



ANNUAL REPORT

Period January 2021 – August 2022

Examination of Board Mechanical Engineering
& Sustainable Energy Technology

COLOFON

EXAMINATION BOARD
Mechanical Engineering & Sustainable Energy Technology

DATE
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PREFACE

As laid down in the *Wet op het hoger onderwijs en wetenschappelijk onderzoek*—i.e. the Dutch Act on Higher Education and Scientific Research (WHW 7.12b-5), the Examination Board of the Bsc & MSc programs Mechanical Engineering (ME) and the MSc program Sustainable Energy Technology (SET), as part of the Faculty of Engineering Technology (ET) of the University of Twente, is required to annually report her activities.

In this annual report, the Examination Board ME/SET summarizes and accounts for its activities over the period January 2021 up to and including August 2022. This period (longer than a year) was chosen, upon request of the dean of the Faculty of Engineering Technology (ET), as a transition to report the activities per academic year, rather than per calendar year. Hence, as of September 2022, the annual report will covering academic years.

The Examination Board ME/SET defines the function of its annual reports as one of the means in a *Plan-Do-Check-Act* (PDCA) cycle. This annual report is based on factual and verifiable information, but not traceable to individuals.

ABBREVIATIONS

B1, B2, B3	First, second and third year Bachelor program, respectively
BSA	Bindend studieadvies - binding study recommendation (in 1 st yr Bsc programme)
BSc	Bachelor of Science
CELT	Centre of Expertise in Learning and Teaching (of the University of Twente)
CROHO	Centraal Register Opleidingen Hoger Onderwijs — Central Register of Higher Education Programs
EC	European Credits as defined in the ECTS
ECTS	European Credit Transfer and Accumulation System
EEMCS	Faculty of Electrical Engineering, Mathematics and Computer Science
EER	Education and Examination Regulation
ET	Faculty of Engineering Technology
EWI	Faculteit Elektrotechniek, Wiskunde en Informatica – Faculty EEMCS
FQ	Final Qualification
ILO	Intended Learning Objective
ME	Mechanical Engineering
MSc	Master of Science
NVAO	Nederlands-Vlaamse Accreditatieorganisatie – Accreditation Organisation of the Netherlands and Flanders
PDCA	Plan-Do-Check-Act
SET	Sustainable Energy Technology
SEQ	Senior Examination Qualification
UT	University of Twente
VU	Vrije Universiteit Amsterdam
VU-UT-ME	Bsc ME program, taught at the Vrije Universiteit Amsterdam
WHW	Wet op het hoger onderwijs en wetenschappelijk onderzoek – (The Dutch Act on) Higher Education and Scientific Research Act

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1 GENERAL INFORMATION

1.1 Programs under the responsibility of the Examination Board ME/SET

The examination board Examination Board ME/SET is responsible for the educational programs

- Bsc Mechanical Engineering in Enschede & Amsterdam (ISAT code in CROHO: 56966),
- Msc Mechanical Engineering in Enschede (ISAT code in CROHO: 60439) and
- MSc Sustainable Energy Technology (ISAT code in CROHO: 60443).

1.2 Members of the Examination Board and those involved

In the period January 2021 up to including August 2022, the Examination Board ME/SET consisted of the following members (in alphabetical order):

- drs. M. de Haan (external member)
- dr.ir. A.K. Pozarlik (vice-chairman)
- Prof. dr. A.C.M. Ran (member)
- prof.dr.ir. G.R.B.E Römer (chairman)
- Prof. dr. ing. B. Rosic (member)
- ir. M.P. Zwier (secretary)

Advisers of the Examination Board ME/SET were/are:

