for both working and studying. The university environment must be free of bullying, harassment, and any form of discrimination. Any act of the aforementioned will not be tolerated and any complaints will be taken seriously. Anyone who feels being subjected to these acts is encouraged to raise complaints.
- All academic staff members, students and employees are supposed to treat each other with mutual respect and fairness. Everyone should respect the presence of individual differences, diversity in culture, personal opinions and beliefs.
- Equal opportunities and access to facilities are allowed for all staff and students. Each staff member or student is given full support to develop their skills and talents. Selection for employment, promotion, training, or any other benefits will be based on aptitude and ability.

MORE INFORMATION

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

COURSE MANAGEMENT

Students' support and guidance are provided through a range of resources. A welcome and induction process is delivered in their first week, where all students are guided to their studies.
The course pays special attention 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 courses from the main course web-page.
All electronic services provided to the students requires the use of university e-mail, hence, it is created automatically for the course's student when first enrolled to the course, and s/he retains this e-mail until s/he graduates.
The Student Information System (SIS) is the place where students can access all your academic records. It can be reached on the main course web-page, 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 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 of 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. Terms of reference are provided in Appendix D.

Students Involvement

There are different facilities that ensure students involvement that include:

a) Students' Affairs Administration

The students' affairs administration is chaired by the Vice-Dean for education and students' affairs and is located in the main building. This administration has representatives at the International Credit Hours Engineering Programs (iCHEP) administration offices (Ground Floor of the New Educational Building). The secretariat of each course (at the iCHEP secretariat office – Ground Floor of the New Educational 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 Engineering, 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 iCHEP financial affairs administration, located at the Ground Floor of the New Educational 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. Courses' students who fail to present copies of the payment to the iCHEP financial administration risk having no payment records at the administration.

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 main library has a shelf space for over 46,000 books on all subjects forming part of the Faculty curriculum. It has 353 technical periodicals (the Faculty receives 23 periodicals yearly on a regular basis). Additionally, it has more than 3,340 Ph.D. and M.Sc. theses resulting from all Faculty departments' activities. The students' library has multiple copies of textbooks, amounting to over 13,000, available for short-term borrowing to students. According to the Engineering Faculties libraries development project, annexed to the Ministry of Higher Education, the library is interconnected through the Internet with all the libraries of engineering faculties nationwide. VTLS library software system has been installed which contains all the modules to provide library services to the Faculty community.

e) ASU-FoE Information Systems

ASU-FoE have a solid understanding of the importance of information systems in each aspect in the CHEP academic environment. Hence, a comprehensive web portal has been created for CHEP that has all information and services needed for the student, parents, and staff members. Learning Management System (LMS) is one of the available services at the ASU-FoE portal for all students mainly to have their course materials posted regularly on it with a dedicated protected access to the courses s/he enrolled in them. 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 academic records,

undertake module registration, request to open module that are not offered, or even request advising appointment with academic advisors.

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 lectures, discussions, exams, and all verbal and electronic communications.

Module Guide: Each module guide should contain: module objectives, core and recommended textbooks, outline, material, assessments, grading policy and outcome. Outline should contain sections covered every week with reference to chapters/sections in the textbook. The instructor/module leader should give the module guide to the students during the first class. The module guide 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 course.

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, s/he will not be allowed to come back to the class. The student's attendance should not be less than 75% during each module component. Otherwise, the student should not be allowed to attend the final exam.

Assignments: Assignments are given every week (detailed are spelled out in the module), preferably from the textbook. Assignments should constitute 20% of the total grade. 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. These quizzes should constitute 10% of the total grade. 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 guide. This exam will be held during lectures/tutorials based on module component progress and will constitute 25% of the grade. The instructor can arrange for a bigger

or more suitable room for the midterm exam. The final exam constitutes 40% of the grade. It should be a comprehensive exam covering all material. The student fails the of each module component if s/he gets less than 30% of the final exam total grade. Instructors may select to have all exams open-book or closed-book.

KEY DATES

- Link to ASU-FoE academic calendar
  https://eng.asu.edu.eg/education/undergraduates/306847/section

- Link to UEL's academic calendar
  https://www.uel.ac.uk/student-life/key-dates

MODULE SPECIFICATIONS

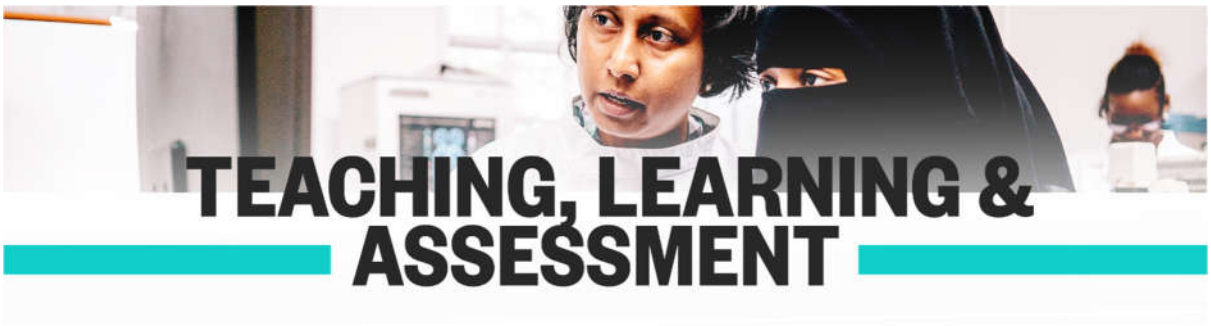
Module specifications define each module of study on the course. They will include **learning outcomes** and the **aims** for each module. These documents form part of the 'definitive' documentation for the course. It is important to note that reading lists and indicative content are likely to change.

All Modules are available at Appendix C of this handbook.

AWARD CERTIFICATES

For the UEL/ASU double award degree, students will be issued a UEL certificate and a UEL Diploma Supplement. In addition, ASU will also issue their own certificate to students who have completed the course. The calculation of the class of degree will be in accordance with UEL's degree classification calculations.
For students who have transferred to UEL (on campus in London): a UEL certificate will be issued together with a UEL Diploma Supplement. The calculation of the degree classification will be based on the proportion of the programme studied at UEL as per UEL's existing rules and regulations. ASU will determine at its discretion if credits can be brought back to ASU where the calculation of the class of degree will be determined by ASU.
All students completing their study at ASU could attend the graduation ceremony at UEL London campus according to their will and at their own expense.

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



Learning and Teaching

ASU strives to create an enabling environment conducive to meaningful learning in which students from all backgrounds are supported by committed and qualified staff. The FoE promotes an ethos of reciprocity, service and tolerance and is supportive of academically underprepared students, women, minorities, international students, disabled students, mature or working students and other underrepresented groups. The administration, communication, support services and curricula reflect and value diversity and staff capacity and administrative infrastructure are sufficient to cater for the number of enrolled students so as not to compromise the student's support and developmental needs.

Students have sufficient access to technology to make it possible for them to successfully complete the course. Information concerning student support services is made accessible to all students. This is mostly facilitated through fully fledged IT laboratories, and free Wi-Fi facilities. Services such as Learning support, additional tutorial support etc. are made available at all phases of a students' journey: on first entering the institution; and to ease the transition from Higher Education into the world of work. Teaching and Learning support to all the learners are provided using all the physical resources available at ASU and also provided by UEL such as online access to journals and databases.

The following summarizes the Learning and Teaching Policy at ASU which will govern this double award collaboration:

- Student evaluation and assessment is based on final exams, midterm exams, quizzes, module component work assignments, module's projects, presentations, papers, essays, in/out of class participation, portfolios and many other innovative activities.
- Module(s) instructors are carefully selected from the distinct full-time world-class faculty members of the Faculty of Engineering at Ain Shams University.
- With the majority of modules being delivered over the whole year there is excellent scope for formative Assessment to stretch and extend the students. Thus, a key feature of the modules 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.
- Assessment for these module components takes the form of examinations, module component work s, presentations and time constrained assessments.
- Each module syllabus contains: module objectives, textbook, outline, material, assessments, grading policy and outcome. Outlines should contain sections covered every week with reference to chapters/sections in the textbook. The

instructor will hand the module's (or module component) syllabus to the students in the first class. The syllabus serves as a contract between the instructor and the students.

The following are note compulsory for the double award degree but will be encouraged:

- The student should pass the ASU's requirements, which consist of humanities, social sciences, general culture modules' components. These components represent 18 credit hours at ASU selected from a list of components.
- The student should pass the ASU's College requirements, which consist of basic sciences and engineering courses. These courses must be studied by all students and they represent 46 credit hours.
- The student should perform summer training for 12 weeks during their study duration, and should be conducted during 3 summers. Training must be performed in an industrial/service facility related to the student's program or inside the faculty where it is delivered by staff members. The training must be under the full supervision of the faculty. The student submits their training portfolio to their Academic Advisor, who in turn assesses the outcomes and evaluates it.

ASU Attendance Policy

Across the faculty, consistent attendance of at least 75% and participation in program activities is part of the learning process. To meet all learning outcomes, FoE ASU expects full attendance in all lectures and insufficient attendance may result in an 'Incomplete' status for the module component. The school should be notified of absences. In case of illness a recognized medical certificate should be supplied. Students are encouraged to communicate with their lecturer or course coordinator if they have any queries pertaining to them**.**

Assessment

The module specifications provide a detailed breakdown of the weighting and volume of assessment. For a formal description of the assessment process students should refer to the Academic Regulations on the UEL website or refer to details in the guide for students.

Assessment Arrangements

Each module assessment will be designed and set in accordance with the module specification. This will state the number of components to be assessed as well as the weighting of each component. Each assessment will be moderated/verified internally at ASU before it is sent to UEL for approval. All module or component assessments must be formally approved before they are issued to students. All assessments will be approved via the normal and established UEL procedure(s). Marking criteria will be published to students using either a rubric or more detailed written explanation and will be provided to students at the same time as the assessment specification/task. This will form part of the assessment brief which will be agreed with the external examiner. Marking of assessments will use the full scope of marks, that is 0 – 100. A sample of 10% or 10 scripts (whichever is greater) must be second marked by ASU and this must cover the full range of marks. In the case of the research project (or similar work), the work of the entire cohort will be blind double-marked. The samples (including both second marked and non-second marked) will be sent to UEL for forwarding to the External Examiner for review.

UEL will determine what documents/information is needed for an Assessment Board and this will be communicated to ASU in a timely manner.
All summative assignments will be marked anonymously where possible and subject to second marking. ASU will conduct a pre-board where all modules and profiles of students will be considered, and this will be fed back to UEL who will consider these at the relevant UEL Assessment Board. The results will be considered at assessment boards, which will be held at UEL. Feedback will be given to all students especially on summative assessment tasks. Normally the module leader will choose how this is given, but generally it will be given individually (within 20 days).
UEL operates a minimum of 30% threshold in each component of assessment on a module. However, to pass the module students will need to achieve a weighted average of at least 40%. Progression to the next higher level (year) will only be permitted if the student has gained at least 90 credits during the academic year.
On the UEL/ASU double degree, students will not be permitted to study any level six (6) modules, if there are outstanding level four (4) modules. The Assessment Board at UEL (with representation by the Academic Link Tutor) will determine the progression decision of all students.

ASU Assessments vs UEL/ASU Double Assessment Arrangements

On the UEL/ASU double award degree, students must pass the agreed UEL module in conformity with all established rules and procedures as determined by UEL. If a student has failed a module or component of a module on the UEL/ASU double award degree, the student will be entitled to a resit opportunity. This will normally be in the early summer (July/August).

Students will be asked and expected to retake a module with attendance if a resit opportunity was not successfully passed; however, this depends on the individual profile of the student – taking into consideration UEL policy/rules on retakes. Although reassessment on modules is not permitted on the Egyptian award, yet students are able to review the module component work grades and discuss with the instructor the marking of the module component work. As for the final exam students are permitted to submit an appeal for revising the marks registration and the completeness of grading the final exam paper. However, modules reassessment is possible on the UEL award according to UEL regulations.

UEL's "capping" regulations will apply for any resit or retake modules or components of modules. Passing an ASU module or component of a module does not automatically mean that the UEL/ASU double award module has been passed. There will be no averaging (mean) of module marks on ASU modules to determine UEL/ASU double award module marks. The marks of a module will be as specified on the module specification.
If a student fails a module on the ASU variant of the course but passes the UEL/ASU double award module: This student would have been deemed to pass the module and would be given the credits for such module.
An agreed equivalence chart/table will be used to compare ASU marking/grading scheme to that of the UEL/ASU double awarded degree. However, in all cases, on the UEL/ASU double award degree the full spectrum of marks (0-100) will be used.
Students will be entitled to UEL's "compensated pass" regulations on the double award degree. Summer training/placements/work is not a formal part of the UEL/ASU double awarded degree but will be encouraged.

