



Curriculum for the PhD PROGRAMME New Science and Technology at the Montanuniversität Leoben

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1. amendment, announced in the bulletin of the Montanuniversität Leoben
on 28.04.2026, item no.184

In its meeting on 22 April 2026, the Senate of the Montanuniversität Leoben approved the Curriculum Commission established in accordance with § 25 para. 8 no. 3 and para. 10a of the Universities Act 2002 and approved by the Rectorate in accordance with § 22 para. 1 no. 12 UG for the international PhD Programme New Science and Technology at the Montanuniversität Leoben in the subsequent version of the first amendment.

§ 1 Educational Objectives and Qualification Profile

- (1) The PhD in New Science and Technology at the Montanuniversität Leoben is an interdisciplinary course of study within the meaning of § 54 para. 1 no. 11 of the Universities Act. In addition to academic professional training, it serves to further develop the ability to carry out in-depth, independent scientific work as well as to train and promote young scientists. The aim of the doctoral programme is to provide an excellent education that can be measured according to international standards. It promotes the generation of technical and scientific knowledge in the field of the holistic consideration of circular material flows in the context of production, consumption or use of products as well as safety-related issues.
- (2) Graduates of the doctoral programme are awarded the academic degree "Doctor of Philosophy" (PhD).
- (3) Qualification profile: Graduates have the ability to work independently on scientific issues, pursuing a holistic approach that combines strengths, weaknesses, opportunities, risks and effects of circular material flows and processes. You will be able to conduct research independently and in a team and take on coordinating and managerial functions. The programme looks at the circular economy of products and systems, in particular taking into account resource and energy efficiency, zero-waste concepts, the reduction of greenhouse gas emissions as a significant contribution to climate neutrality, the holistic view of sustainably usable and recyclable products, and the consideration of aspects of risk and safety as well as effects on the environment, economy and society. Graduates will have the ability to work independently on issues of sustainable and circular systems, taking into account social, environmental, economic and security-related aspects. They have the expertise to drive the holistic evaluation of products and production systems along the entire value chain.

§ 2 Language of instruction and examination

- (1) The language of instruction and examination is English.
- (2) The dissertation must also be written in English (see also § 6 para. 3).

§ 3 Admission requirements

- (1) The prerequisite for admission to the doctoral programme is the completion of a relevant diploma or master's degree programme or another relevant course of study at least the same level of higher education at a recognised post-secondary educational institution in Germany or abroad. Proof of the general university entrance qualification shall be deemed to have been provided by proof of this admission requirement.
- (2) The subject-specific aptitude is based in particular on the proposed dissertation topic.
- (3) In order to compensate for significant subject-related differences, supplementary examinations may be prescribed, which must be taken by the end of the second semester (cf. § 64 para. 4 UG) of the doctoral programme.

- (4) Persons whose first language is not English must provide proof of knowledge of the English language necessary for successful progression. For a successful course of study, English language skills at reference level B2 of the Common European Framework of Reference for Languages are required. In particular, the certificates referred to in § 4 (1) of the Ordinance of the Rectorate of the Montanuniversität Leoben on Admission to Degree Programmes, MBl. 53rd Piece 2023/2024 No. 91 as amended, are considered proof.

§ 4 Qualitative Admission Conditions

- (1) Applicants for the doctoral programme must also undergo the following special admission procedure, in which the qualitative conditions for admission are reviewed.
- (2) The suitability of the applicants shall be assessed on the basis of the following criteria:
- a. Adequate specialist and methodological knowledge with regard to the desired doctoral programme and with regard to the intended subject area of the dissertation;
 - b. Motivation and scientific potential for the realization of the planned scientific work and the possibility of embedding the project in a current research area of the Montanuniversität Leoben.
- (3) In order to assess these criteria, the following documents shall be attached to the application:
- the planned working title of the dissertation from one of the subjects represented at the Montanuniversität Leoben.
 - a proposal for the supervisor of the dissertation project. The proposed supervisor must be a member of the Montanuniversität Leoben, have a relevant *venia docendi* and confirm his/her willingness to take on the desired supervision in writing.
 - a proposal for at least one mentor of the dissertation project. The proposed mentors must be university lecturers at the Montanuniversität Leoben or another recognised university in Austria, or abroad and have a subject-related *venia docendi* or an academic qualification equivalent to a habilitation.
 - a written confirmation from the proposed supervisor that the planned dissertation project is scientifically relevant and, in his/her opinion, manageable within the framework of the dissertation project and that he/she will guide the doctoral student to independent scientific work and promote his/her publication activities. This declaration does not replace the official dissertation agreement and the approval of the dissertation project by the study law body.
 - a written confirmation from the proposed mentor(s) that they will support the doctoral student in his/her proposed dissertation project.
 - the consent of the head of the chair in the event that the dissertation is carried out in the area of this chair of the Montanuniversität Leoben and/or resources of the chair in question are used.
 - an explicit declaration by the applicant that he or she is aware of the rules of good scientific practice and that he or she will comply with them.
 - a proposal for courses within the meaning of § 6.
- (4) Admission to the doctoral programme is granted by the Rectorate on the recommendation of the study law body.

