



L-Università ta' Malta  
Faculty of Engineering



# Certificate in Engineering Sciences Handbook

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## Welcome Note

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Welcome to this guide to our Faculty. If you are a registered student, this aid will be invaluable to help you understand how to operate in the exciting environment that is the Faculty of Engineering. This is the closest thing to an operating instructions manual for engineering students, and will guide you through your studies with the Faculty.

The compilation of this handbook is part of our assurance towards providing students with the necessary information and procedures, with the aim of achieving superior quality in the delivery of the undergraduate programme of studies offered by this Faculty. As present or future students you are invited to be part of this experience, and to contribute by providing feedback and suggestions through the various channels set-up by this Faculty. Various student organisations and chapters have long been established. It is strongly recommended that you form part of these organisations. Together with these, student representatives are also invited to form part of the Faculty Board of Studies, responsible for the quality and assurance of the programme of studies of this course. Any student concerns can also be addressed at this board.

I conclude this introduction by thanking the Faculty staff who contributed to our degrees, towards excellence in knowledge transfer, teaching and research development.

Good luck in your engineering experience at the University of Malta.

**Prof. Ing. Andrew Sammut**

**Dean, Faculty of Engineering**

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## 1. Purpose of this handbook

The aim of this handbook is to answer the many questions you may have about the different aspects of studying for a degree at the Faculty of Engineering - University of Malta. The handbook contains practical information about the University, the Departments and the programme of studies offered by this faculty, including course regulations, study-unit learning outcomes and departmental procedures. It is an important reference document which will help you to ensure that your time here is organised efficiently and to maximum benefit.

The Faculty of Engineering is located at the University's main campus and offers tuition and supervision to about 500 students at both undergraduate and postgraduate levels, while conducting research in all fields covered by its departments.

We believe the information provided in this Handbook is correct at date of publishing but may be subject to revision.

## 2. Semester Dates

The academic year is divided into three semesters nominally September – February, February – June and June - September. For undergraduate students, lectures take place in the first two semesters. Examinations take place at the end of each semester, while resits of both first and second semester take place in September.

For the exact semester dates, refer to the [Important Dates on the UM website](#).

## 3. General Course Information

The course programmes offered by the Faculty of Engineering are governed by the [General Regulations for University Undergraduate Awards](#) and the specific [bye-laws for the Certificate in Engineering Sciences](#). Hereunder, we specify some of the important aspects of the course management, however, you should refer to these regulations for a full understanding of the way the course is managed.

### 3.1 Areas of Study

The aim of this one-year certificate course is to provide you with thorough theoretical knowledge, skills and competencies in mathematics and physics, thus bringing your knowledge and understanding in the subjects to the required level. In addition, the programme will include study-units specific to engineering workshop and laboratory practices as well as the concepts behind the design of an experiment. Throughout the course, you will be given subject-specific knowledge through the specific units in mathematics, physics and computer systems and programming. The study-units will be delivered using a complement of lectures, tutorials, and practical sessions. Thus, throughout the course, you will apply the fundamental concepts of mathematics, physics and computing to practical tasks, consolidating your understanding of key concepts within a practical environment. A hands-on engineering workshop will complement your theoretical skills with basic practical skills in mechanical fitting, machining and manufacturing as well as electrical installations and electronics.

### 3.2 Entry Requirements

The course is open to students who either have:

- The general entry requirements for the University of Malta and, in addition, a pass at Advanced Matriculation Level in one of the following subjects: Pure Mathematics, Applied Mathematics, Physics, Chemistry, Computing, Information Technology, Engineering Drawing, Graphical Communication or other science/numeric subjects as approved by the Board **or**

A qualification at MQF Level 4 in an engineering domain, as well as passes in the Secondary Education Certificate Examination at Grade 5 or better in English Language, Maltese and Mathematics. Please, refer to the Faculty [bye-laws](#) for the full description of the entry requirements.