Moderation of Assessment

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

Preparing the assessment brief / examination paper

- Module lecturers design/ write the questions / briefs and produce answers with marking schemes.
- Another lecturer checks the assessment questions, solutions and marking scheme.
- Copies of the assessment questions, answers and marking scheme are sent to UEL for checking and approval.
- UEL sends the assessments to external examiners for approval.

Marking of assessments

- Students' assessments are marked by the FoE- ASU teaching staff.
- A sample of 10% or 10 scripts, whichever is the higher, are double marked by another lecturer within FoE-ASU
- In the case of exam scripts, the papers of the entire cohort is blind double-marked
- The double marked sample is sent to UEL for forwarding to the External Examiner
- The results are considered at assessment boards.

All summative assignments are marked anonymously where possible and subject to second marking. If they can't be marked anonymously, the assignments will be double-marked. The ASU examination board will conduct a pre-board where all modules and profiles of students will be considered. This will be fed back to UEL who will consider these at the relevant UEL Assessment Board.

Submission of Module component work

The module handbook/guidelines will explicitly detail how module component work should be submitted and these will (using student number, word count, word-processed). Submission dates will be available in the Module Guides and on the VLE.

We strongly suggest that you try to submit all module component work by the deadline set as meeting deadlines is expected in employment. However, in our regulations, UEL has permitted students to be able to submit their module component work up to 24 hours after the deadline. The deadline will be published in your module guide. Module component work, which is submitted late, but within 24 hours of the deadline, will be assessed but subjected to a fixed penalty of 5% of the total marks available (as opposed to marks obtained).

Please note that if you submit twice, once before the deadline and once during the 24 hours late period, then the second submission will be marked and 5% deducted.

Further information is available in the Assessment & Feedback Policy at https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Assessment-and-Feedback-Policy.

Extenuating circumstances claims

Under certain circumstances, extenuation can be granted. Academic staff should direct students to FoE ASU support staff trained on UEL extenuation processes as outlined in UEL's extenuation policy as FoE – ASU will follow the process of UEL for the Extenuating circumstances: ***https://www.uel.ac.uk/discover/governance/policies-regulations-corporate-documents/student-policies/extenuation-procedures***
Normal UEL criteria will apply. A subcommittee will be set up at FoE - ASU under the guidance of the Academic Link Tutor. This committee will report its finding and determination to UEL (APO and ALT).

Breaches of Academic Misconduct Regulations

Assessment tasks are designed to reduce, as far as is practicable, the possibility of plagiarism and collusion and other instances of academic misconduct. Where an instance of academic misconduct is suspected, procedures detailed in Part 8 of Manual of General Regulations (Academic Misconduct Regulations of UEL) will be invoked. The cases will be identified through Turnitin facilities provided by UEL for the registered students and they will be dealt with the same procedures mentioned in the General Regulations manual. Students will be made aware of the Academic Integrity Policy to assist in the avoidance of plagiarism. As part of their induction, students will also be required to complete the academic integrity certificate on Moodle.

The following is a non-exhaustive list of examples of academic misconduct:

Plagiarism: representing another person's work or ideas as one's own, for example by failing to follow convention in acknowledging sources, use of quotation marks etc. This includes the unauthorised use of one student's work by another student and the commissioning, purchase and submission of a piece of work, in part or whole, as the student's own.

Collusion: cooperation in order to gain an unpermitted advantage. This may occur where students have consciously collaborated on a piece of work, in part or whole, and passed it off as their own individual efforts or where one student has authorised another to use their work, in part or whole, and to submit it as their own.

Misconduct in examinations (including in-class tests). Including, for example, when an examination candidate:

- copies from the examination script of another candidate;
- obtains or offers any other improper assistance from or to another candidate (or any other person unless an approved reader or scribe);
- has with them any unauthorised book (including mathematical tables), manuscript or loose papers of any kind, unauthorised electronic devices (including mobile telephones) or any source of unauthorised.
- allows himself/herself to be impersonated or when any person impersonates another examination candidate.

Fabrication or misrepresentation: the presentation of fabricated data, results, references, evidence or other material or misrepresentation of the same. Including, for example:

- claiming to have carried out experiments, observations, interviews or other forms of research which a student has not, in fact, carried out;
- claiming to have obtained results or other evidence which have not, in fact, been obtained;
- in the case of professional qualifications, falsely claiming to have completed hours in practice or to have achieved required competencies when this is not the case;

Failure to obtain ethical approval: where work is undertaken without obtaining ethical approval when there is a clear and unambiguous requirement to do so.
FoE ASU will use a range of mechanisms for determining academic misconduct including and not limited to, plagiarism software, internet searches, viva voce.

Feedback to Students

Feedback will be given to all students especially on summative assessment tasks. Normally the module leader will choose how this is given, but generally it is given individually. Assessment feedback is provided to you so that you can use the feedback to improve your future performance. You will be also provided with feedback on formative tasks – these are tasks that do not lead to a final mark or grade. The lecturer or the module leader will determine how this is given.
Feedback is central to learning and is provided to you to develop your knowledge, understanding, skills and to help promote learning and facilitate improvement.
All feedback will be:

- timely (provided within 20 working days)
- given in relation to the learning outcomes and assessment criteria
- provided on both module component work and examinations
- clear, relevant, motivating, and constructive
- developmental, enabling you to consolidate learning and achievement
- word-processed where e-submission is not used (unless the nature of the work prevents this e.g. mathematical formula)
- offered in a range of formats appropriate to the module e.g. electronically via Turnitin Grade Mark or other e-Submission tools where used, Audio file, Video file, or Screen cast.

Assessment Boards

Assessment Boards control, consider and adjudicate upon all assessments undertaken by students. The Board comprises a Chair (usually a Head of Department), all those substantially involved such as lecturers/tutors/module leaders and the external examiner(s).

Mapping of assessment schedule to UEL Boards

Submission dates will be planned in collaboration with the UEL Academic Link Tutor to ensure that the marking process is complete, and marks are entered in time for the appropriate board at UEL.

Use of Virtual Learning Environment (VLE) in the learning and assessment process;

Currently, the ASU uses a VLE where module content material such as lecture slides, tutorial and practical tasks are uploaded for the students to access.

Grades of the MANF Program modules

The points of each credit hour are computed as follows:

Ain Shams University			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	0.0	Less than 40%

Each module composed of two or three components (ASU Courses) and the weight of each component in the module evaluation is given in the module mapping table.
The marks of each module will be as specified on the module specification as in section 6.
Other general rules:
1. Late submission/breach of regulations will cause failure in the entire portfolio assessment.
2. The student must attend at least 75% of the component.
3. The students work is submitted for each individual ASU course in the form and deadline instructed via ASU assignment and goes via the normal marking process. Further the student work for each individual ASU courses is packed in a portfolio format for the submission requirement for the UEL degree.

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 or IEEE systems.

MORE INFORMATION

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

ACADEMIC MISCONDUCT & PLAGIARISM

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

MORE INFORMATION

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

RESEARCH INTEGRITY

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

MORE INFORMATION

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

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

PLACEMENT ARRANGEMENTS

Placements and volunteering provide opportunities for students to gain work experience, develop work-related skills, learn about professional sectors and how your studies can be directly applied in the work environment. Many programmes include placements as part of the formal programme of study, and for others placements are a mandatory professional requirement.
Although there is no compulsory placement system, we encourage all students to seek work experience during their summer vacations. Training could be performed in an industrial/service facility related to the student's program and must be under the full supervision of the faculty according to the requirements stipulated in Article (37) of the ASU Credit-hour Educational Programmes bylaws. The training is mandatory for the normal ASU degree.

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

Scholarships

The student who achieves an accumulative GPA of 3.6 or higher after any semester and did not fail any ASU course (module component) throughout her/his course of study is included in the Dean's List and receives partial exemption from charges on the next semester. This exemption is dependent on the student's GPA as recommended by the Programmes Administration Council in this regard and after approval of the Council of the Faculty of Engineering. The student who keeps an accumulative GPA of 3.3 or higher in every semester all through her/his course of study and does not fail any module component, graduates with an Honor Degree, which is documented in her/his graduation certificate. Additionally, the top 30 students in Thanaweya Amma, mathematics section, who enrolled in the credit hours programmes, are fully exempted from paying any tuition fees in their first semester. To maintain this exemption in the following semesters, the student should maintain an accumulative GPA of 3.6 or higher in every semester. This exemption is declined once the student fails to achieve this accumulative GPA in any semester. The faculty sets a system for encouraging distinguished students through reducing their tuition fees in accordance with their accumulative GPAs. At the beginning of each semester, the distinguished students' list is announced together with the associated tuition fees reductions.

Local arrangements for academic and pastoral care for students

Induction

Students' support and guidance are provided through a range of resources. A welcome and induction process starts in their first week, where all students are guided to their course studies. Student induction and orientation takes place on the first day of each academic year. The purpose of induction is to introduce new students to their peers, the academic and support staff, to familiarize them with the access to and use and of facilities and to outline the relevant Policies, Procedures, Rules and Regulations. Information on the course, student support services and the teaching and learning philosophy adopted by the College is communicated verbally and in writing.

Currently, at the beginning of each course, the faculty meets and greets the new cohort and addresses the following topics in an induction programme:

(1) Course Structure (how and when modules are assessed)
(2) Course Content

(3) Assessment Grading
(4) Attendance
(5) Responsibilities they have in learning process – the importance of meeting assessment deadlines
(6) Importance of presenting authentic work and being clear on what constitutes plagiarism rules
(7) Appeals procedures
(8) Allocation of Personal Tutors
(9) Access to UEL electronic learning resources
(10) Access to UEL Library and Learning Services
(11) UEL Academic Framework
(12) Assessment regulations
(13) Extenuation

At the start of the course each student will be given either a hard copy of the course handbook or access to the VLE where this will be published.

English language Support

For those who require additional support in English language additional sessions are scheduled by ELTU (English Language Teaching Unit).

Student mentorship

The Academic staff must provide each and every student with the support required to perform academically, and encourage active engagement from the students through:

- Establishing a supportive relationship with all students
- Adopting a creative approach to teaching and learning
- Providing regular constructive assessment feedback
- Mentoring and coaching

Students may make an appointment to meet with any tutor or the course leader to discuss their progress and request additional assistance with managing their workload or to ask for additional tutoring in an area that she/he may be struggling with.

Academic Advisor

All students enrol on the course will be assigned an Academic Advisor (AA).
This Academic Advisor will:

- Assist students with the process of induction and orientation into academic life and the University/College community and respond promptly to any communication from him/her;
- Work with students to build personal academic relationships;
- Retain an interest in their students' personal and general academic and professional development throughout their academic careers while at the University/College, providing information and guidance on academic choice;
- Monitor both academic performance and student engagement in a proactive manner and advise on constructive strategies to enable improvement, for example through the use of a personal portfolio or personal development plan;
- Listen and offer students help and advice about pastoral/non-academic matters and to signpost students to other student services for further assistance if necessary;
- Ensure that a note is kept of discussions at each meeting (with the student) and any follow-up actions agreed with the student;

- Provide references to students in their quest for employment of further study.

Academic Support Systems

AT ASU, students have full access to all required facilities and receive the best preparation for their undergraduate studies. These are including Library, Lab Room, ICT Room, Photocopying Facilities, etc. In addition, all students are assigned an Academic Advisor. Students participate in class activities that help develop their presentation and language skills, leadership skills, critical thinking skills and social skills, giving them greater confidence for their future academic challenges.

Teaching

At the FoE, teaching follows university practice with lectures, tutorials, assignments, projects and in college tests designed by an experienced teaching team. The module's learning management system is setup to have a page for each module studied during the semester. The student can access their modules and modules' components from the main course web-page. All electronic services provided to the students requires the use of university e-mail, hence, it is created automatically for the course's student when they are first enrolled to the course, and they retain this e-mail until they graduate.

Student Affairs

At ASU there are Student Affairs Officers who offer friendly and caring support and mentorship to students, not just for academic matters but also for personal problems. Throughout the course, the Students' Affairs Officer organizes weekly meetings, business trips and outings to places of interest in and around Cairo, as well as international trips during the summer holiday.

