



Master 2005 - 2006
MSE-Guide

Study guide Master programme Materials Science & Engineering

Academic Calendar 2005-2006

ACTIVITY	WEEK	DATE	legenda		
1a	1	36	05-09-05	1a	Lectures, projects
	2	37	12-09-05		Examinations
	3	38	19-09-05		Holiday
	4	39	26-09-05		White weeks
	5	40	03-10-05		
	6	41	10-10-05		
	7	42	17-10-05		
	8	43	24-10-05		
	9	44	31-10-05		
1b	1	45	07-11-05		
	2	46	14-11-05		
	3	47	21-11-05		
	4	48	28-11-05		
	5	49	05-12-05		
	6	50	12-12-05		
	7	51	19-12-05		
		52	26-12-05		
		1	02-01-06		
	8	2	09-01-06		
	9	3	16-01-06		
	10	4	23-01-06		
	11	5	30-01-06		
2a	1	6	06-02-06		
	2	7	13-02-06		
	3	8	20-02-06		
	4	9	27-02-06		
	5	10	06-03-06		
	6	11	13-03-06		
	7	12	20-03-06		
	8	13	27-03-06		
	9	14	03-04-06		
2b	1	15	10-04-06	14-04-06	Easter Friday
	2	16	17-04-06	17-04-06	Easter Monday
	3	17	24-04-06		
		18	01-05-06		
2b	4	19	08-05-06		
	5	20	15-05-06		
	6	21	22-05-06	25-05-06	Ascensionday
	7	22	29-05-06		
	8	23	05-06-06	05-06-06	Whitsuntide
	9	24	12-06-06		
	10	25	19-06-06		
	11	26	26-06-06		
	12	27	03-07-06		
		28	10-07-06		
		29	17-07-06		
		30	24-07-06		
		31	31-07-06		
		32	07-08-06		
		33	14-08-06	18.8.06	1st day examination period
		34	21-08-06		
		35	28-08-06	31.8.06	last day examination period

MSE - Guide

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Colophon

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Restriction	<p>This study guide has been issued under responsibility of the Education Support Staff. Even though much care is taken with respect to the accuracy and completeness of this study guide, (programme) changes are possible.</p> <p>The most up to date information can be found on the campus website on http://campus.3me.tudelft.nl/</p> <p>No rights can be derived from the information in this study guide.</p>

Preface

This publication is intended as a practical guide for students and it contains information on available courses, electives, exams and relevant contact details.

The Materials Science and Engineering (MSE) master's programme for 2005-2006 offers a broad scope of specializations as well as a strong generic part that provides the essential understanding of material structure and properties. Students with a bachelor's degree in a wide range of scientific or engineering disciplines can enter the MSE master's programme.

The MSE master's programme is designed to provide high quality education in the field of materials science and engineering. Currently there are six options for specialization:

- Materials for Art & Archaeology,
- Advanced Functional Polymers,
- Metals Science and Technology,
- Management of Technology,
- Energy, Sustainability and Environmental Impact,
- High Performance Materials in Product Design.

All topics are addressed both from a fundamental and a practical point of view offering students the opportunity to acquire the necessary skills for a successful international career in an industrial or applied environment as well as at a research institutes.

The printed version of this publication presents the information available in July 2005. Additions and corrections may emerge at any time: such information will first appear as a "communication" on Blackboard. It will also be incorporated in the electronic version of this document available on Blackboard. Therefore it is advised to access Blackboard for the latest information.

Dr. A.J. Böttger

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MSc programme

Organisation

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MSc programme

1 MSc Materials Science & Engineering

1.1 Goal

The goal of the master programme Materials Science and Engineering is to educate graduates in Materials Science and Engineering to an academic engineering level. The level corresponds to the technological borders of a specific discipline. The graduates are capable:

- To identify, define and analyse problems, for the solution to which materials-science-and-engineering principles and techniques can contribute
- To develop and to produce a sound solution to the problem
- To present these solutions effectively

The graduated Master of Materials Science and Engineering meets, to a sufficient level, the following qualifications:

1. Broad and profound knowledge of engineering sciences (physics, chemistry and mathematics) and the capability to apply this knowledge at an advanced level in the topic-related discipline.
2. Broad and profound scientific and technical knowledge of the topic-related discipline and the skills to use this knowledge effectively. The discipline is mastered at different levels of abstraction, including a reflective understanding of its structure and relations to other fields, and reaching in part the forefront of scientific or industrial research and development. The knowledge is the basis for innovative contributions to the discipline in the form of new designs or development of new knowledge.
3. Thorough knowledge of paradigms, methods and tools as well as the skills to actively apply this knowledge for analysing, modelling, simulating, designing and performing research with respect to innovative topic-related systems, with an appreciation of different application areas.
4. Capability to independently solve technological problems in a systematic way involving problem analysis, formulating sub-problems and providing innovative technical solutions, also in new and unfamiliar situations. This includes a professional attitude towards identifying and acquiring lacking expertise, monitoring and critically evaluating existing knowledge, planning and executing research, adapting to changing circumstances, and integrating new knowledge with an appreciation of its ambiguity, incompleteness and limitations.
5. Capability to work both independently and in multidisciplinary teams, interacting effectively with specialists and taking initiatives where necessary.
6. Capability to effectively communicate (including presenting and reporting) about one's work such as solutions to problems, conclusions, knowledge and considerations, to both professionals and non-specialised public in the English language.
7. Capability to evaluate and assess the technological, ethical and societal impact of one's work, and to take responsibility with regard to sustainability, economy and social welfare.
8. Attitude to independently maintain professional competence through life-long learning.

1.2 Educational Concept and Assessment

The study programme involves two years of study, each with a study load of 60 EC (European credits). The total programme involves 120 EC. The master programme involves two major parts:

Lecture courses (80 EC)

These courses are divided in two parts:

- 60 EC Generic course (compulsory)
- 20 EC Electives which includes a selected specialisation block of 14 EC

Most courses are assessed by means of an oral or written examination.

MSc Thesis Project (40 EC)

The student prepares this thesis as a report of his/her research project. The thesis work is evaluated through an oral presentation by the candidate and an oral examination before an MSc examination committee composed of at least three scientific staff members, including the thesis supervisor. The examination committee may also include external examiners from research institutes or from industrial partners.

1.3 Study programme and general structure

Materials Science and Engineering offers a Master of Science course of two years. Each course year is divided into two semesters. Every semester consists of two periods. In this study guide, these periods will be referred to as 1A, 1B, 2A and 2B. A period consists of seven weeks of lectures, followed by two or three weeks in which tests can be scheduled.

Some examinations will be held orally, most are in the form of a written examination.

The study load of a course is expressed in European Credits. This is a result of the European Credit Transfer System (ECTS), which encourages acknowledgement of study results between higher education institutions within the European Union. The study load for one study year is 60 EC. These ECs give an indication of the weight of a certain part of the course. One EC involves approximately 28 hours of study. These 28 hours include all time spent on the course: lectures, self education, internship, practicals, examinations, etc.



1.4 Admission to the programme

There are several ways to be admitted to the MSc-programme Materials Science and Engineering. Usually the MSc-programme is a continuation of an academic BSc-programme, however the master's programme can also be entered after completing a BSc-programme of a polytechnic high school or the Royal Netherlands Naval College (KIM). Admission to the MSc-programme is described in the following two subsections.

Bachelors from several programmes of Delft University of Technology, University of Twente, Eindhoven University of Technology and of universities of the IDEA-League can be admitted to the Masters programme Materials Science and Engineering. Those bachelor degrees potentially suitable for entry to this programme are:

- Materials Science and Engineering
- (Applied) Physics
- Chemistry and Chemical Engineering
- Civil Engineering
- Mechanical Engineering
- Marine Technology
- Aerospace Engineering

In this it is assumed that basic knowledge of the field of materials science (for instance as described in the book *Materials Science and Engineering, An Introduction* by W.L. Callister) has been acquired. Previous courses in Materials Science are desirable, but not essential, since the first semester is especially designed to offer each student a personalised programme to overcome knowledge gaps.

Other TU bachelors and students with a bachelor degree of a Dutch polytechnic high school (TH) will have to have the contents of their study evaluated and need to contact the Education Co-ordinator dr.ir. M. Janssen (m.janssen@tnw.tudelft.nl) for a detailed assessment of their entry requirements (which is also advised to the other bachelors).

1.5 MSc-programme Materials Science & Engineering

Materials Science and Engineering is an interdisciplinary field involving the study of physical, chemical and mechanical aspects of material properties, materials production processes, materials characterisation and selective materials usage.

The Materials Science and Engineering programme provides considerable flexibility for students with interests ranging from fundamental material properties through design and selection to materials applications in areas as diverse as engineering, science and the arts. The programme is designed for both Dutch and international students and will be offered in the English language.

The aim of the programme is to furnish a high quality, multi-disciplinary education, producing graduates capable of making immediate and significant contributions to a wide range of industrial and academic areas at a global level. The objectives are:

- to provide students with a sound and thorough understanding of the underlying scientific and engineering principles involved in materials science and engineering
- to enhance knowledge of materials selection, processing and characterisation with relevance to a broad range of applications in engineering, science and the arts
- to build an awareness of the environmental, economic and human aspects of materials selection, usage, recycling and disposal.
- to develop skills in the planning, execution and reporting of materials processing, characterisation, and implementation for relevant applications

The programme provides a comprehensive knowledge of the properties and the production of materials linking fundamental aspects at the atomic level to production techniques and applications. The two-year programme is a combination of academic subjects and active research. Course modules are delivered by lectures, workshops and seminars, and assessment is based on written and oral examinations, course work and a thesis derived from the research project.

The programme is structured around a Generic Course (60 EC) which provides the basic knowledge required by all Materials Science Masters graduates, a Specialization Block (14 EC), focusing on a selected area of interest, and a Research Element (40 EC, further specialization). Elective modules (6 EC) are offered around the specialization block to cater for the broad ranging interests of many students.

The combination of specialization, elective and research subjects provides opportunities to tailor the programme to meet the specific requirements of individual students.

MSc programme structure

The content of the first semester of the Generic course is tailored to the needs of the individual student, a selection of science and engineering modules will be made according to the bachelor degree of the student in question. The second semester of the Generic course encompasses the core knowledge required by all Materials Science and Engineering Master students. The purpose is to provide a firm grounding in the fundamental aspects of the subject upon which more specialized or wider ranging interests can be built.

A number of specialization blocks are offered, each comprising a number of modules with a total of 14 EC. A block may be chosen according to the interests of the student. Each option will focus on scientific, engineering and applications related issues in the selected fields of:

- Materials in Art and Archaeology
- Advanced Functional Polymers
- Metals Science and Technology
- Management of Technology
- Energy, Sustainability and Environmental Impact
- High Performance Materials in Product Design

Apart from the specialization block, 6 EC of elective modules should be chosen, according to the interests of the student.

In the final programme component (40 EC) students will undertake a literature study and an independent scientific investigation. This research project (thesis) can be related to the chosen specialization theme and specific area of interest and will be offered at the leading edge of the field.

Research project outside university (industry or other educational institution)

The taught elements of the Materials Science and Engineering masters programme are mostly delivered in house during the first year and initial weeks of the second year of this two-year programme. The possibility exists for the research project, or part of the research project, to be undertaken in an industrial environment or in collaboration with another educational institution, subject to approval of the student's research supervisor.



1.5.1 Course programme

The programme aims to prepare graduates, from a scientific or engineering background, for a successful career in the broad field of Materials Science and Engineering. The programme offers considerable flexibility to students with interests ranging from fundamental material properties through design and selection to applications in engineering, science and the arts.

The 2-year full-time programme comprises three elements:

- A. A generic programme, providing essential understanding of material structure and properties, which is given to all Materials Science and Engineering masters students
- B. An elective specialization component, covering one aspect from the materials field in more detail. Options include:
 1. Materials for Art & Archaeology (MAA)
 2. Advanced Functional Polymers (AFP)

3. Metals Science Technology (MST)
 4. Management of Technology (MoT)
 5. Energy, Sustainability and Environmental Impact (ESE)
 6. High Performance Materials in Product Design (HPM)
- In addition each student chooses 6 EC of other elective modules
- C. An individual research project, focusing on one area of specific interest at the leading edge of the field.

A. Generic Course

Materials Science and Engineering is a highly multidisciplinary field. In many cases, students, scientists and engineers from "neighbouring" disciplines, like physics or mechanical engineering, develop an interest for materials through their experience with the behaviour of materials in their own discipline. The Master programme MSE of the Delft University of Technology appreciates this by starting off with a flexible first semester with ample possibilities for fine-tuning to the educational needs of the individual student. After completion of this semester, students from various different disciplines will have reached the common level of knowledge that is needed for the remainder of the generic core programme, which takes place in the second semester with identical modules for all students.

The programme that is offered in the first semester can be subdivided into two blocks (30 EC each), "Materials Science" and "Materials Engineering" to cater respectively for those with an engineering or science rich background.