§ 5 Dissertation Agreement

- (1) No later than one year after admission to the doctoral programme, the doctoral candidate, after consultation with the supervision team, consisting of the supervisor and the mentor(s), must give a public presentation of the dissertation project and submit an exposé of the dissertation and a dissertation agreement to the study law body in accordance with the following requirements:
 - The public presentation of the dissertation project should address the goals of the research, the state of the art, the methods for investigating the research questions, the work plan and schedule, as well as planned publications. In a subsequent expert discussion, any questions and comments are to be critically reflected on and, after consultation with the supervision team, taken into account for any changes to the dissertation project. The presentation must be announced at the university at least 10 working days before the planned date.
 - The exposé is a scientific report that summarizes the essential information on the objectives of the dissertation, the state of the art and the associated derivation of research questions, the planned methods and work packages, as well as the expected results. In addition, a risk analysis of the success of the dissertation project must be presented. The signature of the doctoral student confirms the accuracy of the information on the exposé
- (2) The dissertation agreement contains the proposal for the dissertation topic, a work and time schedule and any changes or additions to the courses of the doctoral programme proposed in the admission process. The doctoral student, together with the supervision team, confirms the agreement by signing it and the supervision team thereby renews their confirmation of supervision. The dissertation agreement is deemed to have been accepted if the body of study law does not prohibit it by decision within 50 working days of receipt.
- (3) If the exposé and the application for the establishment of the dissertation agreement have not been received by the study law body within one year of admission to the doctoral programme, the study law body may set a new submission deadline after a discussion with the doctoral student and the supervision team. If, in the opinion of the supervision team, the educational goals according to § 1 cannot be achieved by the doctoral student, the supervision team's supervision commitment expires. In this case, § 49 para. 2 of the statutes of the study law provisions applies.
- (4) Except for the purpose of recognizing publications pursuant to § 5 para. 7, after its approval by the body of study law, the dissertation agreement, can only be adjusted if there are serious reasons and by amendment. The amendment application must be signed by the doctoral student and the supervision team and approved by the study law body.

§ 6 Workload, Duration of Studies and Subjects

- (1) The doctoral programme „Montanistische Wissenschaften“ comprises a duration of three years and is not divided into study sections. The dissertation is awarded 160 ECTS credits.
- (2) As part of the doctoral programme, courses worth 20 ECTS credits must be completed.
- (3) General non-subject-specific courses, for example on scientific methods, philosophy, history and ethics of research, can be included as free electives with up to 4 ECTS credits.
- (4) Participation in doctoral seminars, privatissima and comparable courses of the chairs supporting the dissertation can be taken into account with up to 4 ECTS credits.

- (5) Participation in Summer/Winter Schools can be taken into account with up to 4 ECTS credits.
- (6) At the request of the doctoral candidate, subject-related courses may also be completed at other recognised universities in Austria and abroad and post-secondary educational institutions. However, this requires that the doctoral student is admitted to attend the course and to take the examination. The doctoral student must ensure the eligibility in advance by the study law body.
- (7) The study law body may recognise the doctoral candidate's own research activity for an examination in accordance with § 78 UG if there are no significant differences in terms of the skills acquired (learning outcomes) and the evidence of the research activity is provided by scientific publications. These publications may not be used in the dissertation.

§ 7 Rights and Obligations of the Doctoral Candidate and the Supervisor and the Mentor

- (1) The rights and obligations of the doctoral candidate in connection with the application for admission to the doctoral programme and the preparation of a dissertation agreement are regulated in § 2, § 3 and § 4.
- (2) The doctoral student and the supervisor must evaluate the progress of the work on the dissertation at regular intervals. A personal discussion must take place at least twice a semester on request.
- (3) The mentor will support the doctoral student in his/her dissertation project. This can be done, for example, through regular or event-related discussions with the doctoral student. A personal discussion must take place at least once a semester on request.
- (4) If there are serious reasons, the body of study law may appoint a new supervisor after conducting a mediation meeting in the presence of the doctoral student and the supervision team.
- (5) If the dissertation has not yet been submitted five years after admission to the doctoral programme, the supervisor and/or the mentor may resign from his or her position. In this case, a new application for approval of a dissertation agreement must be submitted. If neither the supervisor nor the mentor resign from their position, the doctoral student must apply for an extension of the dissertation agreement. After the expiry of a grace period set by the study law body, the dissertation agreement will be terminated. In this case, § 49 para. 2 of the statutes of the study law provisions applies.