- dr.ir. J.B.W. Kok (program director SET, until November 30th, 2021)
- drs. E.M. Gommer (program director SET, starting December 1st, 2021)
- drs. E.M. Gommer (program director ME)
- dr.ir. G.G.M. Stoffels (program coordinator Bsc ME)
- A.F. Heutink (program coordinator Msc ME)
- K.G.M. Braakhuis LLM (program coordinator Msc SET)
- J.G.M. Kemna (pre-master coordinator ME)
- Drs. D.A.C. Paquaij (study adviser Bsc ME year 1)
- ir. J.G. de Kiewit (study adviser Bsc ME year 2 & 3)
- ir. M.J.B. Duyvestijn (study advisor Msc ME & SET)
- dr.ir. P.C. Roos (location director VU-UT-ME)
- B.G.F. Pol (coordinator VU-UT-ME)
- J.C.T. de Schutter, MSc (study advisor and coordinator VU-UT-ME)

The Examination Board ME/SET was supported in administrative matters by:

- S.H.J Steinmeijer (minutes)
- R. van der Stigchel (decision list)

1.3 Capacities, tasks and responsibilities of the Examination Board

As laid down in the Dutch Act on Higher Education and Scientific Research (WHW, article 7.12), capacities, tasks and responsibilities are assigned to the Examination Board of ME/SET and is appointed by the dean of the Faculty of Engineering Technology (ET). Additional capacities, tasks and responsibilities of the Examination Board ME/SET are laid down in the Education and Examination Regulations (EERs) of the (BSc and MSc) ME programs and of in the EER of the MSc SET program. As such, the Examination Board determines whether a student meets the Final Qualifications (FQs) of the ME and SET programs and therefore can safeguard the quality of the diplomas of programs.

The capacities, tasks and responsibilities of the Examination Board ME/SET include, but are not limited to:

- quality assurance of exams test plans,
- appointment of examiners,
- decisions regarding requests of students regarding an individual course program, or a deviating course program, based on and in accordance with rules in the EER,
- signing diploma's,
- establishing and monitoring Binding Study recommendation (BSA) of first year students,
- handling requests and complaints of students (see section 2.2),
- handling (suspected) fraud cases (see section 2.2).

1.4 **Mandates**

The Examination Board has delegated well defined tasks to other officials in the organization of the Faculty of Engineering Technology (ET) and the University of Twente (UT), to handle standard (student) requests, complaints and situations that require standard and quick decisions. Mandates are documented in writing and archived. All decisions made by mandated staff are presented and discussed by the secretary at the meetings of the Examination Board by means of a "decision list". All non-mandated decisions are made by the Examination Board.

1.5 **Documentation and archiving**

Minutes, agenda's, and other documents, such as mandates and decisions of/by the Examination Board are archived by the secretary of the Examination Board on the shared computer P-drive (server) of the University of Twente, with restricted access only for members of the Examination Board. Decisions of the Examination Board are documented either in the minutes of the meetings of the Examination Board or in the so-called "decision list" (see section 1.3). Also, this list is archived.

1.6 **Website**

General information of the Examination Board, such as its members, rules and guidelines which are in place, guidelines for lecturers, annual reports, as well as guidelines on how to approach the board, are published at: <https://www.utwente.nl/en/bscme/organisation/Examination%20Board/>

2 ACTIVITIES OF THE EXAMINATION BOARD

This section provides a brief overview of a few major advisory and policy-related tasks that the Examination Board, in addition to its regular tasks, fulfilled in the period January 2021 up to and including August 2022.

2.1 Meetings

In the period January 2021 up to and including August 2022, The Examination Board ME/SET had 11 regular meetings, namely on:

- 2021: Feb. 15th, Apr. 4th, Jun. 6th, Aug. 30th, Oct. 10th, Dec. 20th,
- 2022: Feb. 2nd, Mar. 21st, May, 2nd, Jun. 13th, Aug. 29th.

Most meetings have taken place on-line through MS TEAMS, either due to governmental measures to fight the Covid-pandemic or due to logistic/practical reasons.

