



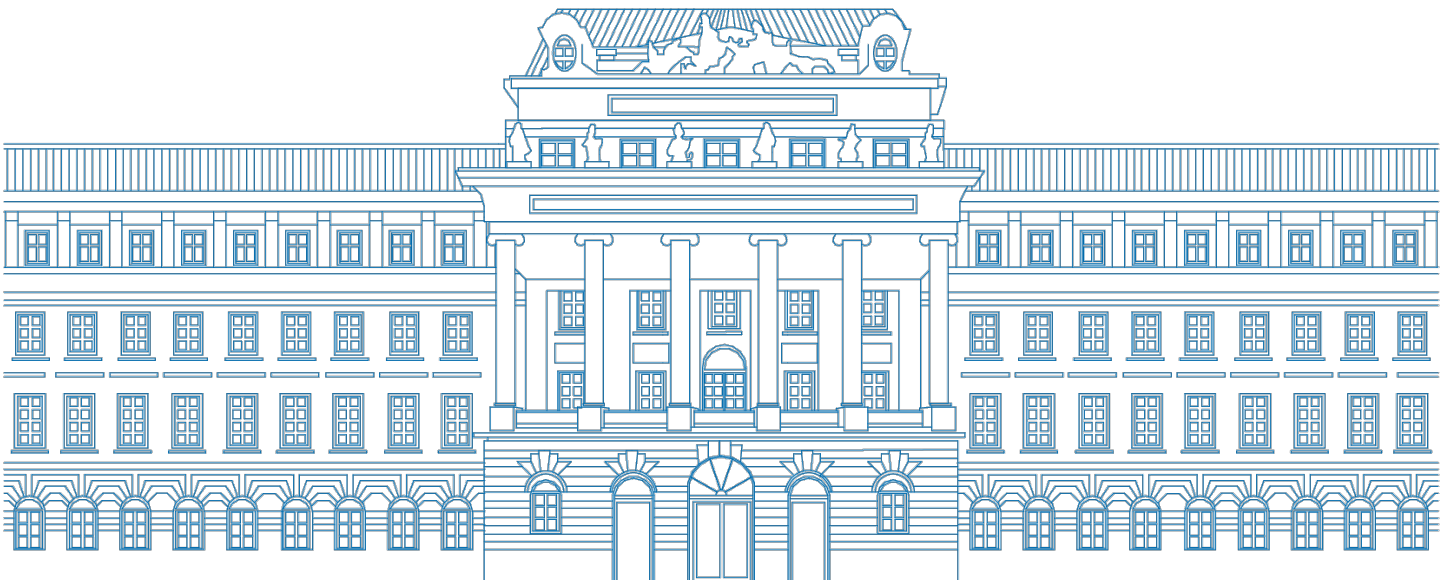
TECHNISCHE
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WIEN



FAKULTÄT FÜR MASCHINENWESEN
UND BETRIEBSWISSENSCHAFTEN
DER TECHNISCHEN UNIVERSITÄT WIEN

Habilitation guideline – MWB

Guideline for the Habilitation at the Faculty of Mechanical
and Industrial Engineering



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Preliminary note

The habilitation is the highest-ranking university qualification which, as part of an academic procedure, determines an applicant's ability to further develop an academic or artistic subject area comprehensively in teaching and research. The habilitation confers the authorisation to teach (*Venia Docendi*) for a defined subject, which is associated with the right to freely exercise academic or artistic teaching at the university that has conferred the authorisation to teach, subject to availability, and to supervise and assess academic or artistic work, in particular theses and dissertations. This therefore

involves the acquisition of substantial academic rights. For globally financed university employees, the habilitation also requires the agreement to hold compulsory teaching at the faculty. The habilitation at the Faculty of MWB enables the applicant to qualify for the next career level at TU Wien in addition to the teaching authorisation according to the subject area.

There are three ways to achieve this qualification: a) by **appointment as a university professor** (for the field of professorship), b) by **appointment as an honorary professor** (honorary teaching authorization; restricted to a specific field), c) by **habilitation**.

The purpose of this document for the habilitation at the Faculty of MWB of the Technische Universität Wien is to provide guidelines for the realisation of this qualification. These habilitation guidelines apply to all subject areas of the faculty and serve to ensure transparency and comparability of the performance of individual applicants.