Safe Environment: FoE ASU provides a safe, caring and nurturing learning environment with friendly, supportive mentors and teachers who have many years of experience in teaching and mentoring.
Advising instruction assures that each advisor should discuss with student their progress in study, their performance at various evaluations and any complaints about the physical facilities either educational or recreational. In addition to study related topics, academic advisors are encouraged to support the mental health of students through discussing any external environment topics and assess the study stress the students are subjected to. ASU has agreements with NOGs that help students to face study stress in addition to ASU 13 hospitals which may help students in such issues.

Technical support for learners and staff

ASU employs a team of technical IT support and professional services staff to help staff and students with their teaching and assessment activities. The centre employs a dedicated IT Manager to provide the learners and staff with the necessary advice about the technical needs of the mode of study throughout the length of the course. The students and staff have the full access to the ICT room, photocopiers, printers and e-library throughout the course of the term. The IT team provide learners and

teaching staff with the necessary technical support in using 'Turnitin' software throughout the assignment submission and assessment process.

The team provides specialist technical support for teaching, learning and assessment activities to ensure they run smoothly. This can be anything from preparing resources, operating specialist laboratories and quantity surveying, to setting up classrooms.

Technical teams frequently have responsibility for related areas such as managing health and safety, contingency planning and capital planning, maintenance of both hardware and software.

Information on how the entitlements of disabled students have been addressed within curriculum design:

As a UEL validated programme, the curriculum has been designed to adequately address needs and requirements of disabled students. From a local perspective the programme team will ensure that if there are disabled students on the course the following will apply:

- Step free access to laboratories/classes
- Larger fonts sizes for presentation materials
- The use of scribes
- Voice recorders will be allowed (with the permission of the presenting lecturer)
- Extra time for examinations
- Use of word processor (PC) without Internet access for examinations.
- Separate room for special needs students (if requested)

Access to UEL Academic Link Tutor (ALT)

All ASU students on the proposed courses (being submitted for approval) will have access to the respective Academic Link Tutor generally via email. Students are encouraged to discuss any issue or concerns with their in-house tutors at the first instance before contacting the Academic Link Tutor.

UEL Resources

As UEL registered students, FoE - ASU students will also have access the following UEL resources:

- UEL Library including e-resources, databases and e-journals (subject to licence allowances)
- Study skills Plus – an online diagnostic and assessment tool which can help students develop their core English and maths skills.
- UEL Direct
- Information and communications technology (ICT) resources such as Office365, UEL Software center, Lynda.com, UEL email, Panopto and Moodle.

The role of the UEL Academic Partnership Office (APO)

The APO will work in liaison with the ALT, however principally the role of the APO is administrative support for the ALT and the Partner. The APO will be the first point of contact for the partner and will channel concerns, issues, queries to all UEL Central Services such as Registry, Assessment Unit, The Hub, Courses and Systems, UEL Library and so on.

Student Feedback Mechanisms

Student representatives will be either elected or nominated for each course. These representatives are the means of formal communication to the various committees at FoE - ASU Campus and UEL. There will be two formal meetings per year with the student representatives, module leaders and the course coordinator at FoE - ASU Campus. The External Examiner report will also be made available for students to access. The issues raised at these meetings will be communicated to the Academic Link Tutor or APO at UEL. Actions resulting from these issues will be monitored and taken in the next committee meeting, where the representative will get an update, if not solved then and there.

We ask that student representatives discuss all matters informally with their Module Tutor at FoE - ASU before raising them at committee level. It should be possible to solve most problems by an informal approach. The earlier the course team are made aware of any problems, the earlier FoE - ASU will attempt to correct problems. Student support is appreciated and acknowledged consistently in the student End-of-Module Evaluation Questionnaires and verbal feedback. The information collected from the Questionnaires is delivered to the Senior Management of FoE - ASU for analysis and taking any remedial actions.

Academic Progress

Students on the double degree programme will be able to access their records/profile via UEL Direct. ASU also has its own The Student Information System (SIS) platform where students can access all their academic records. It can be reached on the main course web-page, which also provides brief information about the mission and vision of the programme, and the important dates related to student academic activities. Students receive an Academic report on a quarterly basis to assist them to monitor their progress and to identify any areas of concern. Students also meet with the Academic Head and the relevant facilitators to discuss their progress. Recommendations for improvement are made and the feedback is minuted

.

Students with learning challenges

Students with learning challenges are accommodated as far as possible, taking the current College resources into consideration. The Academic Board is responsible for approving any recommendations made by the Student Counselor to accommodate a student with any of the following learning challenges:

- A cognitive disadvantage which affects their ability to learn at the same rate as their peers.
- A specific learning difficulty which may or may not be linked to a cognitive disability
- A speech and language impairment affecting their ability to comprehend
- A physical disability and sensory impairment
- An emotional disability which can affect their ability to learn
- An extended period of absence which could occur for a variety of reasons
- A behavioral impairment affecting their ability to concentrate and therefore learn effectively

- Students who speak a different language at home than the one they speak at College

Online information and support:

As previously mentioned, the course team will use their own VLE. A bespoke section will be created for

- Induction information
- Academic support for students available both at FoE - ASU and UEL
- FoE - ASU Student Enquiries Desk opening hours
- FoE - ASU Library opening hours
- Link to UEL Library online resources
- Copy of Course Handbook

a) <u>Local library and IT resources</u>

ASU - FoE central library 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) halls according to the following:

- The student library hall contains (16,461) books.
- The teaching staff hall contains (29,607) 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 an presidential initiative started at 2016 and 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 give access to their contents in all scientific and cultural disciplines. Generally, 25 global publishing house and specialised companies, have their content at the Egyptian Knowledge Bank such as Emerald, John Wiley Elsevier .. etc.. 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) <u>Other local resources relevant to supporting the programme</u>

The faculty offers students Training Support through **Global Training Technology Centre**. It aims to be a centre for innovation in technology and entrepreneurship, as to form a link between academic study and labour market. The centre offers training programmes to serve students and graduates at the same time, these training programmes aim to develop the creative sense of the trainees in order to integrate them into creative and innovative works that would serve the industrial field and the community. Depends on the overlap between the different disciplines in various fields and at various levels. The centre is nearly 1000 m² area, it works as the headquarters for the students to practice their activities in the future, and the college is preparing the headquarters of the centre to accommodate the necessary training activities.

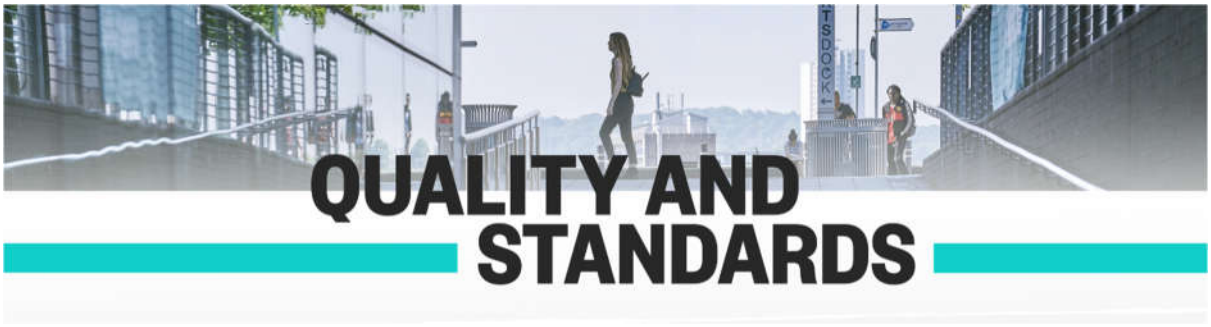
ASU Career centre is established as a replacement of the Employability and Career Development centre which was established through the collaboration between Ain Shams University and the American University. ASU Career Centre has a permanent headquarter in Faculty of Engineering and the main headquarter in Ain Shams University main campus at Abbasia. It provides special training programmes for students in order to develop their capabilities in the professional and employment

fields. The centre aims to guide the trainee to her/his excellence and weaknesses points, and how to raise points of excellence and overcome weaknesses.

The number of computers available to students is about 600 modern machines. A suitable number of computers are available for faculty members in their respective laboratories and offices in different sections. The number of computers available to employees is 250 devices. Computer labs are run centrally for students. The method of using these labs has been adopted by setting a nominal fee of not less than two pounds per hour to use the central labs which are open to access the network, while the student does not bear any burdens to enter the laboratories associated with the ministry while the Income is suitable for the maintenance and modernization of computers in college. 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 Engineering has a website through the main website of Ain Shams University. The website is: https://eng.asu.edu.eg/. The website provides various services for students and faculty members by presenting the internal regulations of the bachelor's degree course as well as higher education. The site is being developed and data recorded within it are consistently updated. The contents of the various educational materials are displayed. The modules' components 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 modules and modules' components, submit module component work and view their grades. Staff members can upload their lectures, view the online submissions and grade online. An information technology unit was set up for the electronic portal of the college to be the main focus of interaction between students and faculty.



QUALITY AND STANDARDS

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

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

MORE INFORMATION

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

EXTENUATING CIRCUMSTANCES

Extenuating Circumstances are circumstances which:

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

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

This course will be subject to equivalent procedures, with the process being administered by, and the panel being held within, Faculty of Engineering – Ain Shams University.

Module Improvement and Resit

Within the Ain Shams regulations the student can repeat a module for improvement if their grade satisfies the minimum passing requirement, according to the following rules: The student gets the grade of the module after improvement, and this grade is the one that will be accounted for in the accumulative GPA, on condition that the improvement should be shown in the student's transcript. The student can improve up to five modules during her/his study duration, except for improving module component with the purpose of getting out of the academic warning or satisfying the graduation requirements. The student should pay the fees for the failed module.

If the student fails a module component (less than 40%) after resit, s/he should repeat the module component (full attendance and performing all activities including examinations), according to the following rules: The maximum mark of the repeated module component is 40%. The student gets the grade of the module after repetition, and this grade is the one that will be accounted for in the accumulative GPA, on condition that the repetition should be shown in the student's transcript. The student should pay the fees for the failed module.

Ain Shams University will only report the original mark to UEL.

Seeking Advice: Academic Advisor

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 may ask the student to repeat module component which s/he already passed or ask her/him to register in additional module component to raise her/his accumulative GPA to that required for graduation.

Extenuation procedures (Manual of General Regulations) for ASU – FoE is available at: https://eng.asu.edu.eg/uploads/uploadcenter/asu_1768_file.pdf

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

The BEng Manufacturing Engineering programme will be subject to equivalent procedures, with the process being administered by, and the panel being held within Ain Shams University – Faculty of Engineering

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

(i) Allow students to hand in module component work 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 an panel of senior staff (not devolved to various parts of the organisation)
- Retain student anonymity where possible

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

The procedures govern circumstances which

- Impair the performance of a student in assessment or reassessment
- Prevent a student from attending for assessment or reassessment
- Prevent a student from submitting assessed or reassessed work by the scheduled date
-
- Such circumstances would normally be
- Unforeseeable - in that the student could have no prior knowledge of the event concerned
- Unpreventable - in that the student could do nothing reasonably in their power to prevent such an event
- Expected to have a serious impact
-
- Examples of circumstances which would normally be regarded as serious are:
- A serious personal illness (which is not a permanent medical condition – this is governed by disability procedures)
- The death of a close relative immediately prior to the date of assessment

Examples of circumstances which would *not* normally be regarded as extenuating circumstances are:

- Failure of computer equipment / USB stick
- Transport problems, traffic jams, train delays
- Misreading the exam timetables / assessment dates
- Minor illnesses

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

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

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

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

Access and Participation Plan
https://www.uel.ac.uk/-/media/main/governance/uel-access-participation-plan-2019-2020.ashx?la=en&hash=611F4EBA4C254C535D28EF963CC8A5D40A22560D

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)

Bus Timetable
https://uelac.sharepoint.com/EstatesandFacilitiesServices/Pages/Timetable.aspx

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

Civic Engagement
https://www.uel.ac.uk/Connect/Civic-Engagement

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

Counselling
https://uelac.sharepoint.com/StudentSupport/Pages/Health-And-Wellbeing.aspx

Disability support
https://uelac.sharepoint.com/StudentSupport/Pages/Disability-And-Dyslexia.aspx

Engagement & Attendance Policy
https://www.uel.ac.uk/Discover/Governance/Policies-Regulations-Corporate-documents/Student-Policies (click on other policies)

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

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

IT Support
https://uelac.sharepoint.com/sites/ITServices/SitePages/Problem_Reporting/Reporting-Problems.aspx

Library Archives and Learning Services
https://www.uel.ac.uk/lls/

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/governance/annex-d---student-protection-plan---19-20-v5-dated-29-07-19.ashx?la=en&hash=F072ACA99BAEE007A22D649A76EBFBBE9B6D5324

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 Engineering – Ain Shams University complaints policy is available at: [insert link to collaborative partner complaints policy]

Faculty of Engineering – Ain Shams University 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 Engineering – Ain Shams University 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 Engineering – Ain Shams University complaints policy, please email the Complaints and Appeals Office at complaints@uel.ac.uk

AIN SHAMS UNIVERSITY – FACULTY OF ENGINEERING (ASU – FoE)

IN COLLABORATION WITH

University of East London

SCHOOL OF ARCHITECTURE, COMPUTING AND ENGINEERING

BSc (Hons) in Manufacturing Engineering

APPENDIX C: Module Specifications

Academic Year 2021-2022

Module Title: Engineering Principles	**Module Code:** MANF3001 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr Mohammed El-Beheiry
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
EPM116: Electrical Circuits and Machines	Fall Semester	65%
PHM131: Rigid body dynamics	Fall Semester	35%

Summary of module for applicants:
This module is design to provide students with the fundamental principles and concepts involved with dynamics, machine elements and electrical and electronic engineering, and to enable the students to select appropriate electromechanical systems to solve real-life engineering problems.

