

Guidelines for the development of a Focus Work at the Chair of Structural Design (Prof. Dr. Joseph Schwartz)

01. Goals

Focus Works (*Vertiefungsarbeiten*) at the Chair of Structural Design offer the opportunity to explore topics in the fields of history of engineering, graphic statics, geometry, construction and material.

The development has essentially the following objectives: find an independent research question, explore different design and theoretical scenarios, develop appropriate answers in a scientific context. Core of the work is the development of an own critical perspective on the chosen topic, on the basis of sources and state of the art review. A consistent scientific method has to be developed.

Any Focus Work needs to be linked to a teaching or research project developed at the Chair. If specific topics are advertised by the Chair, they can be found directly at the Chair's website.

02. Process

The Focus Work is generally an individual work. Group works in a 2-person team are possible; the scope and effort of the work increases accordingly. The topic of the Focus Work is developed under the supervision of one of the assistants at the Chair of Structural Design. The candidates are responsible for the development of an adequate time schedule for conducting the work and the on-time delivery. The process follows the following steps and milestones:

- 1) A first brainstorming-meeting helps to frame the topic. The candidates aim to outline the specific interest in a topic and propose different options for the approach of the work.
- 2) A second meeting (methodology frame) serves to discuss the chosen topic and to develop an independent research question. To attend this meeting the following documents should be sent in advance to the assistant supervising the work: abstract (3'000 characters max.), potential table of contents and main literature references that served as the base to develop the first ideas around the chosen topic.
- 3) In a third meeting (interim review), the subject and the development of the work are discussed. The third meeting is made on the basis of a first rough draft of the entire text (to be delivered in advance to the assistant supervising the work).
- 4) Finally, a discussion (final review) takes place 2-3 weeks after the (digital) submission of the paper. The candidates have to give a presentation (max. 20-minutes) to two assistants of the Chair.
- 5) If requested, modifications have to be implemented in the final document within one week after the review.

03. Dates

A Focus Work can start at any time. Experience has shown that a period of ca. 6 months is usually required. The meetings can be arranged individually and are based on the needs of the student and the availability of the assistants.

In any case, the work must be submitted 3 weeks before the closing date for the registration of the marks. For Focus Works in the autumn semester the deadline for submissions is thus the beginning of February, in the spring semester the beginning of August.

04. Document

The final document (min. 30'000 characters for individual work, 50'000 characters for groups of two people) has to be delivered in two printed copies and additionally in an electronic format. The declaration of originality from the ETH Website has to be downloaded, printed and signed by the candidates.

The final document should include the following points, which will also be part of the evaluation chart from the Chair of Structural Design:

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| Context | <ul style="list-style-type: none">• Finding materials - Bibliography and other relevant references• Studying main references• Critical reading of the previous work developed on the topic |
| Methodology | <ul style="list-style-type: none">• Determining an area of interest/research question• Determining the approach• Determining the evaluation methods and setup |
| Exploration | <ul style="list-style-type: none">• Exploring by using the defined method• Evaluating results• Understanding the qualities and drawbacks of the methods |
| Development | <ul style="list-style-type: none">• Evaluating the method through chosen criteria• Implementing the method |
| Communication | <ul style="list-style-type: none">• Explaining the process• Evaluating the chosen method• Structuring and presenting results |

05. Questions

Examples from the broad spectrum of previous Focus Works can be viewed at the Chair of Structural Design (HIB E11). For further questions, please contact directly the assistant from the Chair responsible for Focus Work (<https://schwartz.arch.ethz.ch/Vorlesungen/Wahlfacharbeit/verantwortliche.php>).