2.2 Effects of the Covid-19 pandemic and decisions to mitigate its effects

It is no surprise that the Covid-19 pandemic also had a large effect on how the Examination Board ME/SET shaped and performed her responsibilities (see section 1.2), in the period January 2021 up to and including August 2022. That is, some strict rules, as laid down, in, for example, Education and Examination Regulations (EERs) of the (BSc and MSc) ME programs and of in the EER of the MSc SET program, have been relaxed, in order to mitigate unreasonable effects (such as too long delays) on students, due to governmental- and/or or institutional measures (e.g. lockdown) to fight the spread of the Corona-virus. Rules were only “relaxed” when the Examination Board ME/SET could/can still safeguard the quality of exams and the diplomas of the programs. The Examination Board ME/SET decided to adapt the rules, as listed in table 1 (on the next page).

By the end of academic year 2021-2022 the effects of the pandemic on students and lecturers and teaching were (more) under control, and most of the rules were rolled back, starting the academic year 2022-2023, see last column of Table 1.

2.3 Student request, complaints and cases of fraud

In the period January 2021 up to and including August 2022, the Examination Board has handled multiple student requests, including but not limited to requests for extra examinations or resits, requests for an exemption and requests for a non-standard study-program. Table 2 below provides an overview of the cases handled. This table also lists a number of fraud cases and complaints, which have been dealt with.

Statistical comparison of the (number of) cases to previous academic years is complicated by the fact that this annual report covers a period (January 2021 up to and including August 2022) which is longer than an academic year. Moreover, a steep increase in number of cases in previous academic was be attributed to the covid-19 pandemic. In the period January 2021 up to and including August 2022 a decrease in Covid-9 related was observed.

The Examination Board observes, like pervious academic years, that students are more assertive and “know where to find” the Examination Board for requests and complaints, etc.

Table 1. Rules and adapted rules, due to the Covid-19 pandemic

Rule (before covid19-pandemic)	Adapted rule (during covid-19 pandemic)	Status academic year 2022-2023
Positive Bsc Binding Study Advise (BSA) if student completed at least 45 EC	All BSc students received a “postponed” BSA advice—i.e. no student received a negative BSA advice in 2020/ That is students are to meet the BSA requirements (i.e. complete 45EC out of 60EC of B1) by the end of academic year 2020-2021.	Rolled back
Bachelor’s-before-Master’s rule ¹ : Student must complete Bsc programme before enrolling in the MSc programme	BSc students are allowed to commence the ME master program before completing their BSc program, provided they complete the BSc program within one year after starting their MSc program.	In May 2023 it will be decided, upon advise of the Dutch government and the board of the University of Twente, whether this relaxed rule will be extended for a longer period, or that the relaxed rule will be rolled back.
Msc student must have completed internship before starting MSc thesis assignment	MSc student are allow to start and complete their MSc thesis project before starting and completing their internship	Rolled back
Msc internship at premises of company	On-line internship if the hosting company also operates on-line	Rolled back, unless it is common practice for the company to work on-line
No on-line exams	On-Campus exams, if possible, and adhering to Covid19-safety regulations. If not possible, lecturers follow a protocol for online exams to minimize risk of fraud (both for “written” and oral exams). Lecturers inform the Examination Board on changes of the form of their examinations (from “physical to on-line). Msc thesis colloquia take on-line (according to a protocol)	Rolled back
No extra, or very limited resits	If unreasonably affected by the effects of the Covid19 pandemic (e.g. ill or self-quarantined), students are offered extra resits.	Some “Corona-resits” might be planned in October 2022, as part of a “run out” of academic year 2021-2022. However, unless requested by the Board of the University of Twente, no extra “Corona-resits” will be planned in the future.

¹ In Dutch known as the “*harde knip*”.

