



ANNUAL REPORT 2020

Examination of Board Mechanical Engineering &
Sustainable Energy Technology

COLOFON

EXAMINATION BOARD
Mechanical Engineering & Sustainable Energy Technology

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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) is required to annually report her activities.

In this annual report, the Examination Board ME/SET summarizes and accounts for its activities over the calendar year 2020. The Examination Board ME/SET defines the function of its annual reports as a 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 2020, as planned, the following members of the Examination Board ME/SET were relieved of their duties and laid down their tasks in the Examination Board:

- prof.dr.ir. A.H. van den Boogaard (vice-chairman until October 2020)
- ir H. Tragter (secretary until September 2020)

The following persons were appointed as new member of the Examination Board ME/SET, in 2020

- ir. M.P. Zwier (secretary, starting September 2020)
- Prof. dr. A.C.M. Ran (representative of the BSc ME program (referred to at VU-UT-ME), taught at the Vrije Universiteit in Amsterdam, starting February 2020)
- Prof. dr. ing. B. Rosic (starting October 2020)

Hence, in 2020, the Examination Board ME/SET consisted of the following members:

- prof.dr.ir. G.R.B.E Römer (chairman)
- dr.ir. A.K. Pozarlik (member and new vice-chairman, starting October 2020)
- prof.dr.ir. A.H. van den Boogaard (vice-chairman until October 2020)
- ir H. Tragter (secretary, until September 2020)
- ir. M.P. Zwier (secretary, starting from September 2020)
- drs. M. de Haan (external member)
- Prof. dr. A.C.M. Ran (starting February 2020)
- Prof. dr. ing. B. Rosic (starting October 2020)

In 2020, advisers of the Examination Board ME/SET were:

- drs. E.M. Gommer (program director ME)
- dr.ir. J.B.W. Kok (program director SET)
- dr.ir. P.C. Roos ("quarter maker" VU-UT-ME)
- dr.ir. G.G.M. Stoffels (bachelor coordinator ME)
- A.F. Heutink (master coordinator ME)
- K.G.M. Braakhuis LLM (master coordinator SET)
- J.G.M. Kemna (pre-master coordinator ME)
- Drs. D.A.C. Paquaij (study adviser ME B1)
- ir. J.G. de Kiewit (study adviser ME B2 & B3)
- ir. M.J.B. Duyvestijn (study advisor master ME en SET)
- J.C.T. de Schutter, MSc (study advisor and coordinator VU-UT-ME)
- B.G.F. Pol (VU-UT-ME)

In 2020, Examination Board ME/SET was supported in administrative matters by:

- S.H.J Steinmeijer (minutes)
- A.J. Oppers-van den Berg, succeeded by 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 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/>

1.7 Improving the skills and expertise of the Examination Board

In 2019, drs. M. de Haan (external member of the Examination Board) enrolled in the "*Senior Examination Qualification*" trajectory (SEQ) aimed at, amongst others, members of the Examination Boards. The knowledge obtained by Mrs. de Haan will be used 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). Mrs de Haan successfully finished the trajectory in 2020.

2 ACTIVITIES OF THE EXAMINATION BOARD 2020

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 2020.

2.1 Meetings 2020

The Examination Board ME/SET had six meetings in 2020, namely on 10-02-2020, 20-04-2020, 15-06-2020, 27-08-2020, 26-10-2020 and 14-12-2020. Starting in April 2020, committee meetings have taken place on-line through MS TEAMS, due to governmental measures to fight the Covid-pandemic

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 (and still has) a large effect on how the Examination Board ME/SET shaped and performed her responsibilities (see section 1.2), in 2020. 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 Coronavirus. 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, only for the duration the Dutch government dictates educational and examination restrictions to higher education.

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

Rule (before Covid19-pandemic)	Adapted rule (since Covid-19 pandemic)
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.
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.
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
Msc internship at premises of company	On-line internship if the hosting company also operates 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)
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.

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

2.3 Student request, complaints and cases of fraud

In 2020, the Examination Board has processed 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 provides an overview of the cases handled. This table also lists a number of fraud cases and complaints, which have been dealt with. For comparison, the table also lists the cases of 2019.