Definitions

globally financed University staff TUV employees whose employment is at least partially financed via the global budget

1 Frameworks

The habilitation procedure at TU Wien is regulated by the "Habilitation Procedure" section of the statutes (latest version at <https://www.tuwien.at/tu-wien/organisation/zentrale-bereiche/datenschutz-und-dokumentenmanagement/satzung>). In the explanatory notes to the "Habilitation procedure" section of the statutes, reference is made to guidelines for the qualitative and quantitative orientation of the habilitation applicant, in which the regulations for habilitation procedures are set out. This document represents the guideline for habilitations for all subject areas of the Faculty of MWB and is intended in particular to ensure fair conditions for the assessment of habilitation projects at the Faculty. The final decision on the project is the sole responsibility of the habilitation committee, which is required to use these guidelines for orientation. No legal claim to a positive outcome of the habilitation procedure can be derived from the fulfilment of the criteria defined here.

2 Faculty colloquium

The Faculty of MWB requires a presentation of the candidate's habilitation project at a faculty colloquium (in front of representatives of the faculty). This presentation takes place before the start of the habilitation procedure and should take place at a stage at which it can be expected that the official application to the Rectorate for authorisation to teach will be submitted to the Dean's Office within one year. The lecture is open to the university and the invitation is extended to the entire faculty. The lecture should outline the candidate's professional career and, in particular, address their achievements in research and teaching (at TU Wien or other institutions). The level of the presentation should be appropriate for the audience. The duration of the presentation is 20 minutes.

Directly after the presentation, the habilitated members of the Faculty Council and the professors – without the presence of the applicant, but with the professor promoting the habilitation – meet once in a closed session and formulate a joint assessment of the habilitation project. The Chair of the Faculty Council will promptly forward the assessment to the applicant, which will contain in particular the subject-specific recommendations and any specific requirements for the habilitation. These requirements should fulfil international standards. In the case of a positive recommendation, the formal affiliation to an organisational unit of the faculty should also be mentioned.

3 Guidance on minimum requirements in the area of research and teaching

For the habilitation at the Faculty of MWB, several years of successful, independent work in research and teaching are expected. The habilitation thesis must meet particularly high methodological and content-related standards, have demonstrably advanced research in the defined subject area and also demonstrate the applicant's mastery of and ability to promote the habilitation subject. In contrast to a dissertation, which generally deals with a defined specialised topic, the habilitation must cover a much broader field. Accordingly, the habilitation subject itself must be chosen in such a way that a width appropriate to the customs of the discipline is achieved. As an orientation, here are some examples of habilitation subjects established at the Faculty of MWB, which are based on the names of the institutes/research areas: Fluid Mechanics, Materials Science, Lightweight Construction, Production Engineering, etc.

Some general criteria for the successful completion of a habilitation procedure are listed below. It should be noted that deviations in individual areas can be compensated for by above-average performance in other areas. In addition to these general criteria, it is recommended to work out a more precise specification in your own Institute in cooperation with the mentor of the habilitation – usually the professor with whom the habilitation applicant works or who represents the subject to which the habilitation is to be assigned. In this context, the assessment of the Faculty colloquium may also be useful.

3.1 Research

The habilitation thesis documents the research achievements and mastery as well as the ability to promote the habilitation subject. Publications in prestigious journals, conference presentations, organisation of conferences/symposia and research collaborations provide additional evidence of research achievements and serve as proof of the development of an independent research profile. In addition to the habilitation thesis, the assessment of research performance should also be based on the following criteria:

- A sufficient number of peer-reviewed scientific publications in reputable peer-reviewed journals must have been produced, whereby the mere number is only a necessary criterion, the main focus is on quality. At this career stage, several important publications are expected.¹
- For some of the peer-reviewed scientific publications, the applicant's independent contribution and independence from the doctoral supervisor should be clearly recognisable. In particular, the academic independence (according to subject-specific criteria) should be documented (both in the case of a cumulative habilitation thesis and in the case of a monograph).
- The candidate must be able to demonstrate an independent research profile that is clearly distinguishable from the research profile of the professor sponsoring the habilitation and clearly differentiates it from the doctoral thesis or clearly extends it. The scientific independence must be demonstrably given by the research activity demonstrated.
- The candidate is expected to have a minimum level of international networking, which can be demonstrated by: scientific presentations at international conferences, review activities for scientific journals and funding bodies or similar, organisation of/participation in scientific events (conferences, symposia, mini-symposia), cross-organisational research at academic level or as part of international projects, longer research stays at recognised international research institutions, or several years of industrial experience.