Table 2. Overview of requests, complaints and fraud cases dealt by the Examination Board

Category	Sub-category	No. of handled cases	No. of cases approved	No. of cases declined	No. of cases no decision or other
Complaints (6 students involved)		1	0	1	0
Fraud* (12 students involved)		6	0	1	5
Requests for adaptation of individual course programs	non-standard course list for the master and pre-master	5	5	0	0
	double master	1	1	0	0
	replace internship with courses/work experience	1	0	1	0
	adjusted bachelor (minor etc.)	2	2	0	0
	other	0	0	0	0
Requests for changed planning	start master assignment before finishing courses	4	4	0	0
	start VU-ME bachelor assignment before finishing courses	3	1	2	0
	extension thesis	12	12	0	0
	start internship before finishing courses	2	0	2	0
	other planning issues	1	1	0	0
Requests for admission	to master, pre-master, double master	0	0	0	0
	"zachte knip" bachelor-master/other	0	0	0	0
Requests for examinations	extra resits	38	26	11	1
	double exam	5	5	0	0
	remote examination/special facilities	1	1	0	0
	other	1	1	0	0
Requests regarding graduation	Non-standard cum laude request	3	0	3	0
	Request for graduation Bsc and Msc testimony	0	0	0	0
	Non-standard Msc graduation committee	4	4	0	0
	Other	3	3	0	0
Requests for exemptions	exemption courses bachelor and pre-master	7	3	4	0
	entrance requirement minor, M8 or bachelor assignment	54	32	22	0
	other (a.i. BSA)	2	1	1	0
Totals:		156	102	48	6

* Fraud cases can involve groups of students, e.g. project groups. In those instances, a case is listed as one case in the table.

2.4 BSc Mechanical Engineering at the VU in Amsterdam

In September 2019 the University of Twente and the Vrije Universiteit (VU) in Amsterdam, started a “satellite” BSc program in Mechanical Engineering at the VU in Amsterdam. The responsibilities of the Examination Board ME/SET also extends to the examinations, students, etc. of this program in Amsterdam, see the annual report of the Examination Board ME/SET of 2019 for details.

As both programs have the same ISAT code in CROHO, complaints etc by students in Twente and in Amsterdam are (to be) dealt with identically (of course) by the Examination Board ME/SET. However, the board of the VU was (and still is) more strict in interpretation of governmental Covid-19 measures than the board of the University of Twente in Enschede. For example, unlike in Enschede, no on-site exams were allowed in Amsterdam, and all examinations were “forced” to be taken on-line. This led to different rules and requirements for/between students in Amsterdam and in Enschede. The latter is undesirable.

In Amsterdam, on July 1st, 2022, it was celebrated that the first “batch” of Bsc VU students were awarded a Bsc diploma ME from the “satellite” Bsc program in Amsterdam. The festive ceremony was recorded and available for streaming at <https://www.livevideo.nl/#mechanicalengineering>

Starting September 1st, 2022, dr. P.C. Roos (Pieter) will “had over” his task as location manager of the BSc ME VU-UT Bsc ME program to dr. J.P. Schilder (Jurnan).

2.5 Participation in UT Platform Examination Boards

The Chair of the Examination Board ME/SET participates in meetings of the University wide *Platform of Examination Boards*. This platform regularly discusses best practices of/for Examination Boards, as well as aims at harmonizing rules and guidelines of examinations and quality assurance, which overarch the various educational programs at the University of Twente. In 2022, the platform started a discussion, also including the rector magnificus of the University of Twente, prof. A. Veldkamp (Tom), reflecting on the status of the platform, and whether it should get a more formal role.

2.6 Diploma's and cum laude

Table 3 lists the number of students who were awarded a Bsc or Msc degree, as well as the number of students who graduated cum laude—i.e. a “with distinction” degree.