First Semester

Materials Science Block

Students holding a bachelors degree in an engineering or designing field will often have a limited background in Materials Science and the underlying physics. These students will typically follow a programme that is based on the Materials Science block, consisting of the following modules:

Module code	Module Name	Co-ordinator	EC
MS4021	Structure Characterisation	Sloof	5
MS4031	Waves	Richardson	3
MS4041	Structure of Materials	Sietsma	5
MS4051	Physics of Materials	Böttger	6
MS4061	Thermodynamics and Kinetics	Sietsma	4
MS4181	Mesoscopic Structures		3 ¹⁾
MS4121	Practicals Materials Science	Hermans	4

¹⁾ from course year 2006 - 2007

Materials Engineering Block

Students holding a bachelors degree in a field within the physical sciences will often have a limited background in engineering and designing with materials. These students will typically follow a programme that is based on the Materials Engineering block, consisting of the following modules:

Module code	Module Name	Co-ordinator	EC
MS4071	Materials in Art and Design	Dik	3
MS4081	Properties of Materials	M. Janssen	4
MS4091	Joining	Richardson	4
MS4101	Production of Materials	Katgerman	3
MS4151	Recycling Engineering Materials		3 ¹⁾
MS4161	Designing (with) Materials		10 ¹⁾
MS4171	Durability		3 ¹⁾

¹⁾ from course year 2006 - 2007

Each student will follow an individual programme composed of modules from these two blocks, tailored to his or her personal situation.

Second Semester

The Generic component in the second semester of the programme provides the core knowledge required for all Materials Science and Engineering Master students. The purpose is to set a firm foundation for the fundamental aspects of Materials Science and Engineering upon which more specialized or wider ranging interests can be built.

The programme comprises the following modules (total of 30 EC):

Module code	Module Name	Co-ordinator	EC
MS3011	Semiconductor Devices and Magnetism	Thijsse	3
MS3021	Metals Science	Richardson	4
MS3031	Computational Materials Science	Thijsse	4
MS4011	Mechanical Properties	M. Janssen	3
MS4111	Thin Film Materials	G. Janssen	3
CH4011MS	Polymer Science	Picken	4
CH4021MS	Ceramic Science	Goossens	3
WM0710TU	Technology and Society	Kroessen	6

B. Specialization Block - Elective Modules

Within the space of the electives (20 EC), it is compulsory to choose a specialization block of 14 EC. The specializations and possible modules within the respective blocks are the following (these modules are subject to change, but will give a general idea):

Materials in Art & Archaeology (MAA)

The objective of the MSc specialization 'Materials in Art and Archaeology' is to instil in students an awareness and knowledge, at academic level, of the applications of Materials Science and Technology in these fields.

The specialization covers activities in the important professional fields of:

- Materials: History, Properties, Modern analysis techniques
- Art history and Archaeology, Authenticity research
- Materials degradation and countermeasures

The Materials in Art & Archaeology activities have strong collaborative links with other universities, with the Netherlands Institute for Cultural Heritage (ICN) and with museums.

This specialization block comprises the following modules:

- History of Materials Production and usage [3 EC]
- Archaeology and Art History [4 EC]
- Modern Analysis Techniques and Authenticity Research [4 EC]
- Materials Degradation and Countermeasures [3 EC]

Advanced Functional Polymers (AFP)

The mission of the MSc specialization in Advanced Functional Polymers is to educate students to design, characterize and process functional polymer materials for optical, electronic and high performance mechanical applications.

The profile covers activities in the important professional fields of:

- Polymer Chemistry/Synthesis
- Polymer Physics/Characterisation
- Polymer Engineering/Processing

The Polymer Materials and Engineering activities have strong inter-faculty links within TU Delft as well as collaborative links with other Dutch Universities and with industry.

This specialization block comprises the following modules:

- Structure Formation and Characterisation [4 EC]
- Polymer Structure and Dynamics [3 EC]
- Advanced Polymer Applications [4 EC]
- Polymer Processing + Blends [3 EC]

Metals Science and Technology (MST)

The aim of the MSc specialization Metals Science and Technology is to focus on design, characterization, engineering, production and performance of metallic microstructures to meet the challenges of our future.

The principal subject areas within this profile fall under the broad headings of:

- Production and processing of metals

- Properties of materials and their microstructure
- Performance of metals

The Metals Science and Technology activities have strong inter-faculty links within TU Delft as well as collaborative links with the Netherlands Institute for Metals Research (NIMR) and with industry.

This specialization block comprises the following modules:

- Primary Metals Production [3 EC]
- Relation between Microstructure and Properties [5 EC]
- Corrosion and Protection against Corrosion [3 EC]
- Welding Engineering and Non Destructive Testing [3 EC]

Management of Technology (MoT)

The specialization “Management of Technology” supplies MSc students with basic knowledge, insight and competence of non-technical nature in the fields of (i) management of projects, innovation, knowledge and research & development, (ii) strategy of enterprises, (iii) corporate structure, (iv) decision making and (v) patents. This specialization adds a branch to the students knowledge of materials science and engineering that is very useful for a role in industry and organizations, as well as in entrepreneurship.

This specialization block comprises the following modules:

- Advanced Project Management and Corporate Structure [6 EC]
- Knowledge Management and R&D Management [6 EC]
- Managing Innovation [3 EC]

Energy, Sustainability and Environmental Impact (ESE)

The generation and storage of energy is of paramount importance in today’s world. It affects the structure and nature of modern society and has an increasing impact on our environment. In turn, energy generation and storage is critically dependent on the availability of materials with appropriate properties. This specialisation examines the use of materials in different energy systems, including consideration of the production and disposal of materials as well as wider aspects of sustainable technologies.

This specialization block comprises the following modules:

- Energy, Society and Sustainability [3 EC]
- Solar Cells [3 EC]
- Sustainable Technology I [3 EC]
- Introduction to Renewable Energy Systems [3 EC]
- Materials in Conventional Energy Production [2 EC]

High Performance Materials in Product Design (HPM)

There is a strong societal trend towards global competition and increasing durability of products, requiring innovation of production technology and of product application. New materials and/or production routes can reduce costs, while enhancing functionality. Material performance can be improved in terms of strength, fatigue and corrosion/ degradation resistance, leading to lighter products and better durability.

The purpose of this specialization is to develop knowledge on materials, production technology and materials response related to product design, with a central focus on the application of high performance materials in products. Important aspects include structure - property relations, microstructural development during production and long term material behaviour.

This specialization block comprises the following modules:

- Composite Materials for Durable Structures [3 EC]
- Fibre Reinforced Plastics, extended course [5 EC]
- Sheet Metal Forming [3 EC]
- Fatigue in Structures and Materials [3 EC]

Elective Modules

Besides one of these specialization blocks, 6 EC of other elective modules can be chosen freely, taking notice of the following:

1. Any of the following items can be regarded as an elective module, provided its level and weight are sufficiently high:
 - a. A scheduled module listed in the onderwijsgid of the TU Delft.
 - b. A special assignment or project defined and supervised by a scientific staff member of the Department MSE or participating as lecturer in the master programme MSE.
 - c. An internship training programme (stage) involving a research project, organised by an external organization or institution, supervised by local staff, and approved and assessed by a scientific staff member of the Department MSE or participating as lecturer in the master programme MSE.
2. Before starting elective modules, each student should present his or her elective programme to the Examination Committee for approval. Changes can be allowed in a later stage, but only after renewed approval by the Examination Committee.
3. Cooperation between students during a minor part of an assignment or project is allowed, but each elective module is assessed on an individual basis. This means that each assignment or project should be unique work and lead to an individual report (and presentation).
4. No more than 6 EC can be earned by a student as part of his or her full elective modules programme.

Notes:

- a) Student activities that are mainly undertaken to acquire work experience or to make a first acquaintance with job conditions cannot be regarded as elective modules.

- b) The master thesis supervisor (afstudeerdocent) has no role in approving or disapproving a student's proposed program of elective modules. This is simply because students often start elective modules without already having chosen a thesis supervisor. The thesis supervisor may, however, require passing certain modules as part of the thesis research project.
- c) Elective modules organized by scientific staff of the Department MSE or other lecturers in the master program MSE should be listed in the master Study Guide.

C. Research Project

In the final programme component (40 EC) the individual student will undertake a literature study and an independent scientific investigation. This research project (thesis) may be related to the chosen specialization theme and specific area of interest, but can also concern a different Materials Science and Engineering subject. The research project is in principle performed within the department, but may also be pursued outside the university in conjunction with industry or in collaboration with another educational institution.

Potential projects include:

- Laser-plasma welding
- Computer simulation of friction and adhesion
- New nanostructured ultrahard coatings
- Design of X-ray equipment for use on Mars
- Hydrogen storage for energy applications
- Authenticity of Van Gogh paintings
- Nanostructure of soap, water, and oil
- Single-grain observation of phase transformation
- Towards new light emitting polymers
- Modelling of microstructure during solidification
- Fatigue crack initiation in TRIP steel

1.5.2 Annotation Sustainable Development

As an addition to the specialization programme the annotation Sustainable Development can be done. After completing the annotation, the student gets a supplement to the MSc-degree, which declares a more than average knowledge about that subject.

The study programme, including the annotation, has to comply with the requirements of section 1.2 (120 EC).

Sustainable Development

Sustainable development is becoming of increasing importance. Questions are: "What will the world look like in 50 years?" or: "What should the world look like in 50 years?". The curriculum is based on elective courses, a colloquium and the MSc -Thesis. The aim of the colloquium is to develop broad knowledge of all kinds of environmental and technical issues and to place this in perspective.

The curriculum should include:

- Colloquium in sustainable development of 3 EC
- Courses to be chosen from the following two clusters (at least 6 EC from each cluster):
- Technology and Design
- Organisation and society
- MSc-thesis, which shall be devoted also to sustainable development. The coordinator shall approve the problem formulation of the thesis and the extent to which sustainable development is integrated into the thesis. The coordinator shall further determine whether the theme of sustainable development has been sufficiently integrated into the problem formulation, the execution of the project and the project report.

Further information on the available courses can be obtained at the website

<http://www.odo.tudelft.nl>

For enquiries concerning the colloquium and enrolling:

Gertjan de Werk, g.dewerk@tbm.tudelft.nl.

The following three courses (total of 10 EC) can form part of an annotation Sustainable Development:

- WB4303 Energy, Society and Sustainability (3 EC)
Lecturer: Prof. Dr. Ing. H. Spliethof
- SM1551 Molecular Engineering I (3 EC)
Lecturer: Prof. Dr. J. Schoonman
- MSxxxx Materials for Sustainable Energy Storage and Conversion (4 EC)
Lecturers: Prof. Dr. I.M. Richardson and Dr. Ir. W.G. Sloof

1.5.3 Technical University Teacher Course (TULO)

Graduated Masters of Science Systems and Control, Mechanical Engineering or Maritime Technology have the opportunity to participate in a special course to become a high school teacher in science or mathematics.

There is a standard course, which includes 60 EC. A maximum of 30 of these EC can be integrated in the MSc study programme, the other, at least, 30 EC have to be earned in a post MSc course.

For more information on admission to the programme and the study programme please contact the office of TULO.

Office of TULO

faculty TBM

Jaffalaan 5, 2628 BX Delft.

Phone: 015 27 82786 / 015 27 83768

E-mail: j.geerlings@tbm.tudelft.nl

1.6 Study and internship abroad

Study abroad offers a lot of attractive prospects. You become acquainted with a different (organisational) culture, a different university life and a different educational system. Besides you enlarge your personal network, you learn to live within a foreign environment, and you improve your knowledge of languages. To put it briefly: a period of study abroad will make a valuable contribution to your personal education and you will draw much benefit from it during your search for a permanent job.

You can make use of one of many exchange agreements with European and non-European universities for your study at a foreign university. Within such an agreement you do not pay the foreign university any tuition fee. In addition to this, grants are available for financing the additional expenses for staying abroad. For your first information on studying abroad it is recommended to visit the *Back Office International Programmes* of the Student Facility Centre. Much documentation about study abroad is available at this Centre, like information on all universities with which an exchange agreement exists, possibilities of financing, and travel reports from students. Also information is available at the website: <http://www.sfc.tudelft.nl>.

If you have a clear idea about where you want to go to, you can ask the Coordinator for International Exchange for advice about your programme at the foreign university and about the recognition of your results at the host university. Your graduation professor will judge your work afterwards according to the rules you agreed upon, prior to departure. The foreign programme should at least contribute 12 EC to your MSc programme. To arrange everything you have to do a lot yourself. Therefore you have to take a preparation period into account of preferably a year, but at least half a year.

Internship

Usually an internship is arranged via one of the staff members of the section to which your specialization belongs. In addition to this you can visit the Information Centre of the Student Facility Centre (see above). They offer a lot of information, not only on a large number of companies abroad, but also on financially related affairs, working permits, visa, etc. Additional information is available at the website: <http://www.sfc.tudelft.nl>.



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 Tel.: +31 15 278 6959
 Fax.: +31 15 278 8340
 E-mail: m.p.i.toppenberg@3me.tudelft.nl

1.7 Enrolling for courses and tests

Usually it is necessary to enroll for courses and tests.