A research profile that fulfils these requirements will enable the candidate to make a valuable contribution to research at the faculty in the future and to advance the academic location in the defined subject. With regard to their further research activities at the Faculty of MWB, habilitated persons are expected to carry out independent research in an established or their own research group beyond the habilitation procedure, to further deepen their international networking, to acquire third-party funded projects and to actively participate in the public relations work of TU Wien.

¹ The guideline value for several publications that are not part of the own doctoral thesis is 15. Publication series, i.e. publications divided into parts or chapters, or publications consisting of essentially the same content, count as one publication. In the case of at least 3 publications, the habilitation candidate must have taken the role of the main operational supervision of the first author.

3.2 Teaching

In the habilitation procedure, a lecture on a selected topic of the habilitation subject must be given to proof teaching skills. In addition, teaching activities at the Faculty or an equivalent institution no longer than six years ago should be verified to the following extent:

- Multiple lectures or tutorials with several semester hours per week in the field of the habilitation. A student-assessed lecture or lecture exercise should be documented/specified.
- Co-supervision or, if authorised, main supervision of academic theses (bachelor theses, diploma theses/dissertations).
- Proof of knowledge in at least one of the following areas: "Didactics", "Equal treatment in teaching" or "University law". For example, the completion of a thematically appropriate further training event from the catalogue of personnel development at TU Wien can be considered as proof.

A teaching profile that fulfils these requirements enables the candidate to teach at the Faculty and to further develop existing courses in a research-led manner. Globally financed University staff are expected to be able to undertake compulsory teaching at the Faculty of MWB and to supervise academic theses (in particular dissertations).

4 Types of habilitation thesis: Monography and cumulative habilitation

In general, there are two types of habilitation thesis: the classic monograph and the cumulative habilitation. The habilitation thesis should be much broader in scope than a dissertation. The contribution that the habilitation thesis makes to the subject should be significant, and the gain in knowledge should be correspondingly high. The following criteria must be observed for both types of habilitation theses:

- Is it a balanced overview that covers your own and other relevant work in this area?
- Is the habilitation thesis also useful as an introduction to the topic (e.g. analogous to a high-quality review article or book chapter)?
- Is it a critical overview in the sense that it goes beyond a mere listing of previous work?
- Is the focus of the work on science and the increase in knowledge compared to the state of the art/research?
- Is the quality of the language and illustrations sufficient?

The habilitation thesis must be submitted to the Faculty within one year of the date of presentation of the habilitation project (in five copies as a bound work, as specified in the TU Wien statutes section "Habilitation Procedure", and in pdf form). Otherwise, a new habilitation project must be presented in order to ensure that it is up to date (also with regard to Faculty affiliation).

4.1 Monography or cumulative habilitation?

The monograph is a comprehensive work. It offers the opportunity to describe a larger subject area in its entire complexity in a coherent manner. This is only possible to a limited extent with a cumulative habilitation. One aspect that speaks in favour of a cumulative habilitation results from the importance of high-quality scientific publications and scientific output. The fundamental indicators on which all other indicators are based are the number of publications as an indicator of output and the number of citations as a measure of the resonance and influence that these publications have generated in the scientific community. It should be noted that none of the many indicators alone is ultimately suitable for assessing the quality of scientific output. Rather, the various bibliometric indicators provide information on the measurable aspects of scientific activities and can visualise these accordingly. The effort involved in producing scientific publications is more compatible with a cumulative habilitation. Against this background, the decision must be made between a monograph and a cumulative habilitation.

The habilitation thesis (monograph as well as cumulative habilitation) must have an introductory chapter that briefly presents the subject area, the open questions and the solutions developed. Both variants must end with a chapter summarising and concluding the thesis. In the case of the cumulative habilitation, this should preferably be written before the

publication chapter (see chapter 4.3) and must not be a mere sequence of the concluding chapters of the individual publications.

4.2 The monography

A monograph is a scientific book with a methodologically sound presentation of the essay of the knowledge content, which is dedicated to the subject area of the intended habilitation in depth. The aim of a monograph is to comprehensively discuss the state of the art/research on a scientific issue and to present the knowledge gained. In this presentation, the state of the art/research and the methodological approach in particular should be presented in such detail that the monography can serve the reader as an in-depth introduction to the subject area (character of a high-quality review article/book chapter). Reference should be made to the author's own scientific work in the explanations.