Table 3: Number of diploma's and diploma's with cum laude distinctions (incl %)

	Bsc ME			MSc ME			MSc SET		
	<i>Diplomas</i>	<i>Cum laude</i>	<i>Total</i>	<i>Diplomas</i>	<i>Cum laude</i>	<i>Total</i>	<i>Diplomas</i>	<i>Cum laude</i>	<i>Total</i>
2018	80	4 (4,8%)	84	119	8 (6,2%)	127	13	3 (18,7%)	16
2019	73	0 (0%)	73	145	7 (4,6%)	152	20	2 (9%)	22
2020	81	3 (3,6%)	84	129	6 (4,4%)	135	37	3 (7,5%)	40
Jan. 2021- Aug. 2023	102	6 (5,5%)	108	128	2 (1,6%)	30	30	2 (6,3%)	32

2.7 **Reassessment of a limited number of internship grades**

The Examination Board found that, during the start of the academic year 2021-2022, (part of) the final grade of a limited number (~40) of MSc ME and SET students was established incorrectly. More specifically, one third of the final grade of the Internship was based on a grade determined by a supervisor at the company/institute at which the student carried out the Internship, who was not appointed as an examiner by the Examination Board. The Examination Board, Faculty Board, and the Program Boards of the Msc ME & SET programs collaborated successfully to correct this issue, by having the grade internship of the students involved reassessed by internal supervisors (university staff who are appointed as examiner). Future internships are graded by internal supervisors only. Details of the above activities are laid down in a report by the Examination Board.

2.8 **Improving the skills and expertise of the Examination Board**

Dr. Pozarlik (member of the Examination Board) is currently enrolled in the *Senior Examination Qualification* program of the University of Twente, aimed at, amongst others, members of the Examination Boards. Drs. M. de Haan (external member of the Examination Board) successfully completed the SEQ program in 2020. Both will use the knowledge obtained for quality assurance by evaluation of rules and procedures in place in the programs of ME and SET, as well as to continue the Board's process of test-quality assessments (e.g. by participating and working together with the other members of the examination board and the teachers on the evaluation of tests).

3 SELF-EVALUATION & OUTLOOK

Each year the ME / SET Examination Board evaluates its own functioning and formulates aspects to work on for the next (academic) year.

3.1 Self-evaluation January 2021 – August 2022

In 2022, in a meeting, the Faculty Board, represented by prof. Koopman (Bart) and prof. M.C. van der Voort (Mascha) and the chairs—i.e. prof. K.T. Geurs (Karst), prof. J. Henseler (Jörg) and prof. G.R.B.E. Römer (Gert-willem)— of the three Examination Boards of programs residing within the Faculty of ET, evaluated the function of the boards. It was concluded that the Examination Boards are “in control”. Also, it was discussed whether the three Examination Boards could or should “merge” aiming at increasing efficiency of the Boards. It was concluded that there is no urgent reason the merge (the activities of) the Boards.

Also in 2022, a few members of the Examination Board ME/SET discussed, in a meeting, with ing. K.M. van Zuilekom (Kapser), secretary of the Examination Board of the Bsc & MSc program *Civil Engineering & Management* on good practices and procedures handled by the secretary and the Examination Board of *Civil Engineering & Management*. It was concluded that, due to the increasing number of cases to be handled a dedicated software tool could be useful.

Due to the increased number of cases handled by the (secretary of the) Examination Board ME/SET, the Faculty Board has been asked to provide extra administrative support to the secretary. The Faculty Board and the secretary are currently discussing the “shape and form” of this additional administrative support.

3.2 Outlook to 2022-2023

In the next academic year (2022-2023), the Examination Board plans to address the following:

- The Faculty Board ET, program director ME/SET, Faculty Council ET and the Examination Board ME/SET have all agreed to improve the efficiency of the procedure to establish Education and Examination Regulations (EERs) of the programs MSc& MSc ME and Msc SET. It is suggested that also the Program Committees (Dutch: OLC) of the ME and SET programmes join this initiative.
- Continue the evaluation of tests and test plans in Modules of the BSC program ME, as was initiated earlier.
- Evaluation of the effects of the Covid-pandemic on the quality of exams and fraud cases. What can/did we learn? Which (changed) rules (see section 2.2) should be rolled back, or kept/retained?