- Courses** Students can enroll for specific courses at Blackboard. Most of the communication between lecturer and students goes by Blackboard announcements. Also exchange of information, assignments and reports often takes place via Blackboard.
- Tests** Enrolling for tests is compulsory and can be done at the TAS-site ('Tentamen Aanmeld Systeem' <http://www.tas.tudelft.nl>). This should be done two weeks before the test takes place, at the latest, otherwise the test will not be accounted for by the lecturer. If a student has enrolled, but decided not to do the test, the student must cancel this, at least one week before the test takes place.
- Using TAS** When first using TAS the student must choose a personal password. This can be done by using the campus card in a card reader. At the faculty there are two card readers: one is located near the Pallas / Parthemus computerroom (4, 1st) and one is located at Education support staff (8B, 2th).

1.8 Pass rules and criteria for 'cum laude'

- Pass rules** To pass a course or assignment, a grade of at least 6 is necessary. It is possible to pass the MSc- examination with one grade of 5. The grades are rounded off to the nearest integer.
- Re-sits** For those subjects where written examinations are held, the student will get at least one opportunity per year to do a re-sit. Re-sits generally take place in the first period after the regular period for a certain examination. Re-sits for the tests given in period 2B are scheduled in the second half of August.
- Examination** On completing the programme, the student should apply for the Master's examination by means of a form, available from the Education Support Staff.
- 'cum laude'** At the discretion of the examinations board, a candidate for the Master's degree can receive the designation "cum laude" if he or she meets the following conditions:
- the mark awarded to the components specified in the Master's examination implementation procedures shall average no less than 8, excluding the Master's Thesis in a list that contains no marks below 6;
 - the candidate concerned shall have completed the Master's degree programme in no more than three years;
 - the mark awarded for the thesis project shall be no less than 9;
 - the examiner of the graduation assignment shall have submitted a proposal for the award of "cum laude".
- This is part of the "Regulations and guidelines for the board of examiners", appendix 6.1 of this studyguide.

1.9 Honours Track

For excellent students it is possible to follow an honours track for programme. An honours track is a special individual programme, in addition to the regular Master programme, of 30 EC (840 hours) and is related to Marine Technology and / or to the role of technology within society. The extra programme has to be finished during the Master programme of the student. Students who have successfully completed their honours track receive a special certificate of the university. Students, who have finished the Bachelor programme with a weighted averaged mark of 7.5 or higher and students who have shown an excellent performance during the first semester (no fails and weighted averaged mark 7.5 or higher), are eligible for following the honours track in their Master programme. The Director of Education is responsible for the programme of each individual honours track.

1.10 Profile of the Engineer Materials Science & Engineering

The MSc programme in Materials Science and Engineering at the TU Delft combines the skills and management of a standard engineering programme with the knowledge of the various types of structures, mechanisms and limits that govern our material world, applying physics, chemistry and mechanical engineering with the depth and insight close to that expected from bachelors in physics, chemistry and mechanical engineering. Completion of the programme prepares the graduates for contributions and advancements related to the field of materials science and engineering in any industry, research institute or academia. Such contributions and advancements are the development of new materials, the understanding and improvement of existing materials, their properties, their production and processing.

1.11 Cheating, Citation and Plagiarism

When doing an assignment, project or other educational activity, the student uses sources and knowledge of other people. This is allowed if the following points are taken into account:

- Citation** Citation, literally copying text is allowed, if:
- the text is limited in length and
 - the citation is made between quotation marks and
 - the source, even when this is an internet source, is mentioned in a correct and complete manner.

Paraphrasing Paraphrasing means describing a text of a third party in your own words. This is allowed, if:

- it is mentioned what is being copied and of whom and
- the source, even when this is an internet source, is mentioned in a correct and complete manner and
- there is a clear separation between the ideas of the third party and your own ideas.

Plagiarism Plagiarism means copying of pieces of text, ideas, design and theories of others, without mentioning the source. Plagiarism is a form of cheating and is illegal.

Cheating Cheating is wider than plagiarism and also includes taking a look at other's work during exams or refusing to make a proportional amount of effort in a group assignment, which

Passengers is assessed based on the effort of the group as a whole. People, who do this are called passengers.

Students suspected of copying, cheating, or being passengers, run the risk of being barred by the examination board from all tests and examinations held by TU Delft for up to one year. This can also have wide-ranging consequences for both the duration and the financial aspects of your course of study.

(With information from the TBM flyer 'Copying is a copout')

Organisation

2 Organisation

2.1 Faculty



The faculty 3mE offers the study programmes Biomedical Engineering (BME), Materials Science and Engineering (MSE), Mechanical Engineering (ME), Marine Technology (MT), Systems and Control (SC) and Offshore Engineering. The faculty also participates in the interfaculty MSc programme Transport, Infrastructure and Logistics (TIL).

3mE is an abbreviation of Mechanical, Maritime and Materials Engineering.

The organisation of the faculty and the structure of the educational and board of examiners of the faculty are described in the faculty regulations. The dean has the final responsibility for the faculty. He is assisted by the Director of Education. Together with the department heads they form the management team. The dean is supported by the Faculty Staff and is advised by a number of advisory boards.

Dean Prof. drs. M. Waas, room: 8F-1-14, phone: 015 27 85401, email: m.waas@3me.tudelft.nl

2.2 Education support staff

The education support staff is executing the education support of the study Materials Science & Engineering. For all issues related to the Mechanical Engineering study the students can get information. The Education Support Staff consists of the following persons:

prof.ir. Hans Klein Woud	Director of Education	j.kleinwoud@3me.tudelft.nl	Tel. 015 27 81556
ir. Nic-Jan van Bommel	Manager Educational Programmes	n.j.vanbommel@3me.tudelft.nl	Tel. 015 27 88791
Teuni Eden	Student adviser	t.eden@3me.tudelft.nl	Tel.015 278 2176
Louise Karreman	Study Administration office	l.m.karreman@3me.tudelft.nl	Tel. 015 27 83457
Ewoud van Luik	Coordinator Education	e.p.vanluik@3me.tudelft.nl	Tel. 015 27 85734
Susanne van der Meer	Education Administration Office	s.d.w.m.vandermeer@3me.tudelft.nl	Tel. 015 27 87428
dr. ir. Dick Nijveldt	Educational Adviser	d.nijveldt@3me.tudelft.nl	Tel. 015 27 85921
Carel Piguiilet	Software Support	c.f.f.piguiilet@3me.tudelft.nl	Tel. 015 27 86820
Mascha Toppenberg	International MSc-coordinator	m.p.i.toppenberg@3me.tudelft.nl	Tel. 015 27 86959
ir. Jaap v.d. Zanden	Student adviser	j.vanderzanden@3me.tudelft.nl	Tel. 015 27 82996

Education Support Staff
 Mekelweg 2, 2628 CD Delft
 Location 8C, ground floor
 Phone: 015 27 86959 / 015 27 83457
 Fax: 015 27 88340

2.3 Education committee

The education committee advises the dean and the education director on the contents and the structure of the study programme and the examinations.

The education committee comprises four lecturers and four students. Also the education director, the education adviser and a student adviser take part in the meetings.

Chairman Prof. ir. Laurens Katgerman
Room 0.58
Rotterdamseweg 137
2628 AL Delft
phone: (015) 2782249
e-mail: L.Katgerman@3me.tudelft.nl

2.4 Board of examiners

The board of examiners consists of all lecturers, involved in the study programme, as mentioned in paragraph 1.5.

The board of examiners is responsible for the rules and regulations of the examinations and the assessment of the examination results. Requests can be addressed to the board of examiners for participating in a deviating study programme.

Chairman Prof. dr. Barend J. Thijsse
Room 2.21
Rotterdamseweg 137
2628 AL Delft
phone: (015) 2786730
e-mail: B.J.Thijsse@3me.tudelft.nl

Secretary Ewoud P. van Luik
building part 8C, ground floor
Mekelweg 2
2628 CD Delft
phone: 015 27 85734
e-mail: e.p.vanluik@3me.tudelft.nl

2.5 Students association "Het Gezelschap Tubalkain"

'Het Gezelschap Tubalkain' ('Tub' for short) was founded in 1952 to represent the interests of all Materials Science and Engineering students. The name 'Tubalkain' finds its origin in the Bible. In Genesis (4:22) Tubalkain is referred to as: a master of everybody who works in copper and iron.

Tub has a continuous 'open door' policy, encouraging students to drop by with queries and comments. Obviously you can also come in for a friendly chat and laugh. Tub membership counts for 90% of all Materials Science students.

Tub organises excursions on a regular basis. These aim to familiarise students with the workfield. Every other week there is a 'borrel' (drinks reception) in order to promote friendly relations between students and staff. These occasions are ideal opportunities to pick the brains of more senior students, and to have informal discussions with lecturers and other members of staff.

Don't forget! You can always drop by when you have questions or when you are just in the mood for a chat.

Student Association "Het Gezelschap Tubalkain"

Room 033 (ground floor), Materials Science & Engineering Building

Rotterdamseweg 137, Tel: 27 82245

e-mail: tubalkain@tnw.tudelft.nl

<http://www.tubalkain.com>

2.6 Student guidance

2.6.1 MSc coordinator

The MSc coordinator is the person for questions or problems related to the individual study programme and for monitoring progress.

Every student can consult the MSc coordinator to set up an individual study programme using the following ingredients: compulsory courses, current ideas about the theme of the thesis project, the specialization courses that bridge the gap between the compulsory courses and the thesis project and the use of the free elective space. The student submits his/her plan for approval to the Board of Examiners.

In order to finish the programme in two years, the student should plan to take an average of 30 credits worth of courses per semester. At the end of the first year, the student and the MSc coordinator will discuss his/her progress and planning. Also the student is asked to fill in a questionnaire to enable evaluation of the master's programme.

The MSc coordinator is dr.ir. Michael Janssen, tel. 015 27 85866,

e-mail: m.janssen@tnw.tudelft.nl

2.6.2 Student advisers

For assistance and advice to students the faculty has two student advisers. The student adviser is the person for questions or problems related to the study or about issues, which may influence the ability to study. The student adviser functions as oracle (vraagbaak) and as confidential consultant to students.

Individual help and advice

The student adviser has no educational responsibilities and can, therefore, devote himself totally to individual students and to help solving their problems which may be an obstacle to their study progress. He also takes seat in a lot of boards and has contact with the lecturers, so that he has up to date information about what is going on in the study Mechanical Engineering. He also has contact with other student advisers and personal advisers at the TU Delft and outside the University; so he knows what is going on elsewhere.

Personal circumstances

During a talk with a student adviser, often intimate information comes up. The student can be sure that this information will be dealt with confidentially. This kind of information will only be used after consultation with the student, to plead to apply TU- or faculty regulations.

Advice to Examination Committee

A student adviser can decide, as result of certain conditions, to advise e.g. the board of examiners, in favour of a specific student. When necessary the student adviser becomes an intermediary between TU Delft personal advisers: student, deans, psychologists and physicians. The amount, in which the student adviser pays attention to a student, is up to the student. The student adviser keeps an eye on the study progress of most of the students and calls up one when necessary, but it is strongly recommended to contact the student adviser yourself when a question or problem comes up. Waiting often results in an increase of the problem. The two student advisers at the faculty are available for all questions. They also have their own specialisms.

Foreign Student Financial Support (FSFS)

The Delft University of Technology provides financial assistance to foreign students in cases where their study suffers delay due to special circumstances like physical illness, physical or sensory disorder, mental problems, insufficient organisation of the educational programme by the faculty.



Mrs. Teunie Eden, student adviser for all students BSc-MSc WbMT, as well as counsellor in case of harassment (see down this page)

Specialisms: Exchange students, International MSc-students, social programme international students.

Mekelweg 2, 8C, ground floor

Email: t.eden@3me.tudelft.nl

Phone: 015 27 82176



Ir. Jaap v.d. Zanden, student adviser for all students BSc-MSc 3me.

Specialisms: Graduate students, polytechnic high school students, quality control, student mentors.

Mekelweg 2, 8C, ground floor

Email: j.vanderzanden@3me.tudelft.nl

Phone: 015 27 82996

Dyslexia

Students having dyslexia usually have problems with reading and understanding of long texts. This can be an obstacle to 'normal' study progress. Therefore these students are advised to contact one of the student advisers and to set up a remedial plan. Important issues are:

- A planned study delay often helps
- When necessary, longer time for tests is possible
- Studying with a fellow student often results in more study progress
- IBG has extra student grants

2.7 Working conditions, RSI and harassment

RSI (Repetitive Strain Injury) is a well known problem by now. Within the TU Delft the number of complaints caused by RSI is increasing. Still too many employees and students neglect the first symptoms of RSI, without knowing where to go with their questions and complaints. On the internet there is a lot of information to be found on this matter. An example is <http://www.rsi.pagina.nl>.

Free software, can be downloaded on the WbMT website, that helps you to prevent RSI: <http://www.3me.tudelft.nl>, button: "facilities".

Causes There are two mechanisms that cause RSI:

- Dynamic loading: repetitive dynamic loading of muscles in fingers and hands, without taking breaks, can cause an overload in these muscles. Friction between muscles, tendons and bones can eventually cause damage.
- Static loading: constant stressing of muscles in the neck, shoulders and arms prevents blood circulation and squeezes off nerves. This results in cold and tingling fingers. Mental stress and unfavourable positioning of the body increases this effect.

Symptoms There are various symptoms, which indicate RSI: pain, stiffness, tingling and a loss of strength can occur in neck shoulders, arms, wrists, hands and sometimes even in legs. Without resting these symptoms will only get worse.