If a monography is submitted, the statutes of TU Wien require that it must have been published or accepted for publication by a scientific publisher before the habilitation procedure is completed. Scientific publishers are publishers that check manuscripts not only for formal but also for content-related academic criteria or have them assessed by peers. For example, some Elsevier journals offer the option of peer-reviewed book chapters or detailed review articles. The most important monographs in the respective field could be seen as a good model.

4.3 The cumulative habilitation

In the cumulative habilitation, previously published publications² are used, which are contextualised in an introductory chapter and then added in a publication chapter. In order to fulfil the previously formulated criteria of a habilitation thesis, a cumulative discussion should be formally structured as follows: In the introductory section, the subject area, state of the art/science, open questions and the solutions developed are briefly presented. This should be followed by a detailed chapter describing the methodological background that links the individual publications to a coherent set of topics, with appropriate references to these publications. These sections should be written in such a way that together they can be used as an independent work (guideline: 50 pages) (corresponding to a high-quality review article). The chapter with your own publications should contain a presentation of the scientific publications of approximately one page per publication and should be headed by the serial number of the publication, its title, authorship and publication reference. After these brief descriptions, the individual publications are each attached with a cover sheet on which the title, authorship and publication details are noted, as well as the habilitation applicant's share or role in this publication. Depending on the publication rights, the cumulative habilitation thesis should also be enriched with the above-mentioned introductory and explanatory chapters and put into a form so that it can be published (e.g. by the TU Wien Library). If publication rights do not allow the inclusion of individual scientific publications in the cumulative presentation, the one-page presentation must be supplemented with an excerpt of at least one page for such a book publication.

4.4 Other scientific work

With the other academic work, the habilitation candidate should demonstrate his/her expertise in the subject area that extends beyond the actual habilitation thesis. This would also include, for example, work that goes in a different direction than the habilitation thesis itself and therefore illustrates the "width" of the research.

These other works can be organised as an appendix to the actual habilitation thesis (monograph or cumulative habilitation). These works should be listed together with the title, authors and publication details, including a short (few lines) explanation. Your own contribution to the work should also be described. This appendix should be at the end of the bound habilitation thesis. These other scientific papers do not have to include all additional published scientific papers

² The **minimum number** for a cumulative habilitation thesis is 10, of which at least 5 must have been published in respected SCI-, SSCI- or A&HCI-listed peer-reviewed journals with at least 3 as first author (or main author in alphabetical order). Recognised means that publications in very highly ranked journals (Q1 or Q2) of a relevant ranking list are available within the respective subject area. The quality of the selected journals for the chosen subject area will be discussed in the non-public part of the faculty colloquium. In the case of at least 3 publications, the habilitation candidate must have taken the role of the main operational supervision of the first author.

that are not part of the cumulative habilitation. In any case, all documents must also be submitted to the Dean's Office in pdf form, including all publications (in pdf form) of the habilitation candidate.

5 Reviewers

The statutes require that the submitted habilitation thesis and other academic work be reviewed by at least two persons who themselves represent the intended habilitation subject. At least one reviewer must not be a member of the Faculty of MWB (it would be desirable for no reviewer to be a member of the Faculty). In any case, care must be taken to ensure that all reviewers are not biased towards the habilitation candidate (latest version of the statutes on bias, see <https://www.tuwien.at/tu-wien/organisation/zentrale-bereiche/datenschutz-und-dokumentenmanagement/satzung>). In order to ensure that at least two independent reviews can be used, it is advisable that the Dean's Office informs the Senate of at least four possible reviewers.

6 Habilitation procedure

The habilitation procedure examines and assesses whether the habilitation candidate has the outstanding academic qualifications required by law and the necessary teaching skills.

7 Concluding remarks

The fulfilment of the above-mentioned quantitative benchmarks in no way prejudices the assessment of the academic qualifications of the habilitation candidate. This is the sole responsibility of the reviewers and the habilitation committee. Care must be taken to ensure that the ORCID is also stated in the CV to be submitted.

8 Entry into force and transitional regulations

These guidelines enter into force on the day after the Faculty Council adopts the resolution and replace the guidelines in the version dated 12 January 2011 in full. For habilitation candidates who have already completed a faculty colloquium, the guidelines in the version dated 12 January 2011 continue to apply.

Abbreviations

TUW	Technische Universität Wien
MWB	Mechanical and Industrial Engineering