### 3.3 Course Duration and Mode of Study

The course spans over one year of full-time study. However, students who satisfy the “adult learner” criteria, may opt to follow the course in part-time (day) mode, in which case the course duration will of two years. Note that an “adult learner” is considered to be a student who has had their 23<sup>rd</sup> birthday before the start of the course.

### 3.4 Progression of Studies

The course programme of study for the Certificate in Engineering Sciences is available online at <https://www.um.edu.mt/courses/programme/UCENSFT-2021-2-O>. The programme of study lists all the units that are expected to be taken in one academic year. At the end of the course, you will have obtained a total of 60 ECTS credits.

#### 3.4.1 The ECTS credit system

ECTS is short for the European Credit Transfer and Accumulation System and is a system adopted across all countries in the EU to allow the fair comparison of the amount of work carried out for each course. A single ECTS credit is the equivalent of a total of 25 hours of study and this inclusive of lecture time, tutorials, laboratory work and self-study time. Thus, for a unit of 5ECTS, one would expect a workload of  $5 \times 25 = 125$  hours.

The number of credits assigned to a study unit is indicated in the program of studies as well as in the study unit description.

#### 3.4.2 Assessment and grading system

Study units are assessed using a variety of methods, including examination, project work, presentations, and lab reports among others. The method of assessment and the weight that each assessment carries are indicated in the study unit description for each study unit.

The final mark assigned to each study unit will be the weighted average of each assessment component. In addition to the mark, each study unit is assigned a grade as follows:

**Table 1: Mark range and associated grade**

90% - 100%	A+	55% - 59%	C
80% - 90%	A	50% - 54%	D+
75% - 79%	B+	45% - 49%	D
70% - 74%	B	0% - 44%	F
60% - 69%	C+		

Note that a grade of A+ is defined as work of exceptional quality and to achieve this grade a student must demonstrate an exceptional performance, comprehensive and critical understanding of the subject matter as well as evidence of extensive additional reading/research/work. A full description of each grade descriptor is given in the [Undergraduate Regulations](#) (under Item 39).

### 3.4.3 Compensated Passes

Some of the study units in the course programme are considered compensatable. This means that if the student has a good year average, but failed one such unit, then that unit can still be awarded a compensated pass and the unit will not need to be re-assessed. In other words, the knowledge gained by the student in other study unit, compensate for the poorer performance in other study units. For a unit to be compensatable, the student must achieve a mark that is not less than 35% and must have a Year Average Mark after the June assessment session of at least 50%.

Units that are not compensatable will have **(NC)** written next to them in the programme of studies.

Note that the year average mark is calculated on the marks obtained by the student in all study units at the end of the June assessments.

Note also, that the year average is calculated as the weighted average of the grades obtained for each study unit, where the weight is determined by the unit's credit value.

### 3.4.4 Assessment Opportunities and Eligibility for re-assessment

If a student does not pass a study unit, then they may be re-assessed for the failed component of the study unit. The part of the assessment which can be re-assessed is clearly indicated in the study unit description under the column **Resit Availability** in the section describing the **Method of Assessment**.

For study units, with a component marked as "resit available" students are given four opportunities to obtain a pass grade in the assessment of that component. The **first opportunity** is at the end of the semester assessment session. If the student is absent or fails this first opportunity, then they are entitled to be assessed again during the September assessment session. This will be the **second opportunity**.

If the student, for any reason, still does not obtain a pass grade in either of these two opportunities, the study unit is marked as an **Incomplete Study Unit** and the student is eligible to take an **extension year of studies**. In such a case, the assessment would take place at the end of the semester when the assessment is next scheduled (e.g. if the unit is usually scheduled to be assessed in the second semester, then the assessment will take place during the June examination session). This will be considered as the **third opportunity for assessment**.

If the student, for any reason, does not obtain a passing grade in this third opportunity, then they are eligible for a **fourth and final opportunity** during the following September assessment session.

If a study unit has a component for which re-assessment is not possible, then the original mark of this component is retained to count towards the overall mark of that study unit.