§ 8 Submission and review of the dissertation

- (1) A dissertation must be written as part of the doctoral programme. The dissertation is an independent scientific work carried out independently by the doctoral candidate. With the dissertation, the doctoral student must demonstrate the ability to independently deal with scientific questions and to solve problems of current research.
- (2) The dissertation must be written in English.
- (3) The dissertation may be submitted either as a monograph or in the form of a cumulative dissertation, intermediate forms are not permitted. The affidavit must declare whether the present work is a monograph or a cumulative dissertation.
 - The monograph is a self-contained scientific work with continuous argumentation and a clear chapter structure. It must contain a part with an

introduction, a description of the research question, the state of research and the methodology used. Another part must deal with the results and the solution of the defined questions. From this part it must be clear how the monograph expands the current state of research and how new scientific territory has been entered. A summary with conclusions and an outlook concludes the work. In a monograph, no own publications may be included directly as chapters. If the publications have not already been exploited in accordance with § 6 para. 7, results from them may be used if they are cited accordingly.

- A cumulative dissertation is a dissertation that contains the results of scientific work in the form of publications. The publications are related to each other and are connected by an overarching question.

All publications have to go through a peer review process. At least half of the publications must be published or accepted for publication at the time of submission of the dissertation. The remaining publications must be in the peer review process at this time. The decision on the creditability of a publication for a cumulative dissertation is made by the body of study law. The cumulative dissertation must correspond to a dissertation in the form of a monograph in terms of its scientific contribution. The reviewability of the dissertation must be ensured also for a cumulative dissertation. It must therefore contain a separate part (parenthesis) with an introduction, the description of the research question, the state of the art (in the form of a review paper) and the methodology used. A final discussion and a summary of the results conclude the part. Supplementary results that have not yet been published may be included if and to the extent that they are necessary for the coherence of the work as a whole and for a conclusive answer to the research question. These results are to be marked as unpublished. The final discussion refers to the totality of all publications (peer reviewed)/manuscripts (under review) and must bring together their individual results. In particular, it must be conclusively demonstrated what contribution the publications/manuscripts have made to answering the question posed by the topic of the dissertation and formulated in the introduction. Finally, the contribution of the work to the progress of science in this field of research must be described. The parenthesis contains a separate section with the references referred to in the parenthesis chapters. If possible, the parenthesis of a cumulative dissertation should be designed in such a way that a request to restrict the access to the work due to any non-disclosure agreements is not necessary.

The publications/manuscripts must be included in the dissertation in the same form as in the original print. All publications and manuscripts contained in the dissertation that are part of the dissertation must be listed with the author's name, title, information on the processing status ("published, accepted, under review"). The following information is required:

- in the case of published publications: complete bibliography of the publication;
- in the case of accepted manuscripts: mention of the journal and date of confirmation of acceptance;

- for manuscripts in the review process: date of acceptance for the review process. In this case, the journal must be omitted. However, it should be noted that this is a refereed journal.

The doctoral candidate's own contribution to the publications must be indicated in the form of a table in the dissertation that corresponds to the generally applicable taxonomy of publishing groups. This table breaks down the activities that contributed to the creation of the publications as well as the percentage of the doctoral candidate and co-authors in these activities. Examples of "activities" are: conception, methodology, experiments, modeling, writing, proofreading, etc. This table must also be signed in an additional document by the doctoral student, the corresponding author, the supervisor and co-authors admitted to the dissertation programme at Montanuniversität Leoben and submitted to the study body.