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

Category	Sub-category	2020 (Jan-Sept)				2019 (Jan-Dec)	
		No. of cases	No. of cases approved	No. of cases declined	No. of cases no decision/ other	No. of cases	No. of cases approved
Complaints		7	3	0	4	4	2
Fraud		16*	11	2	3	5*	2
Requests for adaptation of individual course programs	Non-standard courses in MSc and pre-MSc	29	23	3	3	17	17
	Replaced internship in MSc with courses and/or work experience	4	1	2	1	13	11
	Adaptation of Bsc (minor etc.)	19	18	0	1	-	-
	Other	1	1	0	0	-	-
Requests for changed planning	Start MSc assignment before finishing all MSc courses	15	12	0	3	7	5
	Start internship before completing all MSc courses	4	2	1	1	6	2
	Other planning issues	14	10	0	4	20	20
Requests for admissions	To MSc, pre-MSc, double MSc	7	5	2	0	7	6
	Start Msc before completing BSc	7	6	0	1		
Requests for examinations	Extra resits	29	21	7	1	23	20
	Remote examination, special facilities	8	6	0	2		
	Other	3	0	0	3		
Requests for exemptions	Exemption courses BSc and pre-MSc	7	3	3	1	13	8
	Entrance requirement minor, M8 or bachelor assignment	65	34	31	0		
	Other (a.i. BSA)	6	6	0	0		
Totals:		267	181	55	31	115	93

** Some fraud cases involve groups of students, e.g. project groups. In those instances, a case is listed as one case in the table. So, the total number of students involved is larger than the number of cases. In 2020, 34 students were involved in 16 fraud cases. And in 2019, 25 students were involved in 5 fraud cases.*

As can be concluded from table 2, the number of cases handled by the Examination Board in 2020, more than doubled, when compared to 2019. The latter is mainly attributed to the effects of the Covid19-pandemic on the study progress and behaviour of students.

The increase in fraud cases is caused mainly by on-line examinations, during which students cheated, at the start of the Covid19-pandemic. Therefore, after the first on-line examinations, the

Examination Board insisted on “physical” on-Campus exams in favour of on-line exams. Measures were taken to allow “physical” on-Campus exams in safe way to prevent the spread of the Covid19 virus. Whenever, “physical” on-Campus exams were not possible, measures to minimize the opportunities for students to cheat were taken (see section 2.2). Also, while grading exams, examiners put more effort in identifying fraud, typically occurring in on-line examinations.

The increasing number of (non-fraud) cases handled by the Examination Board in the previous years is also attributed to the trend that students are more assertive and “know where to find” the Examination Board for requests and complaints, etc.

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.

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*. Chaired by prof. dr. T. Bondarouk (chair Examination board of Behavioural Management Sciences, BMS) and prof.dr. A.A. Stoorvogel (Chair of the examination boards of faculty Electrical Engineering, Mathematics and Computer Science, EEMCS) this platform regularly discusses best practices of 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 2020, the consequences of the Covid-19 pandemic dominated the agenda of the Platform meetings.

2.6 Diploma's and cum laude

Table 2 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. As can be concluded from this table about 4% ME students (both BSc and MSc) graduated cum laude, whereas this percentage is 7% for SET students.

Table 2: Number of diploma's and cum laude distinctions

Yes	BSc ME/cum laude	MSc ME /cum laude	MSc SET /cum laude
2018	84* / 4	127* / 8	16* / 3
2019	73* / 0	152* / 7	22* / 2
2020	84* / 3	135* / 6	40* / 3

**Total including cum laude graduations (i.e. with distinction).*

3 SELF-EVALUATION 2020 & OUTLOOK TO 2021

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

3.1 Self-evaluation 2020

Guided by drs. L. Chapel (Leonie), Educational Consultant of the Centre for Educational Support (CES), Centre of expertise in learning and teaching (CELT) of the University of Twente, the Examination Board ME/SET evaluated its own performance regarding w.r.t its (legal) tasks and obligations, in two sessions. It was concluded that the Examination Board ME/SET is “in control” of the examination quality of the ME and SET programs. A follow-up of this self-evaluation is planned for 2021, or 2022 if the Covid19-pandemic continues. Topics to address will include, whether or not to establish “signalling conditions” for examiners (lecturers), such that they will know when to inform the Examination Board about irregularities. These, as well as the findings of this evaluation were documented and archived (see section 1.5).

In 2020, the Examination Board ME/SET planned to statistically analyse the performance of foreign students, originating from outside Europe, as there are signs that these students underperform, when compared to European and Dutch students. *Due to the extra workload induced by the Covid19-pandemic for the Examination Board ME/SET, as well as for the educational support units, this activity is postpone to September 2021.* It should be noted here that data to base this analysis on is not readily/easily available from the software systems of the educational units. This is undesirable.

3.2 Outlook to 2021

In 2021, assuming the situation induced by the Covi19-pandemic will relax, the Examination Board plans to address the following:

- 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?
- Based on the self-evaluation formulate concrete action points for the upcoming year(s), see section 3.1.