

Assessment plan for the curriculum of the Master's degree programme in Energy and Environmental Sciences, 2026-2027

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Submission date Faculty Board: ...

1. Vision on assessment

- Assessment guides and evaluates student learning in a multidisciplinary and multicultural international context to prepare them for a research, consultancy or (N)GO career in the Energy and Environmental Sciences field.
- Assessment aims at stimulating students to study actively and learn from their mistakes, combining specific knowledge and skills, while still stimulating and helping each other in learning processes and in contributing to multi-disciplinary/-cultural teams.
- Assessment stimulates transparent and effective use of tools in learning, research and communication, as a guiding principle for lifelong learning.
- Assessment also aims to teach students the real-world meaning of deadlines and/or to manage the temporal aspects of completing a certain work package.

2. Assessment guidelines

Core modules:

- Individual modules or parts of it are assessed and must be passed independently to ensure that students have a good understanding of the full breadth of each course.
- Core module parts are assessed through written or oral exams as assigned in the assessment plan. Assignments are assessed through a written report or through assessing a resulting presentation.
- Group assignments as part of a module are assessed for the group as a whole, or individually when there are explicit individual contributions (either written or in a presentation).
- Grading is done according to predefined guidelines which are known to the students beforehand.
- Formative and/or cumulative assessments happen during the learning process to help students understand and improve. Written exams include a first page with information on the module, the subjects of the exam, the grading scheme (i.e., the points assigned to each section) and the exam conditions and rules besides those stated in TER (i.e., the use of calculator or the assessment/use of a cheat sheet).
- For all module parts with a written exam, a mock exam (for example an exam from a previous year) or mock sample questions will be available well before the exam date.
- Oral exams are graded by the first examiner and are attended by an independent observer with sufficient knowledge of the content of the examined topic(s).

Electives:

- Students should, in consultation with their mentor, select elective courses from the programme's elective list for the particular period. Electives should fit the study path the student has laid out for themselves, aiming for a coherent study plan.
- Assessment rules for the core modules are normally also valid for electives, but depending on variations induced by the elective coordinator/examiner/programme. In cases of contradiction, the elective guidelines are prevailing.

Individual research projects:

- Individual research projects are selected in consultation with the mentor and should align with the study path the student has laid out, aiming for a coherent study plan.
- The first project is done within an ESRIG group or affiliated UG group, to ensure thorough scientific schooling and supervision. The end products are a written report and a colloquium which will be assessed and graded by the supervisor/first examiner and a second independent examiner.

- The categories on which assessment takes place are: 1) scientific quality of the project, 2) management of the project, 3) Colloquium, and 4) the Thesis/report. The final grade is a weighted average of the sub-grades on these categories.
- For all individual projects, midterm assessment with specific feedback on development points, project management and self-reflection for each student are provided. The feedback is documented on a dedicated form during a reflection session of student and supervisor.
- During the research projects, regular progress meetings (at least every week) with the daily supervisor together with fellow students working on similar subjects will take place, in which the student will be given feedback and instructions on the day-to-day research.
- In case of doing a research project within a company, the company/external supervisor is responsible for regular progress meetings. The external supervisor can provide the internal supervisor with a grading/assessment advice.
- During the research projects, the students learn to give and make use of peer assessment and comments during weekly meetings and outside of these meetings.
- Supervisors provide feedback on at least one full draft version of a written report, provided the student meets the agreed deadline for handing in the full draft.
- The students are instructed in the possible use and misuse of AI and online information tools with the focus on scientific integrity, how to do science, ethics, critical thinking, and proper referencing, to avoid plagiarism.
- If plagiarism is suspected, written products must be checked.
- To ensure fair grading, a Fail grade will be assigned to reports not handed in on time (+ or – 2 weeks) unless there are specific reasons for the delay which are then taken into account.
- The two individual research projects should preferably be on different topics (which can be related) and preferably with different supervisors.

General:

- All assessment and feedback, final and day-to-day, is provided in English to prepare students for a research career with an international job market.