Main topics of study:

Electrical Circuits and Machines:

- Constants and variables of electrical Circuits, elements of electrical circuits
- Network theorems
- Sinusoidal alternating current circuits at steady state, Phasor diagram
- representation of sinusoidal quantities, Applications of network theorems on alternating current
- circuits
- Electric power in alternating current circuits, complex power calculations
- power factor
- Three phase Circuits and systems
- Magnetic circuits
- Transformers
- DC Machines
- Synchronous machines
- Induction machines

Rigid Body Dynamics:

- Planar kinematics of a rigid body, Translation, rotation, and general motion
- Rotation about a fixed axis. Angular measurements.
- Velocity analysis: Vector analysis.
- Velocity analysis: instantaneous center of rotation.
- Acceleration analysis.
- Kinematics of rolling motion: Theory and analysis
- Rolling motion: Applications (Slipping and no slipping).
- Kinetics of a rigid body. Force-Acceleration method.
- Equations of motion: translation, rotation.
- Equations of motion: general plane motion.
- Kinetics of rolling problems.
- Kinetics of a rigid body. Work-energy method.
- Conservative and non-conservative field of forces.
- Kinetics of a rigid body. Impulse-momentum method.
- Impact problems.

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

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

Knowledge and Thinking skills

1. Recognize the voltage-current characteristics for different electric circuit elements and the differences between balanced and unbalanced three-phase circuits (COI).
2. Define the different theories that can be applied to electric circuits and characteristics governing different machines (COI)
3. Define kinematical quantities and the equations of motion of a rigid body for any type of motion and analyze the properties of this type (DP, COI).
4. Explain the alternative analysis of Kinetics such as work and energy, impulse and momentum methods (COI).

Thinking skills

5. Extend the different theories to model, analyze and solve transformers, magnetic circuits and dc machines and their loading (COI).
6. Formulate the kinematic and kinetic equations in order to describe the motion of rigid bodies (DP, COI).

Subject---based practical skills

7. Illustrate the different characteristics of 3 phase induction motors and synchronous generators (DP, COI).

Skills for life and work (general skills)

8. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline (SEI, CC).

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modeling

Assessment methods which enable students to demonstrate the learning outcomes for the module: **For on Campus Students**	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For EPM116: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 39% of the total module grade.	**100%**	1,2,5,7,8

• In addition to Written Exam (2 hours) equivalent to 26% of the total module grade. For PHM131: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade.		3,4,6,8

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. J. David Irwin & R. Mark Nelms, "Engineering Circuit Analysis", 7th Edition, John Wiley & Sons, 2011.
2. Hibbeler R.C., " Engineering Mechanics: Dynamics ", 13th Edition, 2013.

Recommended

1. Fitzgerald A. E., Kingsley C., Umans S. D. "Electric Machinery" McGraw- Hill Publishers, 7th edition, 2014

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	90 hrs
	- Laboratory work	60 hrs
	Total	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Engineering Materials	**Module Code:** MANF3002 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Prof. Ahmed El-Sabbagh
Pre-requisite: None		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP151: Structures and properties of materials	**Fall Semester**	40%
MDP152: Metallurgy and Material Testing	**Spring Semester**	60%

Summary of module for applicants:

The main aim of this module is to provide students with a basic understanding of the properties and behaviour of wide range of engineering materials and the different mechanical testing made to define their mechanical properties. This module will enable students to appreciate essential facts and principles required to make good choices in selection of materials.

Main topics of study:

- Classification of materials.
- Atomic bonding.
- Crystallinity of materials.
- Solidification of metals
- Phase diagram
- Iron carbon diagram
- Polymers
- Ceramics
- Introduction to Materials Testing
- Standardization & Deformation Systems
- Mechanical Properties & Tension Test I
- Compression – Bending Tests
- Hardness Test
- Shear Test & Torsion Test
- Strengthening Mechanisms
- Impact – Fatigue – Creep Tests
- Non-Destructive Tests

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

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

Knowledge and Thinking skills

1. List the various types of crystal systems, crystal structures and various types of polymers and their use is industry (IC).
2. Describe the mechanical behavior of any material under applied load (COI).

Thinking skills

3. Predict the failure section shape of ductile and brittle metals (COI).
4. Discuss the different type of applied loading, static or dynamic, and definitions of the mechanical properties related to different loading (COI).

Subject---based practical skills

5. Analyse the performance of common engineering materials through the laboratory microscopic analysis, mechanical testing, numerical analysis and communicate these findings appropriately (IC, DP).
6. Perform a tensile test using the universal testing machine and various hardness tests (DP, IC, PI).

Skills for life and work (general skills)

7. Effectively manage tasks, time, and resources and refer to relevant literature and standard and develop the creative thinking and problem-solving skills while working in teams. (CI, SEI).

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP151: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP152: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,5,7 2,3,4,6,7

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. William D. Callister, Jr. & David G. Rethwisch" Fundamentals of Materials Science and Engineering". An Integrated Approach. John Wiley & Sons, (Asia) Pte. Ltd.2018.
2. Bhargava A.K, "**Mechanical Behavior and Testing of Materials"**, Prentice Hall India Learning Private Limited, 2011

Recommended

1. R.K. Rajupt "Material Science and Engineering" 3rd edition, S.K. Kataria & Sons. 2008.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Laboratory work	60
	- Participation in class	15
	Total Hours	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Thermofluids	**Module Code:** MANF3003 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: None		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MEP111: Thermal Physics	**Fall Semester**	35%
MEP221: Fluid Mechanics and Turbomachinery	**Spring Semester**	65%

Summary of module for applicants:

In this module aims at enabling students to understand and use Gas law, first law of thermodynamics and basics of fluid mechanics. Students will be introduced to the main turbo machinery understanding their working theories and able to select them.

Main topics of study:

Thermal System, Control Volume, States of the Working Medium, Processes and Cycles, Calculation of Work, Heat Exchange with the Surroundings, Ideal Gases, Specific Heat at Constant Volume, Specific Heat at Constant Pressure, Equation of State, Pure Substances, Phase Equilibrium, Tables of Thermodynamic Properties, Internal Energy, Enthalpy, First Law of Thermodynamics on Closed Systems, First Law of Thermodynamics on Steady State Steady Flow Open Systems, The Case of Uniform State Uniform Flow, Application on Reciprocating Compressors, Ideal Gas Mixtures.
Properties of Fluids, Density, Pressure, Pressure Measurement, Forces on Submerged Bodies, Viscosity, Viscous Boundary Layers, Continuum Hypothesis, Streamlines, Velocity and Acceleration, Continuity Equation, Classification of Flow Fields: Pipe Flow, Jet Flow, Wake Flow, Boundary Layer Flow, Flow in Closed Conduits, Bernoulli's Equation, Major and Minor Losses in Pipes, Laminar and Turbulent Flows, Similitude and Dimensional Analysis, Lagrangian and Eulerian Coordinates, Transport Theorem on a Control Volume, Navier Stokes Equation, Flow around Immersed Bodies, Drag and Lift Forces, Compressible Flow, Stagnation Properties, Mach Number and Sonic Velocity, Equations of Gas Dynamics, Flow through Nozzles, Shock Waves, Classification of Turbo-Machines, Operation of Pumps, Series and Parallel Operation, Selection of Pumps.

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

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

Knowledge Skills

1. Define the concept of energy, and different basic concepts such as: properties, state, process, and equilibrium (IC).
2. Recognize the basic equations of fluid mechanics: continuity, momentum, energy and Bernoulli equations (COI).

Thinking Skills

3. Discuss the difference between the ideal gases and the pure substances and hydrostatic forces on submerged surfaces (COI).
4. Analyze the forces acting on immersed bodies (IC, COI, DP)

Subject---based practical skills

5. Represent thermal system and associated processes on p-v or T-v diagram. (COI)

Skills for life and work (general skills)

6. Design and perform experiments in the lab and field within proper technical, safety and ethical framework. (IC, COI, PI).
7. Effectively manage tasks and time and families with team-work environment developing creative thinking and problem-solving skills. (IC, COI, SEI).

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MEP111: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade. For MEP212: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 39% of the total module grade.	100%	1,3,5,6,7 2,3,4,6,7

• In addition to Written Exam (2 hours) equivalent to 26% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Yunus A. Cengel and Michael A. Boles, *"**Thermodynamics: an engineering approach"***, 5th edition, New York: McGraw-Hill, (2014)
2. F. M. White, "Fluid Mechanics," 4th Ed., McGraw-Hill, seventh international edition, ISBN 0-07-116848-6, 2012.

Recommended

1. Yunus A. Cengel & John Cimbala, "Fluid Mechanics Fundamentals and Applications" Edition in SI units, McGraw Hill, 2009.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	90
	- Laboratory work	15
	- Participation in class	30
	Total Contact Hours	**135**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Engineering Mechanics	**Module Code:** MANF3004 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP111: Mechanical Engineering Drawing	Fall Semester	40%
MDP121: Mechanics of Machines	Spring Semester	60%

Summary of module for applicants:

In this module aims introducing the basic machine elements to their assembly to the students. In addition to the basic kinematics and force analysis of the mechanical elements.

Main topics of study:

Introduction to Machine parts and assembly drawing, Types of threaded fasteners and washers, Internal and external Thread Standards, definitions and drawings, bearing drawings, types of fittings, Fits and Tolerances, Geometrical Tolerances, Surface Finish. Exercises on assembly drawings such as: crane hook, stuffing box, valves, grinding wheel drive, worm and worm gear, machine vice, hand press, transmission shaft, … etc.

Introduction to solid modelling on a CAD software such as Solid works, Inventor, or any other CAD, Sketcher workbench, Solid works features: applied features, pattern features, fillets, design tables. 3D Modelling techniques;3D Part design, Parametric part design. 3D Assembly. 3D animation. Drafting and 2D drawings: basics, cross sections, dimensions, fits and tolerance. Sheet metal design; Weldment features. Open-chain systems, closed-chain systems constraints, degrees of freedom, reference frames, inversions of four linkage (lower pair) mechanisms, slotted lever mechanism, steering mechanisms, inversions of mechanisms, Hook's joint, and synthesis of mechanisms. **Kinematics**: position analysis, velocity analysis, acceleration analysis, rotation representations, Euler angles, rotation matrix, homogeneous transformation matrix, direct and inverse kinematics. **Dynamics:** Equilibrium of machines, D'Alembert's principle, force analysis, power analysis, Friction and inertia-effects, centre of percussion, flywheel design. **Kinetics of single degree of freedom mechanisms:** Free body diagrams, Static equilibrium, Equation of motion. **Cams:** Types of cams, types of followers, kinematics and kinetics of cam. **Gears:** Concept of gear motion transmission, gear geometry and gear trains.

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

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

Knowledge Skills

1. Identify basic machine element. (IC)
2. Define various types of geometrical and dimensional tolerances. (IC)
3. Recognize the functions of different mechanisms. (COI, IC)

Thinking Skills

4. Develop construction and working drawing of assemblies. (COI)
5. Analyse a mechanism for a specific application. (COI, IC)

Subject---based practical skills

6. Use CAD software in producing engineering drawings and 3D animation of the assemblies. (DP, IC, COI, SEI)

Skills for life and work (general skills)

7. Conclude and developing innovative solutions for the practical mechanisms' problems in industrial applications. (IC, SEI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP111: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP121: • One major assessment task that represent the student's learning achievement which is lab reports (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,2,6,7 3,4,5,6,7

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Khurmi, R. et al., "Theory of Machines", 14th Edition, S. Chand & Co. Ltd, New Dehli 2005.