Note that during the September assessment session of any academic year, students shall only be eligible to be assessed in Incomplete Study-Units, whether due to failure or absence of the total of Incomplete Study-Units does not amount to more than **20 ECTS**.

If a student fails more than 20 ECTS, then the student will be required to repeat the year.

When a unit is being re-assessed, the maximum overall mark/grade that may be awarded to the Study-Unit shall be 45%, grade D.

Refer to the [General Undergraduate Regulations](#) under items 49, 50 and 51

### **3.4.5 Revision of Assessment**

Students may request that any work submitted for assessment is reviewed to ascertain that no error was made in the award of marks. Students may make an additional request that the decision of the revision is elaborated by a detailed report. The request for this revision must be made within one week from the publication of the result of the assessment. The revision will be carried out by a reviewer appointed by Senate and who had not participated in the marking of the original paper. Note that the student mark can be revised downwards, providing that a passing grade is not changed to a failing grade.

Refer to the [University Assessment Regulations](#), specifically item 60 onwards for full details on the revision of assessment procedure.

### **3.5 Language Used**

Tuition and assessment at the University of Malta are carried out using the English language.

## **4. Student Conduct**

Students are expected to behave in a manner that is respectful to an academic institution. This includes showing respect to all University staff and peers, be active in promoting an environment that is free from harassment and discrimination, and make proper use of the facilities available to you. You may refer to the [Students Charter](#) for more information on the expected student conduct and the steps taken by the University and each Faculty to facilitate this conduct.

### **4.1 Lecture Attendance**

Lecture attendance is compulsory and you will not be allowed to sit for an examination if your attendance is not considered satisfactory.

### **4.2 Academic Honesty**

The University is aware that there are a variety of temptations for students to engage in academically doubtful or dishonest activities during formal examinations, or in relation to assignments, practical work, dissertations or thesis preparation. In setting assessed assignments of whatever form, all teaching staff actively consider how to minimise the opportunities for students to cheat. Promoting a general climate of academic integrity within the student body is important.

The University regards academic dishonesty as a serious offence. Allegations of academic dishonesty will be fairly assessed and appropriate action will then be taken. An allegation that has been dismissed as a disciplinary offence may still incur an academic penalty for poor scholarship. Students should, therefore, always ensure that they act with academic honesty. This includes taking the necessary steps to avoid:



- **Cheating in written examinations:** Illicit copying or communicating; possession of prohibited materials.
- **False candidature:** Being replaced by a false candidate or impersonating a candidate.
- **Collusion:** The representation of a piece of unauthorised group work as the work of a single candidate.
- **Commissioning, stealing or acquiring:** Submitting an assignment done by another person as the student's own work.
- **Duplication:** The inclusion in coursework of material identical or substantially similar to material which has already been submitted for another assessment within the University.
- **False declaration:** Making a false declaration in order to receive special consideration by an Examination Board/Committee or to obtain extensions to deadlines or exemption from work.
- **Falsification of data:** Presentation of data in laboratory reports, projects, etc based on work purported to have been carried out by the student, which have been invented, altered or copied by the student.
- **Plagiarism:** The unacknowledged use of another's work as if it were the student's own work.

### 4.3 Conduct During Examinations

Students will be admitted to the examination venue ten minutes before the start of the examination. Students will be required to provide proof of identity (e.g. national identity card) and their examination may be annulled if they fail to do so.

Students will be required to write all answers and rough work on the stationary provided by the University. This includes all graph paper. Students cannot introduce any books, notes, blank paper, electronic devices, any means of communication, or any other material not expressly indicated in the exam paper rubrics. Visiting students, may, however, be granted permission to use bi-lingual English-to-native language dictionaries.

Students will be instructed to write their names in the space provided on the examination scripts. Students should not write their names or attempt to disclose their identity elsewhere on the examination scripts.