Prevention How to prevent RSI:

- Vary repetitive tasks, like typing and using a mouse, with non-repetitive tasks, like walking to the printer or reading documents.

- Take regular breaks. It is recommended for every two hours work to take a 10-minute break and for every 10 minutes work to take a 20-second break, to improve blood circulation. It is even better to do exercises, within these breaks. For this purpose anti-RSI-software can help.
- It is strongly recommended to do no more than six hours of computer work a day.
- Make sure that the working position of the body is correct. A good installed workplace is important for a correct working position. Sit straight in front of your monitor and keyboard. The height and distance of the monitor and desk should be sufficient. A chair with a convex back at waist height is favourable.
- Try not to work under stress caused by deadlines or private problems.

Don't neglect the symptoms of RSI. For questions you can contact the following people:

- Student adviser
- Labour and environmental adviser Leen Paauw, l.paauw@3me.tudelft.nl
- Student Health Care (SGZ), tel: 015 2121507, studentenartsen@sgz.nl
- Student Facility Centre (SFC), <http://www.sfc.tudelft.nl>
- VSSD support, tel: 015 27 82057, <http://www.vssd.nl>

Harassment

Harassment is inappropriate, unwanted behaviour which disturbs someone. Teasing, mocking, gossiping, bullying, sexual or racial intimidation, violence and discrimination are all forms of harassment.

Counsellor If you have problems you can turn to the Counsellor as appointed by each department within the university. Counsellors operate under strictly confidential and trustworthy conditions and can offer advice, information, support and assistance to victims of harassment. When necessary they may enlist the assistance of mediators. They can also assist and guide you, should you wish to submit your complaint to the DUT Complaints Committee. All actions are subject to your permission and approval.

If you experience any problems do not hesitate! Everyone at TU Delft has a right to feel respected and safe!

The Counsellor for our department is:

Mrs. T.Eden

Mekelweg 2, 8C, ground floor

email: vertrouwenspersoon@3me.tudelft.nl

Phone: 015 27 82176

2.8 Quality Control

The quality of the education is continuously monitored and evaluated. This is done by the faculty itself and by external organisations. The results of the evaluations are public. A summary of these results can be found on the internet.

Based on these results the education committee and the education director advises the dean.

Internal Quality Control:

- Course Evaluation** - To evaluate the opinion of the students a "**course-evaluation-system**" exists. This system gives all students the opportunity to give their opinion on the education. The study programme and courses are evaluated each year by means of a questionnaire.
- **Evaluation meetings** with students and lecturers.
- Complaints** - Submitting and dealing with **complaints**. These complaints can be lodged at the students association or at the education director.
- The faculty evaluates itself regularly in a self-assessment.

External quality control:

- The study is examined every five years, by the NVAO (Nederlands Vlaamse Accreditatie Organisatie). In preparation of the accreditation, the study is evaluated by a visitation committee formed by QANU (Quality assurance Netherlands Universities)

2.9 Information services

- Study guide** This study guide is the main information source of the study programme and is available to all students at the study administration.
The website, however always contains the most recent information. Announcements, which are of importance for the study, like changes in the schedules, are made timely on
- Blackboard** the homepage of the faculty and at Black Board.
Schedules about the lectures, assignments and examinations are available at the desk of the study administration. At the homepage of the faculty and Black Board the changes in these schedules are given. Grades can also be found on blackboard.
- Grades** Information that is not related directly to the study e.g. information by students association 'Het Gezelschap Tubalkain', will be published on publication boards and on the Materials Science Intranet. Members may also receive e-mails.

2.10 Rules and Regulations

Student Statute (Studentenstatuut)

The Student Statute is made up of a Students' Charter which applies to the whole TU Delft and an Education Specific Part of the Student Statute (OSDS) which applies to the education and the exams of the study Materials Science & Engineering.

The OSDS defines which educational services are given by the faculty and what is demanded from the students. The OSDS intends to offer the students an easy way to accomplish improvements in the educational situation, with help of the education director.

The OSDS consists of:

- This Study Guide.
- The Course and Examination Regulations for the study Materials Science & Engineering (CER, see appendix 6.1).
- Implementation Procedures (appendix 6.2).
- Regulations and guidelines for the board of examiners (appendix 6.3).

Faculty regulations

- It is not allowed to smoke within the faculty building.
- Students have to follow the instructions given by staff members. Staff members are those who support or give lectures and those who are responsible for buildings and the surrounding areas.
- On the first demand of a staff member the student should identify him- or herself by showing the campus card.
- The student should be present in time, before the start of a lecture, assignment, instruction or meeting. The lecturer or assistant may reject students who are late.
- Regular times for lectures to start are:

Lecture	Start	End
1 st hour:	8.45	9.30
2 nd hour:	9.45	10.30
3 rd hour:	10.45	11.30
4 th hour:	11.45	12.30
5 th hour:	13.45	14.30
6 th hour:	14.45	15.30
7 th hour:	15.45	16.30
8 th hour:	16.45	17.30

- Bikes should be placed in the bike stands provided.
- There is an opportunity to store personal belongings in lockers which are provided in the main hall. In the corridor situated next to lecture rooms A to F, bigger lockers can be used to store helmets. At the end of the study year, before the 15th of July, the lockers should be empty and the keys should be returned. Lockers, still in use after the 15th of July, will be provided with a new lock at the cost of the student.

- Eating and drinking is only allowed in the canteen, the coffee corner and in the immediate surroundings of a soda, candy, coffee or soup dispensers.
- Writing on, drawing on, sticking things on or scratching in furniture, walls, doors or windows is prohibited.
- Garbage and paper should be disposed of in bins.
- For the use of computers, network connections, printers and plotters there are rules and regulations, which should be taken in consideration.
- Disobeying of rules and regulations can result in a suspension or a denial of certain facilities. Theft or destruction on purpose of properties of DUT and also serious misbehaviour will be mentioned to the proper authorities.

Internet facilities

The utilisation of internet facilities at the faculty is bound to some regulations:

It is allowed to:

- Send e-mail to persons (or applications) from which can be expected that they will not consider the e-mail as annoying. Also you can receive e-mails which can be temporary stored in the inbox.
- Read online magazines and to place articles in it.
- Use the network information services like WWW-servers and FTP-servers, which are in use at this moment and also which will become available in the future. All use of services is bounded by regulations.
- Use the "Intranet DUNet" on telephones provided through the faculty.

It is not allowed to:

- Damage or disable facilities.
- Use available facilities in any other way than they were supposed to be used:
 - Download, upload or fileshare of copyright protected items, such as texts, audio and video files, in any format.
 - Download and install any applications on the faculty computers.
 - Play computer games using network facilities.
- Make excessive use of the facilities.
- Let a third party use available facilities (including fellow students).
- Do damage or obstruct other users or equipment linked to the world wide web.
- Disrespect other peoples privacy, for example by sending information under a false name.
- Become a member of a mailing list outside the faculty without permission of the "dutwmail director". This rule only applies to the students.
- Distribute or show material that can be regarded as offending, for example insulting phrases or pornographic images or movies.

Sanctions:

- Account deactivation immediately after a violation has occurred.
- In case of serious violation and in case of repeated violation: prohibition of the use of ICT facilities, up to a year.
- In case of law violation: notification to the police.
- All claims, as a result of violations, are passed to the violator.

Facilities

3 Facilities

In this study guide is being referred to locations, within the faculty building, by means of a number and a letter between brackets, which corresponds to the faculty map in appendix 6.7. The floor is also indicated (BG= ground floor, 1st = first floor, etc.). Locations outside the faculty can be found at the campus map, appendix 6.5.

3.1 Lecture Rooms / Meeting Rooms

Lecture rooms are used for lectures, (graduation) presentations and instructions. The next table shows all the lecture rooms, their capacity and their location of the Building for Mechanical Engineering and Marine Technology.

Meeting rooms are available for meetings, discussions etc. of small groups of students. Reservations can be made as the desk of the education support staff.

Room	Capacity	Location
A	300	6, BG
B	200	6, BG
C	150	6, BG
D	150	6, BG
E	70	6, BG
F	70	6, BG
J	50	8D, 1 st
K	30	8G, 1 st
L	30	8G, 1 st

During this course year most of the lectures MS&E will take place in the building of Materials Science, Rotterdamseweg 137 in the following lecture rooms:

Room	Capacity	Location
A	160	Ground floor
B	25	2 nd floor
C	25	Ground floor
2.49	15	2 nd floor
1.95	10	1 st floor

3.2 Individual study facilities

At several locations in the faculty individual study places are available. Some of these study places are equipped with computers. These places are free to use, without reservation. Places should be left clean and tidy.

Besides the study places as mentioned above, there are also places to study in the faculty library and the central library (see 3.5). In the library students have to be silent. The same rules apply as for the study places.

3.3 Computer rooms

Besides computers at the study places, computers are available in the computer rooms. All computers give access to the internet. The computer rooms are free to use by all students, if they are not in use for instructions or assignments. When they are, the computer rooms are not accessible for everybody. A schedule, on the door of each computer room tells when these instructions or assignments take place. The next table shows all the computer rooms and their location.

Room	Location
Athena room	4, 1 st
Parthemus room	4, 1 st
Pallas room	4, 1 st
Design studios	8G, BG
W.G. Burgerszaal	40, 0.36 (Ground Floor)

3.4 Research facilities

The faculty has a number of research laboratories. Students may perform a part of their study in these laboratories, like the MSc-Thesis or a laboratory exercise. The laboratories are used for research activities of Ph.D.- Students and staff.

3.5 Library



Central library

Prometheusplein 1
Postbus 98
2600 MG Delft
tel: 015 27 85678
fax: 015 27 85706
www.library.tudelft.nl

The library of the TU Delft consists of a main building and smaller faculty libraries. The main building has a large collection of books and magazines. The main part of the collection can be borrowed from the library and has to be requested. 30 minutes after requesting the item will be available. The remaining part of the collection (open shelves) is only available within the library.

The main building has more than 1000 study places (at the ground floor, on the different floors of 'the cone' and in a couple of group rooms), a computer room and coffee and candy dispensers.

To borrow a book, a student needs a library card, which pass can be acquired at the desk in the main building or at the faculty libraries.

		Lecture period	Exam period	Summer holiday
Opening hours	Mo - Thu	9:00 - 22:00	9:00 - 24:00	9:00 - 17:00
	Fri	9:00 - 18:00	9:00 - 22:00	9:00 - 17:00
	Sa and Su	10:00 - 18:00	10:00 - 22:00	Closed
Book desk	Mo - Thu	9:00 - 19:00	9:00 - 19:00	9:00 - 19:00
	Fri	9:00 - 17:00	9:00 - 17:00	9:00 - 17:00
	Sa	10:00 - 13:00	10:00 - 13:00	10:00 - 13:00

Books can be borrowed for a period of 28 days. This term can be extended as long as no other person makes a reservation for the book. As a maximum, 20 items can be loaned. If a book is requested but not available, the requester will receive a notification by email or post if the book is available.

The central library is behind the auditorium (aula) at the Prometheusplein, see appendix 6.5.

Department Library

The department library has a collection specifically for Materials Science and Engineering. The library is located at the first floor at Rotterdamseweg 137, entrance through room 1.17

- Opening hours** Monday to Friday 9:00 – 17:00
- Request** Searching and requesting books is possible by the online catalogue at <http://www.library.tudelft.nl>. This catalogue includes all collections of all libraries of the TU Delft. Besides the catalogue, requesting of books is possible at the desk of the central library and the faculty library.
- Library card** In order to use the library facilities a student is supposed to have a library card. This card can be requested at the desk of the central library or faculty library. To make the request the student must bring Personal Identification (passport, driver's licence, etc.) and an Address Identification (recent bank statement, insurance policy, etc.). The library card is free of charge and for personal use only.

3.6 Lecture notes and books

Most lecture notes, which are used for lectures at the faculty, can be bought at the 'repro', as well as some books and office articles are available.

Opening hours repro: Monday to Friday 9:00 - 16:00

<http://www.io.tudelft.nl/repro/>, 015 2783062

Location: 10, BG.

For courses at other faculties, lecture notes can be bought at the concerning faculties:

- Aerospace Engineering: 1st floor, 015 27 81250
- Applied Physics: room no. C 057, 015 27 87992
- Civil Engineering: 015 27 81727
- Management of Technology: ground floor, next to entrance, 015 27 86373
- Electrical Eng, Mathematics, Computer sc. (EWI): room 350, 015 27 87855

3.7 Mailbox and access to the internet

Each student has the possibility to access and communicate on the Internet. Therefore each student receives a faculty login account and an e-mail account. The email account is accessible everywhere, via a webmail server. At the faculty students can use printers, plotters, scanners, etc.

- Printing** Printing is paid for by a print account. Each student gets a welcome account of €11.50 to start with. At the reception desk the account can be upgraded, from 8:30 till 16:30. It is possible to check the print account at all time, by pointing with the mouse on the 'dollar sign'-symbol in the taskbar at any computer at the faculty.

