

CESAER's policies on the engineering doctorate

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Dr. rer. nat, Dr.-Ing., Dr. rer. pol. ... :

- 3 – 5 years
- Research oriented
- Basis for academic careers
- Individual programs

Ph.D.:

- 3 – 5 years research oriented
- Basis for academic career
- Often structured programs
- Graduate schools

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Professional Degrees:

(Medical Doctor „MD“ ,

Doctor of Business Administration „DBA“

- Several months - several years
- Occupationally relevant post gradual phase

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Habilitation / Second Thesis:

- In several countries highest academic degree
- Basing on a doctoral degree → qualification for broad academic teaching and research

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The Engineering Doctorate

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1. Essence of the doctorate

The essence of a doctorate is the development of the ability to conduct original research and extend the boundaries of knowledge.

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- Ability to communicate in an international academic, scientific and industrial environment
- Ability to acquire information and synthesize knowledge
- Multidisciplinary experiences
- Cross-cultural experiences
- Ability to deal with uncertainty
- Ability to handle conflicts, to solve problems and to manage failure

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- Leadership
- Teamwork
- Ability to manage research
- Creativity
- Ethics

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2. Admission

Admission to a doctorate should be based on individual assessment of qualifications, experience and intellectual potential, without any discrimination deriving from gender, ethnicity, social and other.

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3. Status

Beyond the legal aspects, PhD candidates should be considered as (early stage) researchers.

4. Environment

PhD candidates must be exposed to a rich scientific environment - preferably international - and supervised by an academic of recognized standing within the scientific community. Appropriate resources must be provided to carry out the research.

5. Thesis and assessment

One of the main outcomes of the doctorate has to be a defended individual thesis accepted by the scientific community as a substantial contribution on the field of research. The examination process should be transparent and involve independent external experts.

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The thesis should meet the following requirements:

- Well defined engineering/ science problem or hypothesis
- Originality of the (proposed) solution
- Validation of the results
- Quality indicators (such as publication in peer reviewed journal or conferences)
- Indication of deep expertise in the particular engineering field
- Clear exposition in the thesis

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6. Awarding institution

The right to award a doctoral degree must be restricted to higher education institutions offering both advanced education and advanced research.

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Final declaration

Different routes to doctoral degrees are evolving. Any doctorate in engineering has to meet the above mentioned core requirements.

Sure one can find many different examples for conducting high level processes in the doctoral phase. With the Corner Stones CESAER defines a standard which should be accepted for any engineering doctorate in order to meet the requirements in industrial and academic research.

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