In general, students will not be allowed to leave the examination session, either temporarily or permanently, during the first half hour of the examination or during the last ten minutes of the examination. Students may be allowed to temporarily leave the examination room between these times, but must be supervised during this time. The time spent away from the examination room will not be compensated for.

Students should not attempt to directly or indirectly attempt to give or accept assistance from any other student. Such conduct will have serious consequences for both providing and receiving assistance.

For the full regulations, please, refer to the [University Assessment Regulations](#), specifically Regulation 31 onwards.

### 4.4 Conduct in Preparation and Presentation of Assessments

All work presented by students for assessment must be their own work. Students should ensure that they reference all work and reading material used to prepare their assessment and should endeavour

to ensure that no work of others is presented as their own. Failure to do so, is considered to be a case of plagiarism and carries serious consequences, including the annulment of the study-unit mark, monetary fines, or the false withdrawal from the course for repeated cases.

Moreover, students should ensure that, when individual work is required, the work submitted for assessment is truly carried out on an individual basis. Failure to do so, is considered to be a case of collusion and carries serious consequences, including the annulment of the study-unit mark for both parties, monetary fines, or the false withdrawal from the course for repeated cases.

Full details on the regulations on plagiarism and collusion are found in the [University Assessment Regulations](#). Moreover, students should refer to the [University Guidelines on Avoiding Plagiarism](#).

## **5. Provisions for Students with a Disability**

Assessment arrangements may be made for students with a disability to enable them to perform to the best of their ability and to be assessed, provided that such students do not gain undue advantage from such assistance, and provided that the integrity and academic standards of the Assessments are not thereby jeopardised. Such arrangements will be made in line with the guidelines for access arrangements that may be approved by Senate from time to time. Requests for access arrangements should be made in writing to the Registrar, through the Faculty Manager, and should include the necessary supporting evidence.

In case of temporary disability, the Registrar may grant a request for access arrangements if case is considered to merit this, and after seeking advice as may be deemed necessary.

Full details on the provisions for students with disabilities can be found in the [University Assessment Regulations](#), specifically item 68 onwards.

## **6. Online Support Tools**

The University makes use of online tools to support the teaching and learning process. As a student you will make most use of the Virtual Learning Environment (VLE) and Electronic Student Information Management System (eSims).

### **6.1 Virtual Learning Environment (VLE)**

The VLE is a web-based learning environment which provides tutors with a range of tools to support students with their studies. Tutors use the VLE to post teaching materials and resources such as course notes, reading lists, online articles, audio and video-clips among others. The VLE supports communication and collaboration between tutors and students through the use of discussion boards and chat rooms, and enables students to submit coursework online. The study-unit areas on the VLE are only accessible to students who are registered to the respective study-units.

You do not need any specific software to access VLE, other than a web browser. It is recommended to use the latest versions of the common web browsers such as Google Chrome, Mozilla Firefox, Safari or Microsoft Internet Explorer.

The VLE can be accessed through the drop-down menu under Current Students on any UM webpage. If you are not signed in, you will be prompted to enter your username and password. These are assigned to you after you first register for the course.

For further support on the VLE you may access the [IT Services support page](#).

## 6.2 Electronic Student Information Management System (eSims)

The eSims provides students with a portal that allows for several administrative tools related to the study units and course. This portal is used to enrol for each academic year, to register for study units, view and update personal details, view academic records including past and latest results, and submit feedback on study units.

The eSims portal may be accessed through the drop-down menu under Current Students on any UM website. When you register for a course, you will be provided with the username and password credentials needed to access eSims.

For further support on eSims you may access the [IT Services support page](#).

## 7. Faculty Organisation and Contacts

The Faculty of Engineering is located at the University's main campus and offers tuition and supervision to a number of students at both undergraduate and postgraduate levels while conducting research in all fields covered by its departments.