3. Learning outcomes of the degree programme

	Learning Outcomes <i>At the end of the programme, the graduate ...</i>
1. Knowledge	
1a	understands basic and advanced concepts of the field of Energy & Environmental Sciences in broad perspective at a level which permits admission to a PhD-programme;
1b	understands the societal, political and business aspects of the field of EES permitting an appointment in industry, government or NGO at a level of independent analyst and/or researcher;
2. Applying Knowledge	
2a	is able to analyse and evaluate (changes in) the use of energy and resources and their impact on the environment, the society, and for a sustainable planet;
2b	is able to analyse and evaluate current and future developments in the energy & environment research field, including policy, business and societal aspects;
2c	can design and formulate a research plan based on the description of a problem/question/hypothesis in a sub-field of EES;
2d	can conduct scientific research individually or in cooperation aiming for answers to, and/or creating solutions for a research question/problem/hypothesis;
2e	can discuss research outcomes within the relevant EES sub-field;
3. Problem-solving Skills and Responsibility and Independence	
3a	is able to gain and process relevant information from a sub-field of EES;
3b	is able to analyse and assess state-of-the-art research results and draw conclusions from these;
3c	is capable of evaluating and managing their own and other's actions within a scientific and professional context, taking societal and ethical aspects into account;
4. Information and Communication Skills	
4a	can review (orally and writing) literature/information in a relevant EES sub-field;
4b	can collaborate effectively and appropriately with peers in a multidisciplinary and/or multicultural team, taking multiple perspectives into account;
4c	is able to communicate orally and/or in writing about own research outcomes towards a broader academic audience or other relevant public;
5. Learning and Development Skills	
5a	is able to determine career perspectives within the field of energy & environment;

5b	is able to read and comply with the UG policy in AI teaching.
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4. Overview of assessment methods, test moments for course units, and examiners

Year	Period	Course	EC	Assessment methods	Does (part of the) assessment have a formative function?	Test moment(s) (e.g., mid-term, continuous assessment, exam week, etc)	First examiner	Second examiner
Obligatory Courses								
1	1a	Ecology and Ecosystem Sustainability (WMEE021-05)	5	<i>WE, AST, R, P</i>	Yes	<i>P</i> at the end of the course, exam week	P. Pradhan	K. Hubacek
1	1a	Energy, Atmosphere and Resources (WMEE028-05)	5	<i>WE, AST</i>	Yes	Exam week	A.A. van der Meer	J.M. Miocic
1	1a	Modelling Energy Systems (WMEE025-05)	5	<i>WE, AST</i>	Yes	Exam week	F. Ruzzenenti	W. Medjroubi
1	1b	Sustainable Society (WMEE020-05)	5	<i>WE, P, AST</i>	Yes	Assignments, end-of-course presentation, exam week	P.J. Upham	P. Pradhan
1	1b	Renewable Energy Systems (WMEE023-05)	5	<i>WE, AST, R, P</i>	Yes	Tutorials and workshops in ALC rooms, exam week	X. Sun	W. Medjroubi
1	1b	Data Analysis and Statistical Methods (WMEE001-05)	5	<i>WE, AST, R</i>	Yes	Written exam halfway	U. Dusek	H.A.J. Meijer
WMEE electives								
1	2a	Global Change (WMEE008-05)	5	<i>WE, AST, R</i>	Yes	Exam week	M.W. Dee	H.A.J. Meijer
1	2a	Radiocarbon Dating and Analysis (WMEE013-05)	5	<i>OR, AST</i>	Yes	Exam week	M.W. Dee	H.A.J. Meijer
1	2a	Renewable Energy Technology (WMEE027-05)	5	<i>WE, P</i>	Yes	<i>P</i> during the course, exam week	J.M. Miocic	A. Vakis
1	2a	Nuclear Power Technology (WMEE014-05)	5	<i>WE, AST</i>	Yes	Midterm exam, exam week	C.E. Rigollet	N. Kalantar-Nayestanaki

1	2a	Conceptualizing and Modelling Sustainability (WMEE022-05)	5	<i>WE, AST</i>	Yes	Random test moments during course	K. Hubacek	F. Ruzzenenti
1	2a	Engineering Design Integration (WMEE029-05)	5	<i>R, P, PR</i>	Yes	Weekly assessment	D. Lentink	P. Boelen
1	2b	Climate Modelling (WMEE010-05)	5	<i>R</i>	Yes	<i>R</i> halfway and at the end	R. Bintanja	H. Chen
1	2b	Experimental Methods in Env. Science (WMEE026-05)	5	<i>WE, PR</i>	Yes	Exam week	A.V. Mokhov	H.A.J. Meijer
1	2b	Geo-Energy and Subsurface Processes (WMEE004-05)	5	<i>WE, PR</i>	Yes	Several interim tests	J.M. Miocic	H.A.J. Meijer
1	2b	Fuel Cell Systems (WMEE015-05)	5	<i>WE, AST</i>	Yes	Exam week	A. Purushothaman Vellayani	T.H. Woudstra
1	2b	Energy and Sustainability in Practice (WMEE024-05)	5	<i>AST, R, P</i>	Yes	During course	P. Pradhan	K. Hubacek
1	2b	Energy and Complexity Nexus (WMEE012-05)	5	<i>WE, M, R</i>	Yes	Midterm halfway, Exam week	F. Ruzzenenti	X. Sun
Obligatory courses/modules Year 1 and/or Year 2								
1	1a	Scientific Integrity (EES) (WMEE019-00)	0	<i>AST</i>	Yes		F. Ruzzenenti	U. Dusek
2	1a	Writing a Research Proposal (EES) (WMEE030-00)	0	*	Yes		F. Ruzzenenti	U. Dusek
-	-	Career Perspectives (EES) (WMEE018-00)	0	*	N/A		N/A	N/A
-	-	Colloquia Master EES (WMEE017-00)	0	*	N/A		N/A	N/A
Research projects Year 1 period 2b and/or Year 2								
-	-	Research Project 1 (WMEE905-30)	30	<i>R, P, PR</i>	Yes		See list of examiners	
-	-	Research Internship/Research Project 2 (WMEE906-30)	30	<i>R, P, PR</i>	Yes		See list of examiners	