2. K. Rathnam, " A First Course in Engineering Drawing", Springer, ISBN: 978-981-10-5358-0 (eBook), 2018.

Recommended

1. SolidWorks essentials, Dassualt Systems Solidworks Corporation; 175 Wyman Street; Waltham, MA 02451 U.S.A., 2016.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	90
	- Laboratory work	60
	Total Hours	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Mechanical Engineering principles	**Module Code:** MANF3005 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Ramadan El-Gamasy
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
PHM112: Differential Equations and Numerical Analysis	**Fall Semester**	60%
MDP 182: Metal Forming Theory and Processes	**Spring Semester**	40%

Summary of module for applicants:

In this module aims at enabling students to solve differential equations using exact and numerical methods, to calculate the forming forces needed for different metal forming processes, and machinery design.

Main topics of study:

First Order Differential Equations, Higher Order Differential Equations, Laplace Transform, Fourier Series, Partial Differential Equations, Numerical Methods for Solving Ordinary Differential Equations, Numerical Methods for Solving Partial Differential Equations.
Deformation and recrystallization, Cold and hot working, Strain hardening, Analysis of stress and strain, Forging and its types, calculation of loads required to metal forming, Forging and dimensional changes, Calculation of load during friction and frictionless drawing and upsetting, Rolling and Calculation of load, Torque and rolling mill power, Extrusion and metal flow, Extrusion pressure diagram, Calculation of friction and frictionless extrusion pressure and parameters affecting extrusion, Wire and tube drawing and wire drawing die, Calculation of friction and frictionless wire drawing load, Stress strain curve and maximum reduction permissible, Deep drawing and dimensional changes in flange and wall thickness, Calculation of deep drawing load, Redrawing and parameters affecting deep drawing.

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

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

Knowledge Skills

1. Define different numerical integration methods, interpolation, the best estimate curve to represent data and system of linear equations (COI)
2. Define the methods used to obtain roots of nonlinear equations and techniques for solving ordinary differential equations. (COI)

Thinking Skills

3. Suggest a suitable forming process to produce a certain product. (IC, COI)
4. Evaluate some technological parameter for forming processes. (COI, DP)

Subject---based practical skills

5. Apply numerical integration and numerical solution of differential equations to solve practical engineering problems. (COI, DP)

Skills for life and work (general skills)

6. Work in groups at the workshop considering industrial safety precautions at forming workshop (IC, SEI, PI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For PHM112: • One major assessment task that represent the student's learning achievement which is assignment (30 hours of student effort) equivalent to 21% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 14% of the total module grade. For MDP182: • One major assessment task that represent the student's learning achievement which is project and/or lab reports (30 hours of student effort) equivalent to 39% of the total module grade.	100%	1,2,5 3,4,6

• In addition to Written Exam (2 hours) equivalent to 26% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Steven C. Chapra and Raymond P. Canale, "Numerical Methods for Engineering," 6th Edition, 2010.

2. Handbook of metal forming processes, Betzalel Avitzurwiley intescience, 1999.

Recommended

1. Kreyszig E., "Advanced Engineering Mathematics," 9th Edition, 2006, John Wiley & Sons.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Laboratory work	45
	- Group assignment (presentation)	30
	Total Contact Hours	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Thermodynamics	**Module Code:** MANF3006 **Level 3** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MEP211: Thermodynamics	**Spring Semester**	100%

Summary of module for applicants:

In this module aims at enabling students to understand the thermodynamics theories and its application in heat pumps, Air and Vapour cycles and heat engines.

Main topics of study:

Heat Engines, Refrigerator and Heat Pump, Second Law of Thermodynamics, Kelvin Plank Statement, Clausius Statement, Clausius Inequality, Entropy, Irreversibility, Reversible Process, Entropy Change of a Reversible Process, Entropy Change of Solids and Liquids, Entropy Change of Ideal Gases, Gibbs Relations, Isentropic Process, Entropy Increase Principle, Exergy and Availability, Reversible Work, Exergy Destruction Principle, The Second Law Efficiency, Air Standard Cycles, Vapor Cycles, Property Diagrams.

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

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

Knowledge Skills

1. Recognize the characteristics of real gas and combustion in actual and practical engineering processes. (COI)
2. Identify components and elements of thermodynamic machines that students shall encounter in industrial installations. (COI)

Thinking Skills

3. Analyse problems in the area of thermodynamics, conclude solutions and demonstrate creative thinking (IC, COI)

Subject---based practical skills

4. Apply the different types of cycles to industrial applications. (IC, CC, COI)

Skills for life and work (general skills)

5. Use appropriate thermodynamic charts and tables (IC)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: MEP212: • One major assessment task that represent the student's learning achievement which is assignment and/or lab report (30 hours of student effort) equivalent to 60% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 40% of the total module grade.	100%	1,2,3,4,5

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Yunus Cengel and Michael Boles, 2014, *Thermodynamics: An Engineering Approach*, 8th edn., McGraw Hill Inc.

Recommended

1. Cengel Bole, 2017, *Thermodynamics*, 8th edn., McGraw Hall India
2. Y. V. C. Rao, 2004, *An Introduction to Thermodynamics*, Universities Press.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:	- Laboratory work	**15**
	- Lecture and tutorial	90
	- Individual assignment (problem based)	30
	Total Hours	135
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Engineering Design and Analysis	**Module Code:** MANF4001 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: EG11314: Engineering Mechanics		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP112: Machine Construction	Fall Semester	40%
MDP211: Machine Elements Design	Spring Semester	60%

Summary of module for applicants:

This module aims at introducing to the students the stress analysis of mechanical elements and systems and the students will be able to design such systems and increasing the students' ability in designing mechanical components and relate this design to manufacturing techniques.

Main topics of study:

Introduction to Design Concepts, General Concepts of (Deflection, Buckling and Thermal Stresses), Design for Fatigue, Design of Machine Elements (Bolts, Power Screws, Rivets, Keys, Welded Joints, Springs), Design of Power Transmission Elements (Shafts, Couplings, Gears, Belt Drives, Chain Drives), Selection of Bearings, Design of Pressure Cylinders. Use of interactive Finite Element computer programs for problem solving is illustrated and used.

Loading Diagrams, General concepts of Stress and Strain, Types of Stresses (Normal Stresses and Shear Stresses), Combined Stresses, Theories of Elastic Failure, Safety Factor. Constructional details as affected by manufacturing, assembly, and strength considerations, Connections (Cantering, Flanged, Riveted, Keyed, Splined, Screwed), Power Screw and its joints, Seals, Springs, Stress Concentrations, Reverse Engineering.

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

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

Knowledge Skills

1. Define the mechanical design systems.
2. Identify different types of stress.
3. Recognize joining methods and mechanical connections.

Thinking Skills

4. Choose methods for solving complicated design systems.
5. Design different mechanical elements and systems.

Subject---based practical skills

6. Combine between design and analysis of different mechanical elements.
7. Predict various aspects of design systems.

Skills for life and work (general skills)

8. Work in teams and develop creative solutions to design problems.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP112: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP212: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,2,3,7,8 4,5,6,7,8

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Richard G. Budynas, J. Keith Nisbett, "Shigley's Mechanical Engineering Design", 19th Edition, Mc Graw Hill, 2011.

Recommended

1. Gitin M Maitra, L V Prasad, "Handbook of Mechanical Design ", 2nd Edition, Tata Mc Graw-Hill Publishing Company Limited, 2006.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	Lecture and tutorial	60
	Group assignment (presentation)	90
	Total Hours	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Casting and Welding	**Module Code:** MANF4002 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: EG11312: Engineering materials		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP251: Casting and Welding (1)	Fall Semester	60%
MDP252: Casting and Welding (2)	Spring Semester	40%

Summary of module for applicants:

This module aims at introduce students to design of casting and welding processes and relate products' designs to manufacturing techniques taking into consideration casting and welding requirements.

Main topics of study:

Metal casting technology: Introduction, Solidification processing, Liquid metals, Principles of solidification, Primary (wrought) and casting, Metals and alloys, Production of primary metals, Production of shaped casting, Patterns, Moulding techniques: Moulding techniques and dynamics, Melting procedures and equipment, Design considerations, Structure, Properties and defects of casting, Casting process selection, Casting techniques: die casting, continuous casting, centrifugal casting, ribbon casting, rheocasting, investment casting, casting defects and remedy, Codes of cast inspection., Design considerations, Computer applications in metal casting and flow patterns. Computer applications in metal casting, Quality control in casting, advanced casting processes.

Metal Welding Definition, Welding Joints, Welding Standards, Welding Symbols, Fusion Welding Processes, Solid State Welding Processes, High Energy Welding Processes, Heat Flow in Metal Welding, Chemical Reactions & Fluid Flow in Arc Welding, Solidification of Fusion Zone, Weldability & Cracking Susceptibility, Welding Defects, and Inspection of Welded Joints. Advanced welding operations: Laser welding, Electron beam welding, Friction stir welding of different alloys and post weld heat treatment and dissimilar materials, Ultrasonic welding (USW)

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

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

Knowledge Skills

1. Recognize castings design consideration.
2. Define defects of the castings. (IC)
3. Recognize inspection procedures of welding. (IC)

Thinking Skills

4. Identify different types of metal casting.
5. Master welds design. (IC)

Subject---based practical skills

6. Use welding standard and symbols efficiently. (IC)

Skills for life and work (general skills)

7. Provide solutions for engineering problems in mechanical design, comprehensive analytical skills

Teaching/ learning methods/strategies used to enable the achievement of learning outcomes:
For on campus students:
The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP251: • One major assessment task that represent the student's learning achievement which is Project and/or lab reports (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade. For MDP252: • One major assessment task that represent the student's learning achievement which is project and/or lab reports (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade.	100%	1,2,4,7 3,5,6,7

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. S. Kalpakjiam, "Manufacturing Engineering and Technology", 5th Edition, Pearson Prentice Hall, 2006.

Recommended

2. Gitin M Maitra, L V Prasad, "Handbook of Mechanical Design ", 2nd Edition, Tata Mc Graw-Hill Publishing Company Limited, 2006.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Lab Work	60
	- Group assignment (presentation)	30
	Total Hours	**150**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Machining Technologies	**Module Code:** MANF4003 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module	**Bylaw2018**	
Component (ASU Course)	**Regular offering according to study Plan**	**Weight**
MDP281: Metal Cutting Theory and Technologies	**Fall Semester**	65%
MDP282: Non-Conventional Processing	**Spring Semester**	35%

Summary of module for applicants:

This module aims at introduce the machining technologies through defining the processes, tooling required and machinery for both conventional and non-conventional machining.

Main topics of study:

Principles of machining, Materials of cutting tools, Turning machines, forces and processes, Drilling machines, forces and processes, Shaping and planning machines, forces and processes, Milling machines, forces and processes, Grinding machines and processes, Methods of tools and work piece fixation, Machining time, Sequence of Technological processes and operations, process sheet, operation sheet. Screws manufacturing, Gear cutting.

Chemical and Photochemical Machining (CHM), Electrochemical Machining (ECM), Electrochemical Deburring (ECD), Ultrasonic Machining (USM), Electro Discharge Machining (EDM sinking), EDM wire cutting, Laser Beam Machining (LBM), Electron Beam Machining (EBM), Water Jet Machining (WJM), Abrasive Water Jet Machining (AWJM), Abrasive Flow Machining (AFM). Rapid Prototype technique.

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

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

Knowledge Skills

1. Comprehends the physical phenomena encountered in machining.

Thinking Skills

2. Explains the behaviour of workpiece and tool materials during cutting
3. Describes the technical specifications of machining tools

Subject---based practical skills

4. Combine between different processes for hybridization.
5. Set the controlling factors affecting productivity of non-conventional machining processes.

Skills for life and work (general skills)

6. Use the required knowledge to select a suitable process for a specific product/component.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP281: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 39% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 26% of the total module grade. For MDP282: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 21% of the total module grade.	100%	1,2,3,6 2,4,5,6

• In addition to Written Exam (2 hours) equivalent to 14% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. S. Kalpakjiam, "Manufacturing Engineering and Technology", 5th Edition, Pearson Prentice Hall, 2006.
2. David A. Stephenson (Author), John S. Agapiou , Metal Cutting Theory and Practice, Third Edition 3rd Edition, 2016.