The Faculty is made up of six departments:

- Department of Electronic Systems Engineering - <http://www.um.edu.mt/eng/ese>
- Department of Industrial & Manufacturing Engineering - <http://www.um.edu.mt/eng/ime>
- Department of Industrial Electrical Power Conversion - <http://www.um.edu.mt/eng/epc>
- Department of Mechanical Engineering - <http://www.um.edu.mt/eng/mec>
- Department of Metallurgy and Materials Engineering - <http://www.um.edu.mt/eng/mme>
- Department of Systems & Control Engineering - <http://www.um.edu.mt/eng/sce>

### 7.1 Accessing Administrative Information

Students can find information relevant to the administration of the course, including lecture and examination timetables, notices, application forms and guidelines on the Faculty of Engineering website, and in particular, under the [current student section](#).

### 7.2 Requesting Assistance

The Faculty of Engineering is well-known for the support it provides to all students. Depending on the nature of the problem, students can address their difficulties as follows:

Table 4: Contact Persons

Query	Contact Person/Entity
Coursework, general questions about lectures, tutorials, lab work or assignments	Study-unit lecturer
Administration of the study unit	Ms Kristina Saliba
Academic advice	Dr Alexandra Bonnici
Admission queries	Faculty manager (Mr Michael Spiteri)
Requests for consideration by the	Student representatives

Board of Studies/Faculty Board	
Stipends	<a href="#">Stipends Office</a>
Student support	<a href="#">Student Advisory Services</a>
Academic records	Office of the Registrar
Other personal issues or academic advice	Dean/Dr Alexandra Bonnici

### 7.3 Student Organisations

Students are supported by different student organisations within the Faculty and the University, namely:

- The [University Engineering Students Association \(UESA\)](#)
- The [Institute for Electrical and Electronic Engineers \(IEEE\) Malta Student Branch](#)
- The [University of Malta Racing Team \(UoMR\)](#)
- The [Kunsill Studenti Universitarji \(KSU\)](#)

Students are encouraged to take an active role in these associations since these equip the student with complementary skills to those gained during the course and ensure an active and vibrant student experience.

### 7.4 Local and International Engineering Professional Associations

The Faculty also enjoys the representation of local and international professional associations who offer support to engineers throughout their journey, as engineering students, fresh graduates as well as professional engineers. These include:

- The [Chamber of Engineers \(CoE\)](#) represented by Ing. Bonnie Attard
- The [Malta Group of Professional Engineering Institutions \(MGPEI\)](#) which collectively represents the Institution of Mechanical Engineers (IMechE), the Institution of Engineering and Technology (IET) and the Institution of Civil Engineers (ICE) chaired by Dr Stefania Cristina ([stefania.cristina@um.edu.mt](mailto:stefania.cristina@um.edu.mt))
- The [Royal Institution of Naval Architecture \(RINA\)](#) represented by Prof. Ing. Claire De Marco ([claire.demarco@um.edu.mt](mailto:claire.demarco@um.edu.mt))
- The [Institution of Engineering Design \(IED\)](#) coordinated by Prof. Ing. Philip J. Farrugia ([philip.farrugia@um.edu.mt](mailto:philip.farrugia@um.edu.mt))
- [The Institute of Electrical and Electronic Engineers \(IEEE\)](#) represented by Dr Tracey Camilleri ([tracey.camilleri@um.edu.mt](mailto:tracey.camilleri@um.edu.mt)) who is also the student counsellor for the Maltese chapter.

## 8. Faculty Safety Procedures

Health and safety within the faculty is organised in accordance with the University Safety Policy. Undergraduate students should follow the instructions provided to them by the laboratory officers, systems engineers and other Faculty staff. Students should familiarise themselves with the fire exit signs that are posted on every floor of the Faculty and with the escape routes in the building. Students should also note the locations of fire extinguishers within the building, all of which, are clearly marked. Students are also to familiarise themselves with the University's [Health and Safety Policy](#) and the [standard operating procedures](#) in the event of fire.

Safety associated with specific laboratory facilities will be provided by Faculty staff when requesting access to laboratories.