The services mentioned above are taken care of by:

I&A Service information and automation (Dienst Informatisering en Automatisering) (I&A):
 Managing of computers, servers and the network.
 Phone: 015 27 82001
 E-mail: helpdesk@3me.tudelft.nl

System administrator and postmaster J.M.Kalkman, phone: 015 27 86858, e-mail:
 j.m.kalkman@3me.tudelft.nl, room 8A-1-06

DTO Service Technical Support (Dienst Technische Ondersteuning) (DTO):
 Supporting when problems with accounts occur.
 Phone: 015 27 82000
 E-mail: info@dto.tudelft.nl

3.9 Catering

The faculty offers a variety of catering facilities.

- Canteen** The faculty canteen serves a comprehensive lunch. The canteen can be found at location 10, BG.
 The canteen at Rotterdamseweg 137 can be found in the basement.
- Coffee corner** The coffee corner is specialised in a quick snack. The coffee corner is situated near the main entrance (8F). Chairs, tables and couches are available. Opposite of the coffee corner there are dispensers for coffee, candy bars, sodas, soup, etc. Paying at these dispensers is only possible with the electronic chipcard 'chipknip'.
- Faculty room** The faculty room is a place for giving symposia, meetings or graduation drinks ("afstudeerborrels"). A reservation can be made at the reception desk.
- Lagerhuysch** The Lagerhuysch is situated below ground level in section 8B, with access from the square in front of the faculty. The Lagerhuysch offers the possibility for giving graduation drinks (afstudeerborrels), but also for organising symposia and meetings. The students associations Gezelschap Leeghwater and William Froude regularly organise activities. On the site <http://www.lagerhuysch.tudelft.nl> a route description and a reservation form for the Lagerhuysch can be found.
- Auditorium** Within the TU Delft auditorium a variety of catering facilities is available. Lunch time is from 11.30 till 13.30, diner time from 16.30 till 19.30. See appendix 6.5 for the location.



Service for Students

4 DUT - Services for students

Delft University of Technology (DUT) provides several service centres for students:

- Student Facility Centre
- Sports Centre
- Cultural Centre 'Mekelweg 10'
- Library

For all other services: refer to the DUT website, <http://www.tudelft.nl>.

SFC The Student Facilities Centre (SFC) consists of several departments, which provide a diversity of services to students, staff members and faculties.

Some examples of these services are provision of information concerning:

- Studying abroad
- All possible forms of education at DUT
- Study support and advise
- Housing
- Financial support and sponsoring for students and student associations

Student Facilities Centre Front Office

Julianalaan 134

2628 BL Delft

Postbus 5

2600 AA Delft

Phone: 015 27 88012

<http://www.sfc.tudelft.nl>

Sports Centre The Sports Centre provides all kinds of sports activities:

- Indoors, in several halls and gyms, in which almost any kind of sport can be done.
- Courses and trainings organized by professional instructors.
- Outdoors there are 12 tennis courts and (natural) grass fields for playing soccer, hockey, cricket, rugby, baseball and softball. Most of these fields are illuminated during evenings.

It is possible to use the facilities on an individual basis.

Sports Centre

Mekelweg 8

2628 CD Delft

Phone: 015 27 82443

Fax: 015 27 87087

<http://www.sc.tudelft.nl>

**Cultural Centre
'Mekelweg 10'**

Anyone who would like to express him/her self in an artistic manner can do this at the Cultural Centre. The activities and courses are aimed at cultural education and at stimulating forms of expression such as: (audio-)visual, communicative, musical and dancing. 'Mekelweg 10' also supports cultural activities of student organisations and members of DUT staff.

The facilities are:

- Design studios
- Several studios for midi and Deejay's
- Darkroom for photography
- Video editing room
- Rehearsal room for musicians

Cultural Centre 'Mekelweg 10'
Mekelweg 10
2628 CM Delft
Phone: 015 27 83988
Fax: 015 27 83946
<http://www.cc.tudelft.nl>

**ICT Infrastructure**

Infrastructure services, concerning telephony and ICT facilities are provided by DTO (Technical Support Service). Services concerning students, as described at <http://www.dto.tudelft.nl> are:

- Internet facilities for student accommodation:
A number of internet access facilities for student accommodation are offered by the TU Delft.
- OLI:
OLI is a foundation that supports students, by offering internet facilities, e.g. to support websites. This is possible for all kind of student organisations, like student associations, study associations, student's houses, etc.
<http://www.oli.tudelft.nl>

Course descriptions

In general courses are given in English:

- E: means that the course is given in english
- ER: means that the course is given in Dutch, on request the course is given in English

For complete course descriptions see website, campus.3me.tudelft.nl.

Appendices

6.1 Course and Examination Regulations

Section 1 GENERAL

Article 1 SCOPE AND APPLICABILITY OF THESE REGULATIONS

1. These regulations are applicable to teaching and examinations of the Master's degree programme Materials Science and Engineering at Delft University of Technology, hereafter referred to as the programme.
2. This programme is conducted under the responsibility of the Faculty of Mechanical, Marine and Materials Engineering at Delft University of Technology, hereafter referred to as the Faculty.
3. For this programme, implementation procedures are in effect that supplement, and are integral to, these Course and Examination Regulations.
4. The Course and Examination Regulations and the implementation procedures are laid down by the Dean.

Article 2 DEFINITIONS

Any terms in these regulations also occurring in the Higher Education and Academic Research Act (WHW) will have the same meaning as that intended by that Act.

In these regulations, the following terms shall be understood as follows:

- a. the Act: the Higher Education and Academic Research Act (abbreviated in Dutch to WHW), including its subsequent amendments;
- b. programme: the Master's degree programme referred to in Article 7.3a, subsection 1 under b of the Act;
- c. student: anyone enrolled at Delft University of Technology (as a student or "extraneous") for purposes of education and/or for taking the examinations and interim examinations that are part of the programme;
- d. practical training: practical exercise as referred to in Article 7.13, subsection 2 under d of the Act, in one of the following forms:
 - writing a thesis;
 - writing a paper/completing an assignment, project or technological design;
 - completing a design or research assignment;
 - conducting literature study;
 - completing a work placement;
 - taking part in fieldwork or an excursion;
 - conducting tests and experiments;
 - or participating in another educational activity focused on the attainment of a particular skill.
- e. interim examination: a test of a student's knowledge, insight and skills with regard to a particular unit of study, and the assessment of this examination by at least one examiner appointed for that task by the board of examiners.

- | | | |
|----|----------------------------|--|
| f. | examination: | test used by the board of examiners to establish whether all interim examinations that are part of the study programme have been successfully completed as specified in Article 7.10 of the Act. |
| g. | board of examiners: | the board of examiners as appointed according to Article 7.12 of the Act. |
| h. | implementation procedures: | the implementation procedures integral to the Course and Examination Regulations and applicable to a specific Master's programme. |
| i. | working day: | each day from Monday to Friday, with the exclusion of official national holidays. |
| j. | course calendar: | the publication containing all the specific information appropriate to a specific Master's course guide named in Article 1. |
| k. | examiner: | those appointed by the board of examiners for the purpose of taking interim examinations in accordance with Article 7.12 of the Act; |
| l. | EC: | European Credits as specified in the European Credit Transfer System |
| m. | The University: | Delft University of Technology |

Article 3 OBJECTIVE OF THE MASTER PROGRAMME MATERIALS SCIENCE AND ENGINEERING

The goal of the master programme Materials Science and Engineering is to educate graduates in Materials Science and Engineering to an academic engineering level. The level corresponds to the technological borders of a specific discipline. The graduates are capable:

- To identify, define and analyse problems, for the solution to which materials-science-and-engineering principles and techniques can contribute
- To develop and to produce a sound solution to the problem
- To present these solutions effectively

Article 4 ADMISSION TO THE MASTER'S PROGRAMME

1. Admission to this programme will be granted to students in possession of a degree issued for the Bachelor's programme in Mechanical Engineering, Aerospace Engineering, Chemical Engineering, Marine Technology, Civil Engineering, Applied Physics and Materials Science issued by the Delft University of Technology, Technische Universiteit Eindhoven, University of Twente or one of the universities of the IDEA-league.
2. Students who are not graduates of one of the courses specified in paragraph 1 but who are in possession of a confirmation of admission provided by the Faculty will be eligible for admission.
3. To obtain confirmation of admission, a student must satisfy the criteria specified in paragraph 1.4 of the study guide.
4. If so requested by a student who is not in possession of a Bachelor's degree as specified in paragraph 1, the board of examiners may depart from paragraph 1 by allowing that student to attend parts of the Master's programme.

Article 5 FINAL QUALIFICATIONS OF THE MASTER PROGRAMME MATERIALS SCIENCE AND ENGINEERING

The graduated Master of Materials Science and Engineering meets, to a sufficient level, the following qualifications:

1. Broad and profound knowledge of engineering sciences (physics, chemistry and mathematics) and the capability to apply this knowledge at an advanced level in the topic-related discipline.

2. Broad and profound scientific and technical knowledge of the topic-related discipline and the skills to use this knowledge effectively. The discipline is mastered at different levels of abstraction, including a reflective understanding of its structure and relations to other fields, and reaching in part the forefront of scientific or industrial research and development. The knowledge is the basis for innovative contributions to the discipline in the form of new designs or development of new knowledge.
3. Thorough knowledge of paradigms, methods and tools as well as the skills to actively apply this knowledge for analysing, modelling, simulating, designing and performing research with respect to innovative topic-related systems, with an appreciation of different application areas.
4. Capability to independently solve technological problems in a systematic way involving problem analysis, formulating sub-problems and providing innovative technical solutions, also in new and unfamiliar situations. This includes a professional attitude towards identifying and acquiring lacking expertise, monitoring and critically evaluating existing knowledge, planning and executing research, adapting to changing circumstances, and integrating new knowledge with an appreciation of its ambiguity, incompleteness and limitations.
5. Capability to work both independently and in multidisciplinary teams, interacting effectively with specialists and taking initiatives where necessary.
6. Capability to effectively communicate (including presenting and reporting) about one's work such as solutions to problems, conclusions, knowledge and considerations, to both professionals and non-specialised public in the English language.
7. Capability to evaluate and assess the technological, ethical and societal impact of one's work, and to take responsibility with regard to sustainability, economy and social welfare.
8. Attitude to independently maintain professional competence through life-long learning.

Article 6 FULL-TIME AND PART-TIME COURSE FORMAT

The Master's programme will be provided on a full-time basis.

Article 7 LANGUAGE

1. English shall be the language used for all teaching and examinations.
2. In certain cases, the Dean may depart from paragraph 1 by giving permission for teaching to take place in Dutch, if this is necessitated either by the specific nature of the organisation, the quality of the course, or the students' origins and backgrounds.
3. If a student asks to be allowed to take one component, or several components, of an examination in a language other than English, the terms of the regulations and the guidelines of the board of examiners will be applicable accordingly.

Section 2 COMPOSITION OF THE MASTER'S PROGRAMME AND THE FINAL EXAMINATION

Article 8

1. The composition of the educational programme is laid down in the implementation procedures. This educational programme starts once a year, in September.
2. The examination for a Master's Degree is an integral part of the programme. The study load for this examination totals 120 EC.

Section 3 INTERIM EXAMINATIONS

Article 9 THE NUMBER, PERIOD AND FREQUENCY OF INTERIM EXAMINATIONS

- 1.a. The course shall provide at least two opportunities per year to sit interim examinations:
 - the first shall follow immediately after the teaching period in which the relevant component was taught and completed;
 - the second shall be given at the end of the second semester, or otherwise in the August resit period.
- 1.b. The interim examinations referred to under a. shall be held as indicated for the unit of study concerned in the timetable for the current academic year. At the beginning of each academic year, a timetable specifying the dates and times of written interim examinations shall be drawn up and published.
2. In the event that a course component is not taught within the Faculty itself, and therefore there is no indication of the number of times it is possible to sit an interim examination as referred to in paragraph 1, the course and examination regulations of the relevant Faculty or degree programme will be applicable, provided no decision to the contrary has been taken by the board of examiners.
3. Notwithstanding the provisions of the first clause under 1a, at least one opportunity shall be given per year to take an interim examination in a course component that has not been taught in that year.
4. In certain cases the board of examiners may allow departures from the specified number of times that an interim examination can be sat.

Article 10 THE ORDER OF INTERIM EXAMINATIONS

The implementation procedures shall specify the order in which the interim examinations will be taken, or in which students be to participate in practical training.

Article 11 THE PERIOD OF VALIDITY OF INTERIM EXAMINATIONS

1. Students who have interrupted their studies, or who have delayed their studies for other reasons, shall resit any component they passed ten years or more ago if its contents have since been modified.
2. The board of examiners may, in a student's favour, depart from the provisions of paragraph 1.

Article 12 THE FORM OF THE INTERIM EXAMINATIONS, AND THE METHOD OF TESTING

1. Per year, the form in which each interim examination is to be taken shall be specified in the study guide for the actual course year under the unit of study concerned.
2. If no specification is made of the way in which an interim examination can be taken, because that examination applies to a unit of study that is not taught within the Faculty, and because it involves a unit of study that is not specific to students taking part in a programme administered by the Faculty of Mechanical Engineering and Marine Technology, the relevant conditions in the Course and Examination Regulations for that unit of study shall be applicable. Each year, the board of examiners under which the interim examination falls shall determine the way in which the interim examination is to be taken.