Recommended

1. **Gupta**, Kapil, **Jain**, Neelesh Kumar, **Laubscher**, R. F. "Hybrid Machining Processes Perspectives on Machining and Finishing", 2016, Springer Verlag.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Lab Work	60
	- Group assignment (presentation)	30
	Total Hours	**150**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Principles of Automations	**Module Code:** MANF4004 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed Awad
Pre-requisite: EG11311: Engineering Principles		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
ECE215: Introduction to Electronics	**Fall Semester**	40%
MCT211: Automatic Control	**Spring Semester**	60%

Summary of module for applicants:

This module aims at gives the basics automation theories and application in manufacturing industry, it will equip students with the needed knowledge about automation and practical skills in building automated systems.

Main topics of study:

Diode and Zener models, diode applications: clamping, voltage doupler, clipping, rectification. Opamp model, opamp applications: Inverting, non-inverting, buffer, summing, filters, Schmitt trigger, oscillators. Analog and Digital signals. A/D and D/A converters.
Introduction, Examples in: (Robotics, CNC Machines, Internal Combustion Engine (ICE), Industrial Furnaces, Process control, Servos, … etc.). Concepts and Fundamentals of open loop, closed loop, cascaded and feedforward control systems. The application of modelling techniques for control systems analysis. Determination of the plant and system responses in the time and frequency domains (using ODE, Transfer Function, Frequency response, Nyquist and Bode diagrams). Using software packages such as LabVIEW or MATLAB in the Lab to perform the previous aims. The industrial control equipment components (sensors, controllers (P, PI, PID etc.), actuators) and the corresponding specifications. The control system analysis tools and performance evaluation (e.g. steady state error, Stability and performance indices). Design control system compensators using the methods of Root-Locus, Frequency response, and pole- placement. P, PI, and PID controller tuning using Zeigler-Nichols and Cohen-Coon methods and applying that on a mini-Project.

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

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

Knowledge Skills

1. Define the fundamentals of low and high-power electronic components, related to manufacturing systems and their applications.
2. Define and explain of the importance of robots in industry.
3. Recognize the components utilized in conventional industrial robots.

Thinking Skills

4. Conclude and develop innovative solutions for the practical problems in industrial applications.
5. Choose and design robots for a given task.

Subject---based practical skills

6. Solve electronic engineering problems and search for optimized solutions
7. Practice the design of electronic components and systems having applications in manufacturing.

Skills for life and work (general skills)

8. Work in teams and develop creative solutions for automation in manufacturing processes.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For ECE215: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MCT211: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,6,7,8 2,3,4,5,7,8

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Farid Golnaraghi and Benjamin C. Kuo, "Automatic control systems", John Wiley & Sons, Inc. 2010.
2. A. Sedra & K. Smith, “Microelectronic Circuits”, Holt, Rinehart and Winston, 2004

Recommended

1. Ogata, K., "Modern Control Engineering", Prentice Hall Int., Fourth Edition 2002.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Lab Work	60
	- Group assignment (presentation)	30
	Total Hours	**150**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Mechanical Measurements	**Module Code:** MANF4005 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed Awad
Pre-requisite: EG 11313: Thermofluids		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
PHM111: Probability and Statistics	Fall Semester	50%
MEP231: Measurements and Instrumentation	Spring Semester	50%

Summary of module for applicants:

This module aims at equipping the students with the basic procedures of mechanical measurement and the statistical analysis needed to analyse the measurements results.

Main topics of study:

Review on Probability, Bayes' Theorem, Random Variables (Continuous and Discrete), Probability Distributions, Data Description, Descriptive and Inferential Statistics, Measures of Central Tendency and Dispersion.

Characteristics of Sensors, Flow rate Measurement Principles, Orifice-Meter, Venturi-Meter, Coriolis Flow Meter, Turbine Flow Meter, Rotameter, Velocity Measurements, Pitot Tube, Vane Anemometer, Hot Wire Anemometer, Laser Doppler Anemometer, Particle Image Velocimetry, Pressure Measurement, Manometer, Bourdon Tube Gauge, Piezoelectric Sensor, Temperature Measurement, Thermometer, Thermocouple, Thermistor, Optical Pyrometer, Rotational Speed Meters, Tachometer, Torque Measurement, Strain Gauges, Gas Analysis, Electro-Chemical Gas Analyzer, Accuracy, Precision, Statistical Methods Error Analysis and Uncertainty.

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

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

Knowledge Skills

1. Recognize continuous probability distributions: Normal distribution, standard normal distribution and exponential distribution (COI)
2. Know the measures of central tendency and the measures of dispersion.
3. Identify the coefficient variation and coefficient of skewness.
4. Define various errors of measuring instruments.

Thinking Skills

5. Explain the system performance characteristics.

Subject---based practical skills

6. Using the measuring instruments safely and correctly. (PI, DP)

Skills for life and work (general skills)

7. Collect, organization data, construct Frequency distributions and graphs for reports and experiments. (DP)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: **For on Campus Students**	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For PHM111: • One major assessment task that represent the student's learning achievement which is Assignments (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MEP231: • One major assessment task that represent the student's learning achievement which is lab report (30 hours of student effort) equivalent to 30% of the total module grade.	100%	1,2,3,7 4,5,6,7

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Alan S Morris Reza Langari "Measurement and Instrumentation". 2nd edition, 2015, El Sevier publishing.
2. D. Montgomry and G. Runger "Applied Statistics and Probability for Engineers", third edition, 2003, John Wiley and Sons.

Recommended

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Lab Work	45
	Total Hours	**105**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc…	
	Total **95 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Engineering skills and decision making (Mental Wealth)	**Module Code:** MANF4006 **Level 4** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
ASU112: Report Writing and Communication skills	**Spring Semester**	60%
MDP231: Engineering Economy	**Fall Semester**	40%

Summary of module for applicants:

This module aims to develop students' core competencies to form the basis of future competencies development throughout the programme of study. In this module, the students will undertake economic aspects of manufacturing and public projects that serves the communities with reference to human, financial, logistical resources. The module will further develop the students' self-awareness, interpersonal and communication skills through team work and mentoring.

Main topics of study:

Typography and writing, Formal report components, types of engineering reports, content and appearance, communication types, nonverbal communication, memo, letter, email and social media, infographics in reports and presentations, types of graphs, how to evaluation written material and oral presentations.
Origins of engineering economy, Principles of engineering economy, Design and manufacturing processes and EE, Cost estimation and cost terminology, Accounting, Balance sheet, Profit loss statement, Concept of equivalence, Money time relationships, Simple and compound interest rates, Single amounts and uniform series, Increasing and decreasing gradient, Application of money, Time relationships, Present value, Internal rate of return, External rate of return, Payback period, Evaluation of alternatives for different useful life and study period, Depreciation methods, Replacement analysis, Determination of the economic life of challenger and defender, Engineering economy techniques for evaluation of public projects.

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

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

Knowledge Skills

1. State the basic elements of economic tools. (IC, CC, COI)
2. Describe the basics of problem solving of time value of money in case of uniform series. (DP, IC, COI)

Thinking Skills

3. Select suitable visual aids (DP, SEI)

Subject---based practical skills

4. Select best economical alternative (DP, COI, EE)
5. Rewrite the results of the modeling process to management and other non-specialist users of engineering analyses. (DP, SEI, CC, COI)
6. Use the knowledge of engineering economy to take replacement decision. (DP, IC, COI)

Skills for life and work (general skills)

7. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline. (DP, SEI, CC)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For ASU112: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 36% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 24% of the total module grade. For MDP231: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 24% of the total module grade.	100%	3,4,5,7 1,2,6

• In addition to Written Exam (2 hours) equivalent to 16% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Blank and Tarquin, "Engineering Economy", Sixth Edition, McGraw-Hill, 2005
2. David Beer, and David McMurrey, A Guide to Writing as an Engineer, 3rd edition, John Wiley & Sons, Inc., 2009.

Recommended

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Group assignment (presentation)	45
	- Participation in class	15
	Total Hours	**120**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 80 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Work analysis and design	**Module Code:** MANF5001 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-beheiry
Pre-requisite: EG11425: Mechanical Measurements		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP233: Work Study and Plant Layout	**Fall Semester**	100%

Summary of module for applicants:

This module aims at providing students with broad understanding of human element participating in industrial systems with focus on the concept of productivity improvement and the tools used in improving manufacturing methodologies.

Main topics of study:

Productivity: Factors affecting productivity and role of management, Introduction to work study: Objectives, Techniques applied, Method study techniques: Charts and diagrams, Critical examination and analysis, developing new methods, Measures and controls, Work measurements, Learning curves: Concept, Application in work study and determination of standard time, workers incentives. Plant layout objectives and requirement, Work station layout, SLP, Setting the Layout.

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

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

Knowledge Skills

1. Explain concepts of productivity and productivity improvement. (IC)

Thinking Skills

2. Design workstation layout taking into consideration layout objectives. (IC, CI)
3. Design factory layout considering human, machine and materials requirement. (SEI, CI, CC)

Subject---based practical skills

4. Use various tools used to improve the productivity of manufacturing situation.
5. Draft the factory layout using CAD software. (DP)

Skills for life and work (general skills)

6. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: **For on Campus Students**	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP233: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 60% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 40% of the total module grade.	100%	1,2,3,4,5,6

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Lakhwinder Pal Singh, 2016, *Work Study and Ergonomics*, Cambridge University Press.

2. Matthew P. Stephens, 2019, Manufacturing Facilities Design & Material Handling, Sixth Edition, Pearson Education Inc.

Recommended

1. Brian Summerfield, *Facility and Process Design with Layout 3P: A Proven Approach to Creating Innovative Layout Solutions Fast*, TwoEghity3 IC LCC.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Group assignment (presentation)	45
	Total Hours	**120**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 80 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Industrial Technologies	**Module Code:** MANF5003 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: EG11421: Engineering Design and Analysis EG 11423: Machining Technologies	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module **Bylaw2018**		
Component (ASU Course)	**Regular offering according to study Plan**	**Weight**
MDP351: Industrial Furnaces and Heat Treatment	**Fall Semester**	50%
MDP441: Industrial technologies	**Spring Semester**	50%

Summary of module for applicants:

This module aims at providing with broad understanding of various manufacturing technologies and industrial systems with focus on melting and reheating furnaces and their use at various industries.

Main topics of study:

Classification of furnaces, Thermal furnaces (melting, drying, roasting, sintering and heat treatment), heat exchange and insulation materials, heat transfer and furnace design, fuel fired furnace, electric furnace, batch versus continuous furnaces, Elements of heat treating process, heat treatment types (stress relief, solution treatment, annealing, normalizing, quenching, tempering, ageing), heat treatment of steels, cast iron and nonferrous alloys. Case hardening, nitriding and carbonizing, surface hardening.

Primary, secondary tertiary and Quaternary economies and their relation to manufacturing activities. Different types of industries and technologies used in various industries such as food industries, apparel industries, building materials industries, petrochemical industries. A focus will be made on the different equipment, characteristics and considerations related to each industry.

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

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

Knowledge Skills

1. Outline the working concepts of equipment used in different industries such as: food, apparel … etc.
2. Recognize various equipment used in different manufacturing environment.

Thinking Skills

3. Analyse the process flow of different manufacturing industries.
4. Select the proper type of furnace for each process.

Subject---based practical skills

5. Design heat treatment processes

Skills for life and work (general skills)

6. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP351: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP444: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade.	100%	4,5,6 1,2,3,6

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. H. L. M. Lelieveld, John Holah, et al, 2015, *Handbook of Hygiene Control in the Food Industry* 2nd edn., Woodhead Publishing Series in Food Science, Technology and Nutrition.
2. Valery Rudnev, Don Loveless, et al., 2019, *Handbook of Induction Heating*, CRC Press.