-	-	Research Project (WMEE913-60)	60	<i>R, P, PR</i>	Yes		See list of examiners	
Other electives Year 1 and/or Year 2								
-	1a-2 b	See Ocasys						
Minor Future Planet Innovation								
	1a	Global Challenges (WBEE002-10)	10	<i>WE, R</i>	Yes	Exam week, peer-to-peer review	G.A.H. Laugs	M. van Rijssel
	1a	Global Integration (WBEE004-05)	5	<i>AST, P</i>	Yes	Peer-to-peer review	G.A.H. Laugs	M. van Rijssel
	1b	Sustainable Contributions to Society (WBEE003-15)	15	<i>AST, R, P</i>	Yes	Peer-to-peer review	M. van Rijssel	G.A.H. Laugs
Other courses with WBEE course code								
	1a	Environment and Development (WBEE001-05)	5	<i>WE</i>	Yes		M.R. Berger	P. Pradhan
	1a-2 b	Paper Energy (WBEE005-05)	5	<i>AST</i>	Yes		M.R. Berger	W. Medjroubi
	1b	Climate Change Inequalities: Challenge-Based Projects (WBEE006-10)	10	<i>M, R, P, PR</i>	Yes		P. Pradhan	G. Andrejc

The abbreviations for the relevant assessment methods:

- Written Exam (*WE*)
- Multiple Choice (*MC*)
- Oral Exam (*OR*)
- Midterm (*M*)
- Assignment (*AST*)
- Report (*R*)
- Presentation (*P*)
- Practical exercise/work (*PR*)
- Peer review

* Mandatory attendance

5. Relationship between course units and details of the learning outcomes

An X indicates which learning outcomes are addressed in which courses. An **X** means that the learning outcome is explicitly assessed (not merely addressed) in the course.

		Learning Outcomes of the degree programme														
		1a	1b	2a	2b	2c	2d	2e	3a	3b	3c	4a	4b	4c	5a	5b
Period	Course	Year 1 – Compulsory courses														
1a	WMEE021-05: ECOS	X	X	X	X				X			X	X	X		
1a	WMEE028-05: EAR	X	X		X			X	X					X		
1a	WMEE025-05: MES	X	X	X	X			X	X	X		X	X			
1b	WMEE020-05: SUS	X	X	X	X				X			X	X			
1b	WMEE023-05: RES	X	X	X	X			X	X	X		X	X	X		
1b	WMEE001-05: DASM	X	X					X		X		X	X			
Period	Modules	Year 1 and 2 – Compulsory modules (whole year, except for S.I.)														
	WMEE017-00: Coll.	X	X									X	X			
	WMEE018-00: C.P.												X		X	
Y1-1a	WMEE019-00: S.I.	X	X								X	X				X
Y2-1a	WMEE030-00: WRP								X	X	X	X	X			
Period	Course	Year 1 –Electives														
2a	WMEE008-05: GC	X	X	X	X			X	X		X		X			
2a	WMEE013-05: RDA	X	X	X	X	X	X	X	X	X	X	X		X		
2a	WMEE027-05: RET	X	X	X	X			X	X	X		X	X	X		
2a	WMEE014-05: NPT	X	X	X	X			X	X		X	X	X	X		
2a	WMEE022-05: CMS	X	X	X	X	X	X	X	X	X	X	X	X			
2a	WMEE029-05: EDI	X	X	X	X	X	X		X	X	X	X	X			
2b	WMEE010-05: CM	X	X	X	X	X	X	X	X			X	X			
2b	WMEE026-05: EMES			X	X	X		X	X	X	X	X	X			
2b	WMEE004-05: GEO	X	X	X	X			X	X		X	X				
2b	WMEE015-05: FCS	X	X	X	X			X	X							
2b	WMEE024-05: ESP	X	X	X	X	X	X	X	X	X	X	X	X	X		
2b	WMEE012-05: ECN	X	X	X	X			X	X	X	X	X	X	X		

Period	Projects	Year 1 period 2b and/or Year 2														
	WMEE905-30: RP1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	WMEE906-30: RP2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	WMEE913-60: RP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Period	Course	Year 1 or 2 – Electives (offered by other FSE programmes or faculties)														
1a-2b	See Ocasys															