## **9. After the Certificate in Engineering Sciences Course**

Following the completion of the course, students have opportunity to enrol in the B. Eng(Hons) Degree Course offered by the Faculty of Engineering. The Degree may be awarded in one of two areas of study:

- Mechanical Engineering
- Electrical and Electronic Engineering

Students are to select the area of study upon applying for the course.

### **9.1.1 B. Eng. (Hons) in Mechanical Engineering**

The B.Eng.(Hons) in Mechanical Engineering provides students with the necessary knowledge and skills to professionally design, develop, manufacture and maintain mechanical engineering systems. The wide and dynamic range of applications makes this an exciting and rewarding Degree Course which includes high level academic tuition and hands-on practice. The course spans over four years, structured as follows:

#### **Year 1 and 2**

Fundamental mechanical engineering topics are covered together with essential ancillary subjects. Modules cover the following fields: mechanics; structural engineering; thermo-fluids; materials science and engineering; manufacturing and industrial engineering; drawing and computer-aided design; electrical, electronics and control technology; computational techniques; mathematics; and other introductory engineering subjects.

#### **Year 3 and 4**

Students are given the opportunity to apply the skills learnt so far in an engineering design project in their third year. At this stage, whilst retaining fundamental core subjects, students can choose from amongst three streams: Applied Mechanics and Thermo-Fluids, Applied Materials in Engineering and Industrial and Manufacturing Engineering. Students will in their final year present a thesis based on a defined engineering project that they are expected to plan, manage and realise.

### **9.1.2 B. Eng. (Hons) in Electrical and Electronic Engineering**

The B.Eng.(Hons) in Electrical Engineering incorporates both technical and practical knowledge to provide the ideal springboard for satisfactory industrial careers and further academic development. This degree is a full-time four-year course, structured as follows:

#### **Year 1 and 2**

The first two years consist of initial background courses on electrical and electronic circuits, mechanical engineering, computer-aided design, modelling of dynamic systems, computer programming and architecture, electrical machines and microcontrollers.

## Year 3 and 4

During the final two years the students take optional courses to further their knowledge and expertise in the fields of microcontrollers; advanced electronic and power circuit design; electrical and renewable energy; advanced drives; signal processing; control systems; and artificial intelligence. The technical knowledge acquired during the course is put to use in a final year thesis, a showcase of the students' development and their future aspirations

### 9.2 Obtaining the Professional Warrant

According to the Law Article 3(2)d (ii) and (iii), a student who graduates from the engineering degree course can apply for the Engineering Warrant if: "(ii) for the period of not less than one year before or after obtaining the qualification referred to in sub-paragraph (i) he/she has undergone practical engineering training approved by the Board; and (iii) for a period of not less than two years after obtaining the qualification referred to in sub- paragraph (i) he/she has trained in the practice of the profession under the supervision of a practising engineer."

### 9.3 Furthering Studies Through Postgraduate Education

There are several opportunities for students to further their studies through postgraduate studies. The Faculty of Engineering provides several such opportunities including:

- [Master of Science in Mechanical Engineering \(by research\)](#)
- [Master of Science in Electrical Engineering \(by research\)](#)
- [Master of Science in Integrated Product Development \(taught\)](#)
- [Master of Science in Signals Systems and Control \(taught\)](#)
- [Master of Science in Biomedical Engineering – Biomechanics \(taught\)](#)
- [Master of Science in Building Services Engineering \(taught\)](#)
- [Master of Science in Maritime Engineering \(taught\)](#)
- Doctorate Degree by Research in Engineering

Students are encouraged to visit the department's websites for continuous updates on the postgraduate area of studies offered by the respective departments.

In addition, over 30% of graduate students successfully read for a postgraduate degree in local or foreign institutions and students who opt for studying abroad are consistently successful.

## 10. Concluding Remarks

This handbook provided a general guidance to the procedures and practices adopted by the Faculty and the University. We hope that this handbook prepares new students for their journey through their degree course. Students should seek further guidance and assistance from Faculty staff should further assistance or clarifications be necessary.