3. The appointed examiner may depart from the provisions of paragraphs 1 and 2 in a student's favour. Each student with a physical or sensory disability shall be given the opportunity to take all interim examinations and practical training in a way that, to the greatest possible extent, is adapted to the disability in question. Under this facility, the form or length of the interim examinations shall be adapted to the individual situation, or practical aids shall be made available.
4. The facilities specified in the previous paragraph should be requested from the board of examiners by the student concerned. This request should be accompanied by a medical certificate issued no more than one year previously by a doctor, psychologist or student counsellor. All requests involving dyslexia should be backed by a recognised dyslexia testing body.

Article 13 ORAL INTERIM EXAMINATIONS

1. Unless otherwise determined by the board of examiners, no oral interim examination shall involve more than a single student at the same time.
2. All oral interim examinations be public, unless, in exceptional circumstances, the board of examiners or the individual examiner decide otherwise, or if the student has submitted an objection.

Article 14 THE ESTABLISHMENT AND NOTIFICATION OF RESULTS

1. Immediately after taking an oral interim examination, the examiner shall announce the result, and issue the student with the relevant written notification.
2. As soon as possible after a written interim examination, and always within a maximum of 15 working days, the examiner shall declare the results. The examiner shall provide the Faculty's student administration office with the necessary details. Paying all due attention to the privacy of individual students, the student administration office shall take responsibility for the registration, publication and reporting of the results within 20 working days of the interim examination.
3. If an interim examination is taken neither in writing nor orally, but in another form, the board of examiners shall decide in advance on the way in which students will be notified of the results, and of the period within which this will occur.
4. When students be provided with written notification of the results of an interim examination, it shall at all times be made clear that they have the right to inspect the relevant examination documents (as defined in Article 15), and that they have the right to appeal to the examination appeals board.

Article 15 CANDIDATES' RIGHT TO INSPECT THEIR EXAMINATION DOCUMENTS

1. For at least one month after the results of a written examination have been announced, it shall be possible for students to inspect their examination and its assessment. At the student's request, he/she will be provided with a copy of the relevant work at cost price.
2. During the period specified in paragraph 1, it is possible for all interested parties to inspect the questions and assignments of the relevant interim examination, and also the norms whereby assessment took place. Upon request a copy of this information shall be provided at cost price.
3. The board of examiners may specify that inspection of examination documents will take place at a predetermined place at no fewer than two predetermined times. The place and dates shall be stated on the list of results. If a student can demonstrate that, due to forces beyond his or her control, it was impossible to be present at the predetermined place and time, a new opportunity shall be provided; if possible, this shall fall within the period specified in paragraph 1.

Article 16

OPTIONS FOR DISCUSSING THE RESULTS OF AN INTERIM EXAMINATION

1. As soon as possible after the results of an interim examination have been announced, student or examiner may take an initiative towards discussing the examination, and to explaining its assessment.
2. For a period of one month, starting on the day following the announcement of the results, a student who has taken a written interim examination may apply to the relevant examiner to discuss the work in question. This discussion shall follow at a place and time specified by the examiner, and always within a reasonable period.
3. If, for whatever reason, the board of examiners organises a collective discussion after an interim examination, there be only two cases in which a student may submit a request of the type specified in the previous paragraph: either a. by being present at the collective discussion and by simultaneously providing the motives for the request; or b. when, due to circumstances beyond his or her control, it was impossible to attend the collective discussion.
4. The conditions of the previous paragraph shall also apply if the board of examiners or the examiner provides the student with an opportunity to compare his or her answers with standard answers.
5. The board of examiners may allow deviations from the stipulations of paragraphs 3 and 4.

Section 4**EXEMPTION FROM INTERIM EXAMINATIONS**

Article 17

EXEMPTION FROM INTERIM EXAMINATIONS OR PRACTICAL EXERCISE

1. The board of examiners can grant students exemption from one or more interim examinations or practical exercises, if they have satisfied the examiners either with regard to earlier interim examinations, or with regard to Higher Education examinations, or with regard to knowledge and skills acquired outside higher education. However, this is possible only if they satisfy at least one of the following conditions:
 - a. the interim examination involved a unit of study that, in terms of content and study load, was equivalent to a comparable university course in the Netherlands or beyond, or at an institute of professional education (i.e. HBO institute / hogeschool) in the Netherlands.
 - b. the student can provide proof of knowledge or experience acquired either during a course provided somewhere other than at a Dutch institute of professional education, or otherwise during activities conducted in another context.
2. If the relevant examiner has made a fully motivated proposal to this effect, the board of examiners may grant exemption from an interim examination.

Section 5**THE MASTER'S EXAMINATIONS**

Article 18

PERIODS AND FREQUENCY OF EXAMINATIONS

1. An opportunity to take the Master's examination shall be provided no less than twice a year. In a meeting held before the start of the academic year, the board of examiners shall establish the dates on which the examinations be to be held. These shall be published in the study guide for the programme and year in question.
2. All students can apply to take the examinations as soon as they have fulfilled the conditions of their course, and have provided the student administration office with proof of the course components they have passed.

Article 19 REPORTING ON STUDENTS' PROGRESS

1. At least once a year, each student shall be sent a written report on the progress he or she has made over the preceding period.
2. The report referred to in paragraph 1 shall be composed according to the guidelines established by the Executive Board.
3. The Dean shall be responsible for supervising the progress of all students enrolled on the course. Such supervision shall include an assessment of the options for study that be available to students, both inside the programme and beyond it.

Section 6 PROVISIONS FOR IMPLEMENTATION

Article 20 MODIFICATION OF THE REGULATIONS

1. These regulations may be modified in a special decision by the Dean.
2. No decision shall be made in respect of the current academic year, unless, by all reasonable definitions, it is unlikely to damage the interests of students.
3. No change in the regulations may negatively affect a previous decision made by the board of examiners in respect of a student.

Article 21 TRANSITIONAL RULING

1. In the event that the composition of a teaching programme is modified, or that one of the Articles of the Course and Examination Regulations is changed, the Dean shall decide on a transitional ruling, which shall then be published in the implementation procedures.
2. In all cases, this transitional ruling shall incorporate the following:
 - a. a ruling on the exemptions that be available on the basis of interim examinations that a student has already passed,
 - b. the number of times that it is still possible to sit for interim examinations under the conditions of the old programme,
 - c. the period for which the transitional ruling will be valid.

Article 22 PUBLICATION OF THE TRANSITIONAL RULING

1. The Dean shall take responsibility for publicising the following in an appropriate fashion: the transitional ruling defined in Article 21, and the implementation procedures and the changes to it.
2. The Course and Examination Regulations and the implementation procedures for each course shall be incorporated in the study guide.

Article 23 DATE OF COMMENCEMENT

These regulations shall come into force on 1 September 2005.

6.2 Implementation Procedures

for the teaching and examination regulations appropriate to the Master's programme Materials Science and Engineering

Article 1 COURSE CALENDAR

The course calendar for the programme can be found in the Study Guide for the Master's degree programme Materials Science and Engineering.

Article 2 COMPOSITION OF THE PROGRAMME

The composition of the Master's degree programme Materials Science and Engineering, including number of credit points, assessment, entrance requirements per unit of study is described in the Study Guide.

Article 3 COMPOSING FLEXIBLE STUDY PROGRAMMES

1. Students may themselves compose an individual study programme that will lead to an examination. This programme must consist, either in full or for the greater part, of units of study which be taught on the course they be attending, and may be supplemented with units taught on other courses or at other universities.
2. Each student desiring to compose a programme of the sort referred to in paragraph 1 shall submit his or her own proposal, motivating it in full, for the approval of the relevant board of examiners, i.e. at the beginning of the Master's programme.

Article 4 PROCEDURE FOR APPROVING FLEXIBLE STUDY PROGRAMME

1. No less than two months before they intend to start on a flexible study programme, all students must submit their proposals for their choices of one or more units of study (as referred to in Article 3) for approval by the board of examiners. Each proposal must be accompanied by a clearly argued motivation.
2. Any decision not to approve the proposal shall be motivated by the board of examiners after the student in question has been given the opportunity of a hearing.
3. The board of examiners shall decide within twenty working days of receiving the application, or, if the application is submitted during an academic holiday, no more than ten working days after this holiday has ended.
4. The board of examiners can adjourn its decision for no more than ten working days. The student shall be given written notification of such adjournment within the twenty-working-day period referred to in the first sentence of paragraph 3. The student shall receive written notification of the decision without delay.

Article 5 THE ORDER OF INTERIM EXAMINATIONS AND ASSIGNMENTS

The order in which the interim examinations will be taken, assignments shall be fulfilled or in which students be to participate in practical training, is laid down by means of entrance requirements, specified in the description of the contents of the programme in the Study Guide.

Article 6

MASTER'S THESIS

1. The programme is concluded by fulfilling a final assignment and presenting a Master's thesis.
2. The Master's thesis is assessed by an examining committee, assigned by the board of examiners.
3. The student applying for the Master's examination has to defend his thesis before the examining committee mentioned sub 2.

Article 7

SPECIALIZATIONS AND ANNOTATIONS

1. The Materials Science and Engineering MSc-programme is provided in 6 specializations:
 - Metals Science and Technology
 - Applied Functional Polymers
 - Materials for Art and Archaeology
 - High Performance Materials in Product Design
 - Materials for Energy and Environment
 - Management of Technology
2. As an addition to the specialization programme there is an annotation that can be assigned. If the requirements for the annotation are fulfilled, the student acquires a supplement to the MSc-degree, which declares a more than average knowledge about that subject. The annotation is for: - Technology in Sustainable Development.
3. Further details and requirements are laid down in the study guide.

Article 8

PARTICIPATION IN THE PROJECT "TU DELFT HELPS REDUCE THE SHORTAGE OF TEACHERS"

Within the framework of the project "TU Delft helps reduce the shortage of teachers in Dutch pre-university education", students can take part in the course "TU Delft/Teachers for schools". This course comprises two parts, a preparatory course and a supervision phase. The total course leads to the award of 9 EC, which should be allocated within the elective subjects.

6.3 Regulations and guidelines for the board of examiners

Article 1 SCOPE OF THE REGULATIONS

These regulations and guidelines are applicable to the teaching of, and examinations for, the Master's degree programme in Materials Science and Engineering, hereafter referred to as the programme.

Article 2 DEFINITIONS

- 1 When used in these regulations and guidelines, the term Course and Examination Regulations (CER), refers to the current course and examination regulations as intended under Article 7.12 of the Higher Education and Academic Research Act (abbreviated in Dutch as WHW);
- 2 All other terms occurring in these Regulations will have the same meaning as that intended in the CER and the WHW.

Article 3 DAY-TO-DAY ADMINISTRATION

The board of examiners consists of three examiners who are engaged in the educational programme and mentioned as such in the curricula, described in section 1.5 of the study guide. The board of examiners shall appoint a chair and a secretary from its members. The chair shall be responsible for the day-to-day management of the committee.

Article 4 MASTER'S EXAMINING COMMITTEE

1. The board of examiners appoints a Master's examining committee for the assessment of each Master's thesis.
2. A master's examining committee consists of no less than three members.
3. The professor in charge is chairman of the committee.
4. No less than one member belongs to the scientific staff of the research group responsible for the specialisation concerned; no less than one member belongs to the scientific staff of a different research group of Delft University of Technology.
5. The committee can be completed by experts from outside the University.

Article 5 ENTRY FOR INTERIM EXAMINATIONS

- 1 Students shall apply for interim examinations at the Faculty's Department of Educational and Student Affairs by entering data in the examination application system, or, if the system is not in use, by completing and submitting a form made available by the Department of Educational and Student Affairs. Whatever the means of application, all submissions must be received no less than ten working days before the interim examination.
- 2 In exceptional cases, the board of examiners can depart from the application period defined in paragraphs 1 and 4 of this Article, provided that this departure is in the favour of the student concerned.
- 3 Admission to the interim examination will be granted solely to those students who are registered on the list of applicants produced by the examination application system (or by any alternative system currently in force).

- 4 If, in their opinion, students have not been able to apply for an interim examination due to events beyond their control, they shall apply to the board of examiners no less than two full working days before the day for which the examination is planned. By submitting a declaration of demonstrable force majeure written or issued by, or on behalf of, the board of examiners, the student may be allowed to sit the relevant examination.