Recommended

1. http://www.fao.org/fao-who-codexalimentarius/en/
2. http://ietd.iipnetwork.org/
3. Rajkishore Nayak and Rajiv Padhye, 2015, *Garment Manufacturing Technology*, 1st ed., Woodhead Publishing Series in Textiles

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

Live, applied project: A report will be submitted based on project tasks required.
Company/engagement visits: Factory visit(s) will cover the industries discussed at the module

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:	- Participation in class	
	- Lecture and tutorial	90
	- Group assignment (presentation)	45
	Total Hours	**135**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Computer Aided Manufacturing	**Module Code:** MANF5003 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed Awad
Pre-requisite: EG 11423: Machining Technologies		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module		
	Bylaw2018	
Component (ASU Course)	**Regular offering according to study Plan**	**Weight**
MDP387: Metrology	**Fall Semester**	50%
MDP386: Computer Aided Manufacturing	**Spring Semester**	50%

Summary of module for applicants:
The module is intended to equip students with the ability to use various dimensional measurement equipment and when they should be used. The module also aims at equipping students with the importance of using computers in the manufacturing sector in general to control the whole manufacturing process including, planning, control, scheduling, designing, production etc**.**

Main topics of study:
International system of units, Theory of measurements, Instrument classification, Types of magnification (mechanical, electrical, optical, pneumatic), Fits, Tolerances and limit gauges, Simple measuring Instruments (Vernier, micrometres, dial gauges, angle gauges, protractors, sine bar, sensitive level), Comparators, Measuring machines, Errors and calibration of measuring equipment, Indirect measurements, Screw thread and gear measurements, Surface roughness measurements (2D and 3D measurement), Static tests for machine tools, Advanced measuring techniques (laser measurement, computer- aided measurement, machine vision).
Computer technology, The foundations of CAD/CAM/CIM. Computer aided design: Fundamentals of CAD, The design process, Applications of computers for design, Computer-aided design software, Wire frame models, Solid modelling. Computer aided manufacturing: Automation of manufacturing processes, numerically controlled machines, Computerized numerically controlled machines (CNC), G codes, Programming languages, Applications and performance of CAD/CAM systems. Computer integrated manufacturing: manufacturing planning, integration, implementation of automation, robotics and financial and cost accounting integration.

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

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

Knowledge Skills

1. Classify different types of Magnifications used in measuring devices.
2. Outline CAD concepts. (DP)
3. Explain group technology and its applications.
4. Classify the components and processes of a flexible manufacturing system.

Thinking Skills

5. Evaluate measurement errors and workpieces out of tolerances. (PI)
6. Apply the concepts of part modelling for virtual prototyping and the knowledge of computer aided process planning, feature and group technology, and data exchange in manufacturing processes. (DP)

Subject---based practical skills

7. Measure workpieces using different measuring devices and advanced measurement techniques. (PI)
8. Choose the appropriate CAD module for each design step and the suitable cad data representation schemes and best cad modelling techniques for different applications (DP)

Skills for life and work (general skills)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP387: • One major assessment task that represent the student's learning achievement which is lab report(s) (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP386: • One major assessment task that represent the student's learning achievement which is lab report(s) (30 hours of student effort) equivalent to 30% of the total module grade.	100%	1,5,6,7,8 2,3,4,7,8

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. ASQ Measurement Quality Division and Editor Jay L. Bucher, 2015, *The Metrology Handbook*, 2nd edn., Pearson.
2. James A. Rehg, 2005, *Computer integrated design and manufacturing*; Prentice Hall

Recommended

1. Cornelius T. Leondes, 2003, *Intelligent Computer Aided and Integrated Manufacturing Systems: Intelligent Systems Technologies*, World Scientific Pub Co Inc.
2. Jerzy A. Sładek, 2016, *Coordinate Metrology: Accuracy of Systems and Measurements*, Springer Verlag.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Lab Work	45
	- Group assignment (presentation)	30
	Total Hours	**150**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Principles of Engineering Management	**Module Code:** MANF5004 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP232: Industrial Project management	Fall Semester	40%
MDP334: Principles of Operation Management	Spring Semester	60%

Summary of module for applicants:

This module aims at providing students with the knowledge and skills necessary to be able to manage manufacturing facilities and solve complex managerial problems within the manufacturing environment.

Main topics of study:

Competitiveness, Strategy and Productivity, Forecasting and time series analysis (qualitative techniques: Sales force polling, Customers' opinion, Delphi technique, Quantitative techniques: Smoothing methods, Averaging Methods, Linear regression), Product and service design, Capacity planning (defining capacity, rough-cut capacity planning, detailed capacity planning), Aggregate production planning. Project management: Project life cycle, WBS, LRC, project organization, project scheduling (CPM, PERT, Crashing, Resource levelling).

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

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

Knowledge Skills

1. Outline competitiveness and operations strategies within manufacturing environment. (IC, CC)
2. Identify the role of entrepreneurs in manufacturing. (EE)

Thinking Skills

3. Implement appropriate forecasting techniques.
4. Determine the project schedule. (IC, EE)
5. Determine resources needed for project, managing them effectively.

Subject---based practical skills

6. Prepare aggregate capacity Plans and production schedules

Skills for life and work (general skills)

7. Use the required knowledge to prepare manufacturing and industrial projects plans.

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP232: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP334: • One major assessment task that represent the student's learning achievement which is assignments and/or report (30 hours of student effort) equivalent to 36% of the total module grade.	**100%**	4,5,7 1,2,3,6

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Sammy G. Shina, 2014, *Engineering Project Management for the Global High Technology Industry*, 1st edn., McGraw-Hill Education.
2. William J. Stevenson, 2012, *Operations Management*, 11th ed, McGrow Hill,

Recommended

1. Harold Kerzner, 2017, *Project Management Case Studies*, 5th edn., Wiley.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Group assignment (presentation)	60
	Total Hours	**135**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Manufacturing Processes	**Module Code:** MANF5005 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Aymen Abdel Wahab
Pre-requisite: EG 11423: Machining Technologies		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP462: Polymer Processing Techniques	Fall Semester	50%
MDP 385: Manufacturing Processes	Spring Semester	50%

Summary of module for applicants:

This module aims at providing students with the knowledge and skills needed to design manufacturing processes planning and select the controlling parameters of different manufacturing processes.

Main topics of study:

Sheet metal work (shearing, pressing, blanking, spinning, bending, coining, etc.), Brief explanation to forming machines and equipment. Rolling lines: Coil-pass design, High-energy-rate terming (explosive, electro-hydraulic, electro-magnetic forming), Powder metallurgy (powder production, compaction, sintering and sizing), Super finishing and metal coating. An introduction: basics of polymers characteristics and the basic principles of polymer processing. Polymer extrusion (single and twin-screw extruders), foils, plates, profiles, blow moulding, films, fibres and reactive processing. Injection moulding, injection moulding dies, injection technique- plastics pressing, blow moulding foams.

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

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

Knowledge Skills

1. Explain sheet metal processes and high energy forming processes.
2. Outline powder metallurgy processes and usage.
3. Explain super finishing processes.
4. Outline polymer processing machines.

Thinking Skills

5. Design various parameter for sheet metal and forming processes.
6. Evaluate the injection parameters.

Subject---based practical skills

Skills for life and work (general skills)

7. Provide solutions for engineering problems, comprehensive analytical skills

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP462: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP385: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade.	100%	1,2,3,7 4,5,6,7

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. S. Kalpakjiam and Steven R. Schmid, 2013, *Manufacturing Engineering and Technology*, 7th edn, Pearson Prentice Hall.
2. Jean-François Agassant, Pierre Avenas, Pierre J. Carreau, Bruno Vergnes, Michel Vincent, 2017, *Polymer Processing: Principles and Modeling*, Carl Hanser Verlag GmbH & Company KG,.

Recommended

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Lab Work	60
	- Participation in class	15
	Total Hours	**135**
2. Student learning time:	unsupervised studio work/ research/ group work/ readings and reflections, etc… **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Entrepreneurial skills	**Module Code:** MANF5006 **Level 5** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: None	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
ASU321: Innovation and Entrepreneurship	Fall/Spring Semester	50%
ASU333: Introduction to Marketing	Fall/Spring Semester	50%

Summary of module for applicants:
This module aims at providing students with the knowledge and skills needed by entrepreneurs, with a focus made on the innovation and marketing skills.

Main topics of study:
Focus on the interconnection between entrepreneurial thinking and innovation, look at models used in Silicon Valley to grow both start-up companies as well as innovation inside large organizations, address critical areas for successful growth, including design thinking, open innovation, business models, product-market fit, and financing, how to think like an entrepreneur and provides the models, tools and frameworks to further develop your business or idea, emphasis on the IT space.
The concept of marketing: definition of marketing and its role in achieving organizational objectives, the importance of marketing, the marketing system, and organizing the marketing functions. The concept and aspects of the consumer behaviour, studying the markets. Market mix, segmentation, targeting, and positioning. The product strategy: branding, packaging, product mix, product life cycle, new products development. The pricing strategy: The importance of pricing, Methods of pricing. Distribution strategy: distribution channels, distribution outlets. Promotion strategy: advertising and personal selling.

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

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

Knowledge Skills

1. Identify the fundamental concepts and theories of marketing and the variables, techniques and the processes used to segment markets. (IC, SEI, CI)
2. Recognize the elements of marketing mix and the basic components of a feasibility study. (IC, CC, SEI, CI)

Thinking Skills

3. Design creative strategies for pursuing, exploiting and further developing new opportunities. (DP, IC, COI)

Subject---based practical skills

4. Apply the key principles and tools that marketers use to deal with marketing problems. (IC, SEI, COI)
5. Deliver creative and sustainable solutions to specific problems. (IC, CC, CI)

Skills for life and work (general skills)

6. Present the skills in writing and presenting marketing plan and problem-solving skills through marketing applications. (SEI, COI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For ASU231: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For ASU333: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade.	**100%**	3,5,6 1,2,4,6

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Philip Kotler and Kevin Keller, 2014, *Marketing Management,* Pearson Education, Inc.

2. John R. Bessant and Joe Tidd, 2015, *Innovation and Entrepreneurship*, 3rd Edition, Jhon Woely and Son Ltd, UK.

Recommended

1. Alexander Chernev, 2019**,** *Strategic Marketing Management - The Framework*, 10th Edition, Cerebellum Press, Chigaco, IL, USA.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	45
	- Group assignment (presentation)	45
	- Participation in class	30
	Total Hours	**120**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 80 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Capstone Project	**Module Code:** MANF6001 **Level 6** **Credit: 40** **ECTS credit: 20**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: 320 Credits completed	**Pre-cursor:** None	
Co-requisite: None	**Excluded combinations:** None	
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP401: Design and Production Engineering Graduation Project (1)	**Fall Semester**	50%
MDP402: Design and Production Engineering Graduation Project (2)	**Spring Semester**	50%

Summary of module for applicants:

The module represents the graduation project, where the students work under the supervision of faculty members. The graduation project should be linked real industrial problem or theoretical research related to manufacturing engineering. Throughout this module students will practice the analysis and design of a complete engineering system using the fundamentals, principles, and skills gained during their study. The research project also aims at increasing students' capability in technical report writing and presentation in engineering problems.

Main topics of study:

Identification of a real-life problem related to the program in general Setting the overall objectives of the project and specific objectives of Project, Collecting data from the field, market and/or literature, Proposing engineering solutions, Developing conceptual ideas/designs, Conducting preliminary analyses, Comparing different ideas based on technical aspects, Selection of the solution approach. Implementation of the solution proposed, conducting necessary analyses, Developing necessary drawings, calculations, and models, Selecting appropriate materials, Using contemporary software tools, manufacturing of physical prototypes or physical models if necessary, testing and validation of the developed systems, Estimation of costs and necessary resources, Technical reporting of the project, Presenting the project activities and outcomes.

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 ☒

At Least one example/exposures is selected according the project topic(s).

Learning Outcomes for the module

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

Knowledge Skills

1. List methodologies of solving engineering problems, data collection and interpretation (SEI, COI);
2. Conduct a literature review related to project domain (CC, CI).

Thinking Skills

3. Select appropriate analytical methods, tools, and software to solve the research problem (IC, CC, COI);
4. Model the real-life industrial problem analytically. (IC, CC, COI)
5. Design an engineering system/solution(s) to solve the project research problem. (IC, COI, CC)

Subject---based practical skills

6. Design a system and formulation of the real-life problem(s) available in industry. (IC, CI, CC)
7. Solve engineering problems and implement solutions based on what has already studied in the program. (IC, COI)

Skills for life and work (general skills)

8. Formulate a range of ideas using appropriate spoken and written English (SEI, CI)
9. Collaborate with other students, industrial partners, and project supervisor (SEI, CI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP401: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • Final presentation and report submission (2 hours) equivalent to 20% of the total module grade. For MDP402: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • Final presentation and report submission (2 hours) equivalent to 20% of the total module grade.	100%	1-9 1-9

Reading and resources for the module:

These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. For core resources related to thesis topic will be recommended by the supervisor(s)
2. Kate L. Turabian, 2018, *A Manual for Writers of Research Papers, Theses, and Dissertations*, 9th edition, University press of Chicago.