- (4) When writing the dissertation, the provisions of the Statutes "Integrity in Scientific Studies, Teaching and Research", MBI. 82nd Piece 2020/2021, No. 124 and the Guidelines of the Vice-Rector for Teaching and International Affairs and the Dean of Studies for the Use of AI-Based Generative Tools, MBI. 108th Piece 2023/2024, No. 181, must be considered.
- (5) The dissertation must be submitted to the study law body in electronic and bound form (in two copies). The latter must arrange for the dissertation to be reviewed.
- (6) The study law body must submit the dissertation to at least two persons with *venia docendi* or equivalent qualification for review. The supervisor and the mentors may not be reviewers. If possible, at least one reviewer should not be a member of the Montanuniversität Leoben. It is permissible to appoint a reviewer from a subject closely related to the dissertation subject. Reviewers must not be in any close relationship with the doctoral candidate. Such a close relationship also exists if a potential reviewer appears more than once as an author or co-author in the publications/manuscripts of the dissertation.
- (7) The assessment must be carried out within 8 weeks. If the reports are not received within this time, a postponement of a maximum of 4 weeks can be granted. If the reviews cannot be submitted, the dissertation must be sent to new reviewers. The same time sequences then apply.
- (8) The grade of the dissertation is determined from the grades of the reviews as follows: The reviewers give grades for the dissertation that range from 1 to 5 ("very good" to "not sufficient"). If all the reports are positive (grades 1 to 4), the arithmetic average of the marks shall be calculated and a result whose fraction is greater than 0.5 shall be rounded up. If the majority of the reviews are negative, the dissertation is graded "unsatisfactory". If there are an equal number of positive and negative expert opinions, the study law body must obtain a further expert opinion. If this opinion is positive, the arithmetic average of the marks of all reports shall be formed and a result of which is greater than 0.5 shall be rounded up.

§ 9 Defensio

- (1) The doctoral programme is completed with an oral defence before a board. This is a board examination that includes the defense of the dissertation as well as an expert discussion on the scientific field of the dissertation.

- (2) Admission to the defense in accordance with the dissertation agreement requires the successful completion of the § 6 prescribed courses amounting to at least 20 ECTS credits as well as the positive assessment of the dissertation in accordance with § 8. Furthermore, at least parts of the results of the dissertation must have been published or accepted for publication in a scientific medium or as a patent specification at the time of submission.
- (3) The defence shall be conducted in English.
- (4) The defence shall be made before an examination panel comprising of at least three persons.
- (5) The Examination Board shall be appointed by the study law body. The doctoral student has the right to nominate candidates. The Examination Board consists of a chairperson and at least two examiners. The chairperson must be a member of the Montanuniversität Leoben with *venia docendi*. The Examination Board may not be composed exclusively of persons from the same chair. Members of the Montanuniversität Leoben or another recognised domestic or foreign university with *venia docendi* or equivalent qualification can be appointed as examiners by the study law body.
- (6) The defence is public. It consists of a presentation of the research work lasting 30 – 45 minutes and a technical discussion. In total, the defense should not last longer than 120 minutes.
- (7) The deliberations and votes on the overall result of the defence shall take place in a non-public meeting of the Examination Board. The assessment ranges from 1 to 5 ("very good" to "not sufficient"). The resolution is passed by a majority of votes. The chairperson has a vote, but must vote last.
- (8) For the overall success of the defense, there are the predicates "passed with distinction", "passed" and "failed". The predicate "passed with distinction" requires that all expert reports obtained have the grade "very good", that both reviewers propose an award in their statement, and that the defense was assessed as "very good". The award of the predicate "passed with distinction" must be separately justified by the Examination Board and does not automatically result from the individual criterias rated as "very good" and recommendations of the reviewers.
- (9) The result of the examination shall be notified to the candidate immediately after the defence. If the defence has been assessed negatively, the reasons for this must be explained to the candidate. The regulations for the repetition of defences are laid down in the MUL's study law provisions section of the statutes.

§ 10 Entry into force

- (1) This curriculum shall enter into force on 1 October 2024.
- (2) The amendments to this Ordinance in the version of the Bulletin of 28.04.2026, Item No. 184, shall enter into force on 1 October 2026.

§ 11 Transitional provisions

- (1) This curriculum as amended by the bulletin of 28.04.2026, item no. 184, applies to all students who are starting their doctoral studies from the winter semester 2026/2027 onwards.
- (2) Students who, at the time of the entry into force of this curriculum on 1.10.2026, are subject to the curriculum for the PhD programme "New Science and Technology",

published in the bulletin of 12.06.2023, item no. 168, are entitled to complete their studies in accordance with the provisions of the curriculum previously applicable to them by the end of the summer semester 2027. If the degree programme is not completed by this time, the students are subject to the provisions of the new curriculum for further studies.

- (3) Students pursuant to subsection (2) have the right to submit to the new curriculum for the PhD programme "New Science and Technology" by means of a written declaration. Recognition of previous examinations by the study law body is possible

On behalf of the Senate:
The Chairman:
Univ.-Prof. Dipl.-Ing. Dr.-Ing. Markus Lehner