Article 6 ORDER DURING AN INTERIM EXAMINATION

- 1 With regard to written interim examinations, the appointed examiner shall be responsible for appointing invigilators who, on behalf of and under the authority of the board of examiners will ensure that the examination runs smoothly.
- 2 If asked by, or on behalf of, the board of examiners, all candidates shall identify themselves by showing their campus card.
- 3 Candidates shall observe all instructions that have been published before the start of the examination by the board of examiners, or by the examiner or invigilator. They shall also follow instructions given during the examination and immediately after it has finished.
- 4 If a candidate fails to fulfil the conditions of the paragraphs 2 and 3 of this Article, the board of examiners or the appointed examiner can exclude him or her from further participation in the interim examination. The consequence of such exclusion is that no result is established for the examination in question. Before taking such a decision, the board of examiners shall offer the student concerned an opportunity to state his or her case.
- 5 The time allotted for each interim examination shall, by all reasonable standards, be long enough to allow candidates sufficient time to answer its questions.
- 6 When the interim examination has finished, candidates may keep the assignment papers. The exception to this rule concerns examinations in which questions and answers must be handed in together.
- 7 Candidates may not enter the examination room until the invigilator gives permission.
- 8 No candidates are admitted into the examination room no later than half an hour after the official start of the examination.
- 9 Candidates are not allowed to leave the examination room within the first half hour following the official start of the examination. After this time, permission to leave the room temporarily will be given only in urgent cases. No more than any one candidate may be absent at the same time.
- 10 Under no circumstances can items such as briefcases, bags and communication equipment be used or handled in the examination room.
- 11 Although candidates are responsible for bringing their own calculators and their own writing and drawing materials, the faculty will provide answer sheets and scrap paper.
- 12 In the event that a certain examination requires students to use calculators, these calculators may at no time be able to exceed the maximum capabilities specified by the examiner for that subject. In general, programmable calculating equipment is not allowed. (Generally examination assignments should be formulated such that they can be carried out with a simple calculator; at no times should candidates with more complex calculators have an advantage.)
- 13 Candidates may not write their answers in pencil, unless the examiner has given prior permission for this.
- 14 During the interim examination, candidates may not consult books, readers, etc., unless the examiner has given prior permission for this.
- 15 If an invigilator catches a candidate or candidates cheating, the procedure described in Article 6, paragraph 2 of these regulations will be applicable.

¹ Course and Examination Regulations

- 16 Before permanently leaving the examination room (i.e. no less than 30 minutes after the start of the interim examination), candidates must, at minimum, submit the front page of the answer sheet. This must bear their name and student number.
- 17 Before the interim examination begins, the invigilator shall instruct the candidates on the procedure they must follow if they leave the examination room without completing all the examination assignments.
- 18 Students who believe they may qualify for examination in a different form, should, as specified in Article 12 paragraphs 4 and 5 of the CER¹, submit a fully motivated request for this to the chair of the board of examiners.

Article 7 CHEATING

- 1 Cheating is defined as any act committed by a student for the purpose of making it partly or wholly impossible to make a correct assessment of his or her knowledge, insight and skills.
- 2 If a student is found to be cheating as defined in paragraph 1 of this Article, the board of examiners can decide to exclude him from the interim examination in question.
- 3 The decision to exclude a student as defined in paragraph 2 of this Article shall be taken on the basis of the invigilator's report of the cheating.
- 4 In urgent cases, the invigilator is entitled to act on behalf of the board of examiners by immediately excluding the student or students concerned. The board of examiners shall ensure that, immediately after the interim examination, the report defined in paragraph 3 of this Article is made in writing; and that a copy is issued to the student or students concerned.
- 5 Within 20 days of his or her exclusion, such a student may appeal to the board of examiners to reverse their decision. To this appeal, the student will attach a copy of the report defined in paragraph 4 of this Article; this may also be accompanied by the student's own written testimony.
- 6 Before deciding on an appeal of the sort defined in paragraph 5 of this Article, the board of examiners shall give both student and examiner the opportunity of a hearing.
- 7 The board of examiners will decide on any reversal of the original decision within 30 working days of receiving the student's appeal.
- 8 The consequence of exclusion is that no examination result will be recorded for the interim examination intended under paragraph 2 of this Article.
- 9 In the event of cheating, the board of examiners can decide, conditionally or unconditionally, to exclude the student from all further interim examinations for a maximum period of one year.

Article 8 CRITERIA

When taking the decisions that are integral to their duties, the board of examiners and, where appropriate, the examiner, shall be guided by the criteria stated below. When these criteria conflict, the board shall carefully weigh the interests of allowing one criterion to prevail over another. At all times, these standards must ensure that the following conditions are met:

- a that the criteria regarding quality and selection inherent to an interim examination are maintained;
- b that the need for efficiency is met, particularly by limiting to a minimum any time loss that would hinder those students whose preparations for examinations and interim examinations are running to schedule;
- c that students who wish to assume too great a study load should be protected from themselves;
- d that clemency should be shown in all cases in which students' progress is slowed by circumstances beyond their control.

Article 9

QUESTIONS AND ASSIGNMENTS

- 1 The scope of an interim examination, and the sources upon which it is based, shall be announced no less than a month before that examination takes place. No questions or assignments in the examination may go beyond the scope of these sources. The applicable reader or textbook should ultimately be available at the start of the course.
- 2 To the greatest possible extent, the questions and assignments of each interim examination shall be evenly distributed over the material being examined.
- 3 Both in content and form, each interim examination shall represent the learning objectives stated.
- 4 All questions and assignments shall be clear and explicit.
- 5 Well in advance of each interim examination, the board of examiners or the examiner shall announce the form of examination and method of testing as meant under Article 12 of the CER.
- 6 Well in advance of each written interim examination, the board of examiners or the examiner shall provide an opportunity whereby students intending to participate in it can examine a similar test on the same subject, together with sample answers and the norms that would be applied during its assessment.

Article 10

ASSESSMENT

- 1 The assessment of an interim examination is expressed in whole numbers on a scale from 1 to 10, with 6 signifying a pass. If desired, practical training can also be assessed as a "pass" or a "fail". All exemptions for a subject are treated as a 6, i.e. a pass.
- 2 Students pass their Master's examinations by satisfying the examiners in each component of the Master's programme. Students awarded a 5 in a single subject excepting the thesis project will also qualify for the award of their Master's degree.
- 3 Per subject, the highest mark awarded for an interim exam will be recorded on the examination certificate.

Article 11

THE ESTABLISHMENT OF EXAMINATION RESULTS²

- 1 The votes of the board of examiners shall be established by a simple majority of votes.
- 2 If the votes are equally divided, the chair of the board of examiners shall have the casting vote, unless the vote takes place in writing.
- 3 If, in a written vote, the votes are equally divided, there shall be a second ballot. If this, too, leads to an equal division of votes, the proposal being balloted shall be rejected.

Article 12

CUM LAUDE

- 1 At the discretion of the board of examiners, a candidate for the Master's degree can receive the designation "cum laude" if he or she meets the following conditions:
 - a the mark awarded to the components specified in the Master's examination implementation procedures, excluding the mark awarded for the Master's thesis project, shall average no less than 8 in a list that contains no marks below 6;
 - b the candidate concerned shall have completed the Master's degree programme in no more than three years;
 - c the mark awarded for the thesis project shall be no less than 9;

² For the period within which students shall be notified of the results of interim examinations, see Article 14 of the Course and Examination Regulations (CER) for the Master's degree programmes.

- d the examiner of the graduation assignment shall have submitted a proposal for the award of "cum laude".
- 2 When establishing the elapsed study time referred to in paragraph 1 subsection b of this Article, all due account should be taken of any delays caused by circumstances qualifying the candidate for support under the "Regeling Financiële Ondersteuning Studenten" (RFOS)
- 3 At all times, the board of examiners has the authority to decide on awarding the designation "cum laude" in cases that fall outside the provisions defined above.

Article 13 MASTER'S DEGREE CERTIFICATES AND STATEMENTS

- 1 To establish that a candidate has satisfied the examiners in the Master's examinations, the board of examiners shall issue a degree certificate. This shall be signed by the chair and the secretary to the board of examiners.
- 2 a The degree certificate as intended under paragraph 1 shall list the specific components of the examination, and, where appropriate, the competencies associated with them.
- b The degree certificate shall be accompanied by marks lists in both Dutch and English.
- 3 If a candidate's performance during the examinations testifies to exceptional abilities, the board of examiners can, under the conditions stated in Article 11 of these Regulations, decide to grant the designation "cum laude" on the degree certificate.
- 4 Any student who has successfully completed one or more interim examinations and to whom, upon his or her leaving the university, a degree certificate as intended in paragraph 1 of this Article cannot be awarded, shall, upon his or her request, receive a statement from the board of examiners in question.

Article 14 PROCEDURE FOR APPROVALS

- 1 Any student wishing to submit a request as intended under Article 7.3 paragraph 4 of the WHW (i.e. with regard to a flexible study programme) should do so on a timely basis, ensuring that, by all reasonable definitions, there is time for approval to be given before he or she takes the first interim examination. In this, he or she should take full account of the period within which the board of examiners is entitled to decide (see Article 14, paragraph 1). The request shall be accompanied by a clearly argued motivation, and, if necessary, by material that supports it.
- 2 Students shall submit to the board of examiners any requests for exemption from an interim examination or practical exercise as intended under Article 17 of the CER. The board of examiners shall decide on this after taking advice from the student counsellor. The periods within which decisions shall be taken are defined in Article 14, paragraph 2 of these Regulations and Guidelines.
- 3 If a student wishes to depart from the teaching programme prescribed in the implementation procedures, he or she shall submit a request to this effect, ensuring that, by all reasonable definitions, there is time for approval to be given before the date of the first interim examination that deviates from that programme. In this, full account should be taken of the period within which the board of examiners is entitled to decide (see Article 13, paragraph 1).
- 4 A decision to withhold approval for a request of the type intended under paragraphs 1, 2 and 3 of this Article must be fully motivated by the Board of Examiners, and may only be made after the student has been given the opportunity of a hearing, where the student may call upon the assistance of the student counsellor.
- 5 The student will immediately be informed in writing of a decision on any of the matters intended under paragraphs 1, 2, 3 and 4 of this Article. If the board of examiners concerned has not made

a decision during the time period prescribed in article 14, paragraph 1, or otherwise during the period of adjournment, approval will be understood to have been granted.

Article 15 TIME PERIODS

- 1 A decision on a request such as those described in Article 14, paragraph 1 or 4 shall be made within 40 working days of its receipt; or, if the request was submitted either during an academic holiday or within a period of three weeks before the start of an academic holiday, it shall be made within a period of 40 working days after the end of the holiday. The board of examiners may adjourn a decision for no more than 10 working days. The student will be notified in writing of any such adjournment before the end of the 40-day period specified in the first sentence of this paragraph.
- 2 The provisions of the previous paragraph will also be applicable to requests such as those described in Article 13 paragraph 3, on the understanding that the time period will start from the moment that the recommendations of the student counsellor have been submitted. The student counsellor shall submit these recommendations to the board of examiners no more than 10 working days after receiving the student's request.

Article 16 RIGHT OF APPEAL

Within four weeks of the event in question, students can appeal to the examinations appeals board against the following: a ruling by the board of examiners, a ruling by an examiner, or their treatment during an examination as defined in Article 7.60 WHW.

Article 17 MODIFICATION OF THESE REGULATIONS AND GUIDELINES

No decision shall be made in respect of the current academic year, unless, by all reasonable definitions, it is unlikely to damage the interests of students.

Article 18 DATE OF COMMENCEMENT

These regulations will come into effect on 1 September 2005.

6.4 Lecturers

Name	Tel ¹	E-Mail	Room	Building ²
Andriessen, prof. dr. J.H.T.H.	81742	J.H.T.H.Andriessen@tbm.tudelft.nl	a0.350	TBM
Bergsma, dr.ir. O.K.	85135	o.k.bergsma@lr.tudelft.nl		
Boom, prof. dr. R.	82214	R.Boom@tnw.tudelft.nl	0.62	TM
Böttger, mw. dr. A.J.	82243	A.J.Bottger@tnw.tudelft.nl	2.48	TM
Delhez, dr. ir. R.	82261	R.Delhez@tnw.tudelft.nl	2.63	TM
Dicke, mw. dr. W.M.	83433	W.Dicke@tbm.tudelft.nl	b3.310	TBM
Dik, dr. J.	89571	J.Dik@tnw.tudelft.nl	2.13	TM
Dingemans, Th. J.	84520	Th.J.Dingemans@lr.tudelft.nl	1.34	LR
Duin, drs. P.A. van der	81146	P.vanderDuin@tbm.tudelft.nl	c2.170	TBM
Duszczczyk, dr. ir. J.	82218	J.Duszczczyk@tnw.tudelft.nl	0.95	TM
Goossens, dr. A.P.L.M.	84919	A.P.L.M.Goossens@tnw.tudelft.nl	1.207	DCT
Hartigh, drs. E. den	83565	E.denHartigh@tbm.tudelft.nl	c2.150	TBM
Hermans, dr. ir. M.J.M.	82286	M.J.M.Hermans@tnw.tudelft.nl	1.77	TM
Jager, dr. W.F.	82626	W.F.Jager@tnw.tudelft.nl	0.313	DCT
Janssen, dr. G.C.A.M.	81684	G.C.A.M.Janssen@tnw.tudelft.nl	2.23	TM
Janssen, dr. ir. M.	85866	M.Janssen@tnw.tudelft.nl	1.74	TM
Katgerman, prof. ir. L.	82249	L.Katgerman@tnw.tudelft.nl	0.58	TM
Kestens, prof.dr.ir. L.A.I.	84353	l.a.i.kestens@tnw.tudelft.nl		
Kearley, prof.dr. G.J.	81306	G.J.Kearley@iri.tudelft.nl	2 01 140	IRI
Kleinknecht, prof. dr. A.H.	83469	A.Kleinknecht@tbm.tudelft.nl	c2.090	TBM
Krol, R. van de	82659	R.vandeKrol@tnw.tudelft.nl	0.242	DCT
Kroessen, J.O.	85262	J.O.Kroessen@tbm.tudelft.nl	b3.280	TBM
Mendes, dr. E.	82623	E.Mendes@tnw.tudelft.nl	0.302	DCT
Offerman, dr.ir. S.E.	82198	s.e.offerman@tnw.tudelft.nl		
Picken, prof. dr. S.J.	86946	S.J.Picken@tnw.tudelft.nl	0.027	DCT
Richardson, prof. dr. I.M.	85068	I.M.Richardson@tnw.tudelft.nl	1.81	TM
Sietsma, dr. ir. J.	82284	J.Sietsma@tnw.tudelft.nl	1.28	TM
Sloof, dr. ir. W.G.	84924	W.G.Sloof@tnw.tudelft.nl	1.36	TM
Sluiter, dr.ir. M.H.F.	84922	m.h.f.sluiter@tnw.tudelft.nl		
Thijssse, prof. dr. B.J.	82221	B.J.Thijssse@tnw.tudelft.nl	2.21	TM
Wiersma, drs. J.W.F.	87818	j.w.f.wiersma@tnw.tudelft.nl		
Wit, prof. dr. J.H.W. de	82196	J.H.W.deWit@tnw.tudelft.nl	1.56	TM
Wissema, prof. dr. ir. J.G.	82035	J.G.Wissema@tbm.tudelft.nl	c2.130	TBM
Zandbergen, prof. dr. H.W.	82266	H.W.Zandbergen@tnw.tudelft.nl	2.39	TM
Zegveld, dr. ing. M.A.	84711	M.A.Zegveld@tbm.tudelft.nl	c2.100	TBM
Zhou, dr. J.	85357	J.Zhou@tnw.tudelft.nl	0.92	TM