Recommended

1. Jason Teteak, 2014, *Rule The Room: A Unique, Practical and Comprehensive Guide to Making a Successful Presentation*, Morgan James Publishing
2. David V. Thiel, 2014, *Research Methods for Engineers*, 1st Edition, Cambridge University Press.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	30
	- Field/Lab work	105
	- Group assignment (presentation)	105
	Total Hours	**240**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 160 hours**	
Total hours (1 and 2):	**400 hours**	

Module Title: Advanced Design	**Module Code:** MANF6002 **Level 6** **Credit: 40** **ECTS credit: 20**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: EG11421: Engineering Design and Analysis		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP490: Die Design	**Fall Semester**	50%
MDP414: Product Design and Development	**Fall Semester**	50%

Summary of module for applicants:
This module aims at equipping students with the needed knowledge and practice of advanced design, a focus will made on die design with its various types including plastic molds. The basics of product design and development is introduced to students.

Main topics of study:
Design of sheet metal of dies (single, compound, combination and progressive dies), Shearing (blanking and piercing), Bending (U- and V-bending), Deep drawing of cylindrical cup with and without flanges, Quadratic and rectangular shapes, Ironing. Design of forming dies. Parts of different types of dies and their materials and functions. The life and cost of different types of dies in terms of number of produced items. The capacity of different machines based on the utilized die. Manufacturing of dies. Plastic Moulding: Injection moulds: Tolerances in Mould and Part Design. Mould Steels, Mould Bases, Mould Layout, Ejection, Cooling, Gating, Hot Runners, Venting. Blow moulding processes, Materials, Primary equipment, Mould design and Auxiliary equipment.
Design Methodologies, Product Development Process, Task Clarification, Generic Design Process (Conceptual, Embodiment, Detail, Robust, Modular, System), Design for X, DFM, DFA, DFMA, Product Design and Development – Case Studies.

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

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

Knowledge Skills

1. Outline the concept of design for X (IC)
2. Classify various types of dies and their components
3. Outline the product design process.

Thinking Skills

4. Choose appropriate components for product design through innovative solutions for practical industrial problems. (IC)
5. Design heat treatment for the parts of dies as needed.

Subject---based practical skills

6. Apply empirical formulas to design production facilities parts. (COI)

Skills for life and work (general skills)

7. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline. (SEI, CI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP490: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP414: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade.	100%	1,3,5,6,7 2,4,6,7

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Vukota Boljanovic, 2014, *Sheet Metal Forming Processes and Die Design*, 2nd Edition, Industrial Press Inc.

2. Karl Ulrich and Steven Eppinger, 2019, *Product Design and Development*, 7th edition, McGrow Hill Publishing.

Recommended:

1. Bolkanovic, 2009, *Die Design Fundamentals*, 3rd Edition, Industrial Press Inc.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:	- Participation in class	
	- Lecture and tutorial	75
	- Lab Work.	30
	- Group assignment (presentation)	45
	Total Hours	**150**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 50 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Quality Engineering	**Module Code:** MANF6003 **Level 6** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: EG11534: Principles of Engineering Management		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None

Location of delivery: Ain Shams University Campus

ASU Courses that pack the UEL Module

Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
MDP439: Lean Manufacturing System	**Fall Semester**	50%
MDP440: Quality Assurance and Six Sigma	**Spring Semester**	50%

Summary of module for applicants:

This module aims at improving the students' knowledge and skills related to quality management and the new trends and approaches to improving the quality in manufacturing facilities.

Main topics of study:

Fundamentals of lean manufacturing principles. Toyota house, seven wastes, Push verse Pull systems and JIT, Kanban system, Kanban size and number, CONWIP. Value stream mapping: How to construct the current state map, improvement tools Kaizen, Poka-a-Yoke, 5S. Takt time calculations and production leveling.

Quality control systems, Quality systems for: design, development, purchasing, and Planning, Quality organization, Cost of quality, Training, Quality Management Systems, Quality assurance, ISO 9000 principles, other certification (CE mark, OSHA, … etc.), Employee participation programs. Six Sigma principles, Six Sigma as tool for development.

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

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

Knowledge Skills

1. Classify the 7 wastes in manufacturing systems. (IC)
2. Explain Pull manufacturing systems.
3. Define the concepts of quality assurance and six sigma. (IC, EE)

Thinking Skills

4. Calculate Kanban size and quantity.

Subject---based practical skills

5. Apply the DIMAC technique on industrial processes.

Skills for life and work (general skills)

6. Express a range of ideas using appropriate spoken and written English, demonstrating understanding of academic writing conventions and styles as specific to the subject discipline (SEI).

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For MDP439: • One major assessment task that represent the student's learning achievement which is case assignment (30 hours of student effort) equivalent to 30% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 20% of the total module grade. For MDP440: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 30% of the total module grade.	100%	1,2,4,6 3,5,6

• In addition to Written Exam (2 hours) equivalent to 20% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Jeffrey K. Liker, 2004, *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*, McGrow Hill.
2. Thomas Pyzdek and Paul A. Keller, 2012, *The Handbook for Quality Management, Second Edition: A Complete Guide to Operational Excellence*, 2nd edition, McGrow Hill Publishing.
3. Howard S. Gitlow, Richard J. Melnyck and David M. Levine, 2015, *Guide to Six Sigma and Process Improvement for Practitioners and Students, A: Foundations, DMAIC, Tools, Cases, and Certification*, 2nd edition, Pearson education Inc.

Recommended:

1. James P. Womack, Daniel T. Jones, 2003, *Lean Thinking: Banish Waste and Create Wealth in Your Corporation*, 2nd edn., Free Press.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	75
	- Group assignment (presentation)	45
	- Participation in class	15
	Total Hours	**135**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Sustainable Manufacturing	**Module Code:** MANF6004 **Level 6** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: EG11534: Principles of Engineering Management		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
ASU 114: Selected Topics in Contemporary Issues	**Fall Semester**	40%
MDP433: Quality Control	**Spring Semester**	60%

Summary of module for applicants:

This module aims at equipping students with necessary knowledge and practices of the new trends in manufacturing, the development of the technological aspects and the effect of such development on the quality of life of humanity and its socioeconomic effect on the industry practitioners. The module will address the tools and procedures used in quality control in manufacturing. Students will be able determine the cost of quality and how to set KPIs for the quality control functions. The module also aims to enable students to master manufacturing planning at different managerial levels.

Main topics of study:

Industry 4.0 topics will be addressed such as IoT (Internet of Things), Cybernetics and Supply Chains, Block Chains, the effect of automation in manufacturing on workforce, future manufacturing workforce skills and knowledge and data analytics.

Quality definitions and concepts, Process capability analysis, Theory of control charts, Statistical control charts for attributes, Statistical control charts for variables, Acceptance sampling: Principles and concepts, Acceptance sampling by attributes, Acceptance sampling by variables. Quality assurance and quality management systems, Different accreditation bodies for quality assurance certifications, ISO, CE Mark, BS, EN … etc.

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

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

Knowledge Skills

1. Explain the effect of ITC on supply chains and the concepts of industry 4.0 and IoT (DP, IC).
2. Explain quality concepts and various quality assurance standards and their requirements.

Thinking Skills

3. Design sampling plans with the determination of sample size.

Subject---based practical skills

4. Prepare Control charts for variables and attributes, materials requirement plans and production schedules for different manufacturing situations (DP, SEI).

Skills for life and work (general skills)

5. Demonstrate the effect of new technologies on workforce (EE).

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: **For on Campus Students**	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For ASU114: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For MDP433: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,2,5 3,4,5

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Doughlas C. Montgomory, 2012, *Statistical Quality Control* 7th edn., Wiley.
2. Thomas Pyzdek and Paul A. Keller, 2012, *The Handbook for Quality Management, Second Edition: A Complete Guide to Operational Excellence,* 2nd edition, McGrow Hill Publishing.

Recommended:

1. William J. Stevenson, 2012, *Operations Management*, 11th Ed, McGrow Hill.

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

Live, applied project: A report will be submitted based on project tasks required.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:		
	- Lecture and tutorial	60
	- Group assignment (presentation)	30
	- Participation in class	30
	Total Hours	**120**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 80 hours**	
Total hours (1 and 2):	**200 hours**	

Module Title: Human Right and Engineering Ethics	**Module Code:** MANF6005 **Level 6** **Credit: 20** **ECTS credit: 10**	**Module Leader**: Dr. Mohammed El-Beheiry
Pre-requisite: None		**Pre-cursor:** None
Co-requisite: None		**Excluded combinations:** None
Location of delivery: Ain Shams University Campus		

ASU Courses that pack the UEL Module
Bylaw2018

Component (ASU Course)	Regular offering according to study Plan	Weight
ASU 111: Human Rights	**Spring Semester**	40%
ASU113: Professional Ethics and Legislations	**Spring Semester**	60%

Summary of module for applicants:
This module aims at providing students with the knowledge and skills needed by entrepreneurs, with a focus made on the innovation and marketing skills.

Main topics of study:

- Introduce to student the meaning, history and different aspects of engineering and how it is affected by the links, contests and conflicts between globalization and human rights particularly in Egypt and the Middle East.
- During this module introduction of professional practice, responsibilities, health and safety and engineering ethics in academia and in the workplace is done.
- Students will be taught how to deal with local and international contracts.
- Students will get acquainted with the laws and Legalisation concerning engineering works of related fields and how to settle claims and disputes.

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

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

Knowledge Skills

1. Recognize the links, contests and conflicts between (largely, but not exclusively, economic) globalization and human rights as well as public policy implications, particularly as they relate to Egypt in the Middle East as well as global contexts. (CI, IC, SEI)
2. Define legal orientation to clarify responsibilities and rights within the triangle relation between: engineer, client and contractor in manufacturing contracts. (CI, IC, SEI)

Thinking Skills

3. Outline the conditions of all types of contracts including contracts for design, manufacture and turnkey projects and the changing skills of workforce to abide to contracts as the technology developed. (CI, IC, SEI)

Subject---based practical skills

4. Prepare arbitration file and pre-arbitral procedures in the scope of new technologies. (CI, IC, SEI)

Skills for life and work (general skills)

5. Carry debates effectively with people about globalization and ways of promoting and protecting human rights. (SEI, COI)

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

The teaching and learning strategy offers a supportive, creative and critical environment for guided individual and group work. Lectures, tutorials, Lab work, and Independent study using learning materials are used as learning tools. Feedback will be provided throughout the module in the form of both formative and summative work.
The module components are taught through a wide variety of means. These may include:

- Interactive Lectures
- Portfolio Tutorials
- Problem Solving
- Site visits.
- Group/ individual work producing surveys or modelling

Assessment methods which enable students to demonstrate the learning outcomes for the module: For on Campus Students	**Weighting:**	**Learning Outcomes demonstrated:**
Portfolio: Continuous Assessment of each single ASU course, including: For ASU111: • One major assessment task that represent the student's learning achievement which is Project (30 hours of student effort) equivalent to 24% of the total module grade. • In addition to Written Exam (2 hours) equivalent to 16% of the total module grade. For ASU113: • One major assessment task that represent the student's learning achievement which is project (30 hours of student effort) equivalent to 36% of the total module grade.	100%	1,2,3,4,5 1,2,3,4,5

• In addition to Written Exam (2 hours) equivalent to 24% of the total module grade.		

Reading and resources for the module:
These must be up to date and presented in correct Harvard format unless a Professional Body specifically requires a different format

Core

1. Goodhart, Michael, 2009, *Human Rights - Politics and Practice*, eds., Oxford: Oxford University Press

2. Florian amereller ll.m., Kilian bälz ll.m. and Sven klaiber, 2010, *Aguide to business law in egypt*, Amereller Legal Consultants

Recommended

1. Forsythe, David P., 2006, Human Rights in International Relations, 2nd edition, Cambridge: Cambridge University Press.

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

Live, applied project: A report will be submitted based on required project tasks.

Indicative learning and teaching time (10 hrs per credit):	**Activity**	
1. Student/tutor interaction:	-	
	- Lecture and tutorial	45
	- Group assignment (presentation)	60
	- Participation in class	30
	Total Hours	**135**
2. Student learning time:	Seminar reading and preparation/ assignment preparation/ background reading/ research/ group work report/thesis preparation, **Total 65 hours**	
Total hours (1 and 2):	**200 hours**	