For other phone numbers the student can call the universal TU number (015 27 89111) or the reception of the faculty (015 27 86666)

¹ Phone numbers in full are 015-27.....or +31-15-27... when calling from abroad

²

API:	Leeghwaterstraat 44, 2628 CA Delft	TBM:	Jaffalaan 5, 2628 BX Delft
CITG:	Stevinweg 1, 2628 CN, Delft	TNW:	Lorentzweg 1, 2628 CJ Delft
IO:	Landberghstraat 15, 2628 CE Delft	TM:	Rotterdamseweg 137, 2628 AL Delft
ITS-et:	Mekelweg 4, 2628 CD Delft	WbMT:	Mekelweg 2, 2628 CD Delft
IRI:	Mekelweg 15, 2629 JB Delft	DCT:	Julianalaan 136, 2628 BL Delft
LR:	Kluyverweg 1, 2629 HS Delft	TA:	Mijnbouwstraat 120, 2628 RX Delft



exit 9
Delft/Pijnacker

exit 10
Delft Zuid/TU wijk

A13

6.5 Campus Map

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64 66 68 70 72 201

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64 66 68 70 72 201

TU Delft Dijkzwaai

TU Delft

Delft New

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Legend Campus map

3	Faculty Applied Earth Sciences	36	Faculty Electrical Engineering, Media and Knowledge technology, Technical Computer Science and Technical Mathematics
5	Faculty Life Science and Technology, Botanical Garden	34	Faculty Mechanical, Maritime and Materials Engineering (3mE), Board of Governors, Staff Board of Governors, TopTech Courses
6	VSSD	37	Sports center
7	Alumni Desk, Facilitating Service	38	Cultural Center 'Mekelweg 10', Studium Generale
10	Master of Science International Programme	40	Faculty Technical Material Sciences
12	Faculty Chemical Technology	41	Service Technical Support
20	Auditorium, Congress center, University foundations Delft, TU Shop	43	Energy and Building Management
21	Library TU Delft, Delft University Press	45	Doc Vision Support Center Delft
22	Faculty Technical Physics	46	Machinery design for the process industry
23	Faculty Civil Technology, Management center for International Cooperation	52	Faculty Geodesy
24	Faculty Architecture	60	Logistics and Milieu Services
31	Faculty Technical Management Science	62	Faculty Aerospace Engineering
32	Faculty Industrial Design		

A description and the exact addresses of all the numbers can be found on the homepage of the TU Delft. In this table are only the numbers published which are of interest for the student of the MSc course Mechanical Engineering or Marine Technology.

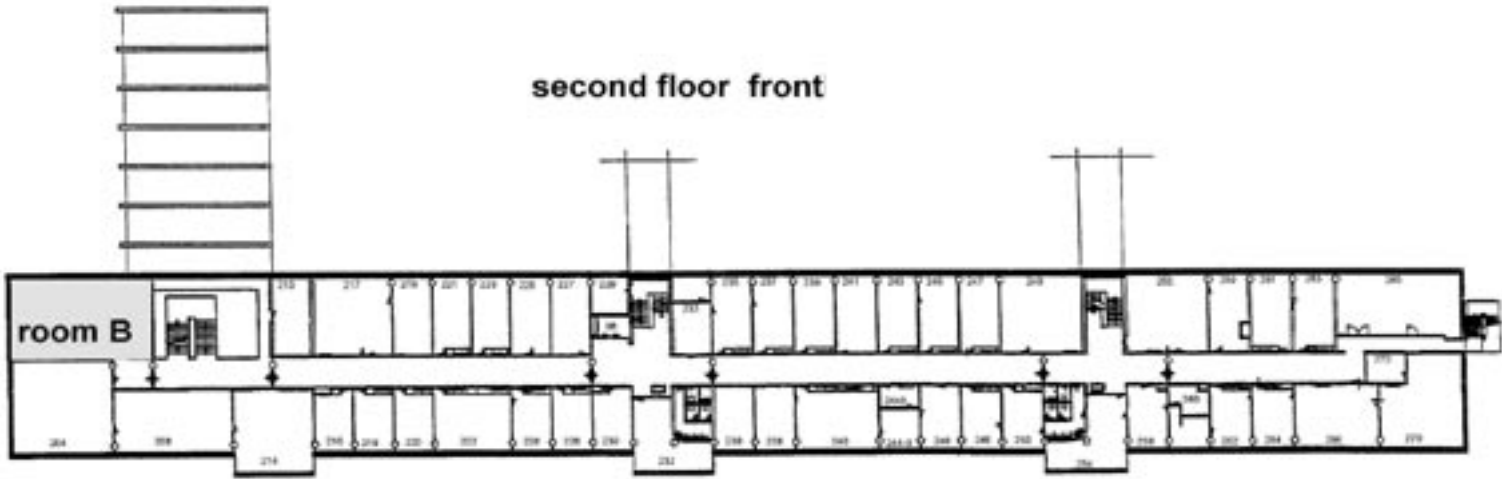
6.6 Course Schedules

Course schedules are available on the campus site op 3mE:

campus.3me.tudelft.nl

6.7 MSE Building

second floor front



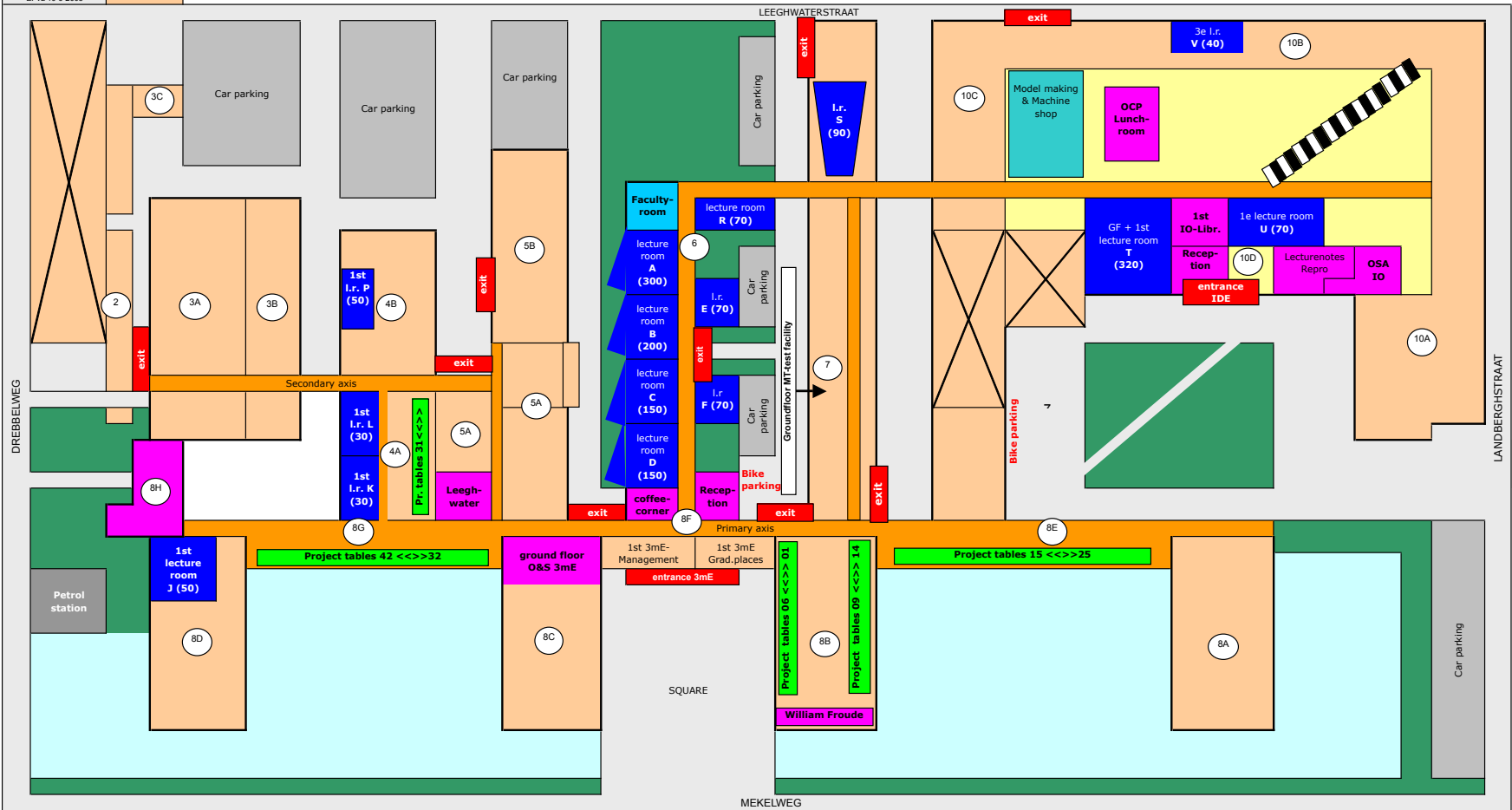
first floor front



MSE - Building



ground floor



- 3A** 3mE Dep. Materials Science & Engineering (from june 2006)
- 3B** 3mE Dep. Materials Science & Engineering (from june 2006)
- 3C** 3mE Formula Student, NUNA, etc.
- 4A gf** 3mE Mechanical Engineering design studio's and BSc project tables
- 4A 1st** 3mE Labs Mechatronics + PC-rooms
- 5A** 3mE Dep. Precision Micro-systems Engineering
- 5A** 3mE Dep. Delft Center for Systems & Control
- 5B** 3mE Dep. Proces & Energy
- 6** 3mE Lecture rooms A - F + R + Faculty room
- 7 gf** 3mE Marine & Transport Technology (Test Facility)
- 7 1st** 3mE Marine & Transport Technology (Marine Technology)
- 8B gf** 3mE BSc Project tables + William Froude
- 8B 1st** 3mE Marine & Transport Technology
- 8B 2nd** 3mE Dep. Precision Micro-systems Engineering

- 8B 3rd** 3mE Dep. Precision Micro-systems Engineering
- 8B 4th** 3mE Dep. Precision Micro-systems Engineering
- 8C gf** 3mE Offices O&S and M&C
- 8C 1st** 3mE Dep. Biomedical Engineering
- 8C 2nd** 3mE Dep. Delft Center for Systems & Control
- 8C 3e** 3mE Dep. Delft Center for Systems & Control
- 8C 4e** 3mE Dep. Delft Center for Systems & Control
- 8D gf** 3mE Graduation places
- 8D 1st** 3mE Dep. Materials Science & Engineering (from june 2006)
- 8D 2nd** 3mE Dep. Materials Science & Engineering (from june 2006)
- 8D 3rd** 3mE Dep. Materials Science & Engineering (from june 2006)
- 8D 4th** 3mE Dep. Materials Science & Engineering (from june 2006)
- 8E** 3mE BSc project tables
- 8F bg** Reception WbMT

- 8F 1st** 3mE management + graduation places
- 8G** 3mE BSc project tables
- 8H** TUD University Board
- 10A bg** IDE PC-clusters
- 10A 1e** IDE Design Studio's DE
- 10A 2e** IDE Design Studio's + lab. DE
- 10A 3e** IDE DE
- 10A 4e** IDE DE
- 10B bg** PMB Welding Shop + ware house
- 10B 1e** IDE Design Studio's
- 10B 2e** IDE labs ID
- 10B 3e** IDE ID
- 10B 4e** IDE ID + PIM + study advisor + FM
- 10C bg** IDE Modelmaking & Machine Shop

- 10C 1e** IDE Photographer + AV-supplies
- 10D bg** IDE recept. + O&S + Copy Shop
- 10D 1e** IDE Library