The doctoral study programme in Electrical Engineering is a 3rd cycle programme according to the Bologna scheme. The study programme of Electrical Engineering inseparably connects the studies with scientific research and development work. The programme mainly focuses on independent creative research work of students, who are guided by their mentors.

The programme gives priority to optional choice over obligatory forms of studies. In order to adequately cover the increasingly ramified field of modern electrical engineering, the choice of study contents is wide and versatile. The possibility of choosing gives students the opportunity to plan their research careers and follow the needs of future employers as soon as possible. Furthermore, through obligatory seminars and integration of elective generic contents (transferable skills), we offer an appropriate breadth of education.

The programme also allows for mobility within the organized forms of instruction and in individual research work. Study obligations are evaluated by the European Credit Transfer System (ECTS), which provides the basis for international exchange of students in countries using the same or a comparable credit system.

During the studies students are expected to actively participate at Slovenian and international scientific and specialist workshops and conferences. In this way students can develop the skills of scientific communication, critical assessment of the achievements of others and of the results of their own research work. The key obligations of students include the proposal and preparation of the doctoral thesis. In the doctoral work, in addition to demonstrating their capacity for thinking in a scientific manner and their aptitude for research work, the candidates must demonstrate the originality of their contributions to science by publishing their work in a peer-reviewed journal indexed by SCIE.

**Fields:**

- Electrical Power Engineering, Photovoltaics, Smart Grids,
- Electronics, Microelectronics, Optoelectronics, Microsensorics, Nanostructures,
- Mechatronics, Embedded Systems, Intelligent Systems, Control Systems, Robotics,
- Metrology and Quality Assurance,
- Biomedical Engineering and Informatics,
- ICT and Multimedia Technologies.
WHY OPT FOR DOCTORAL STUDIES IN ELECTRICAL ENGINEERING?

The main aim of the doctoral study programme of Electrical Engineering is to educate independent researchers with broad specialist skills and in-depth basic methodological knowledge.

General aims of the programme

- to inseparably link the studies with scientific research and development work,
- to develop a scientific approach and to master scientific thinking,
- to encourage comprehensive understanding of electrical engineering and its role in the broader scientific context,
- to encourage students to follow and master the state-of-the-art methods and technologies,
- to develop communication skills, skills of reporting on scientific research achievements and skills of transferring knowledge,
- to develop an objective and critical evaluation of others’ and one’s own achievements,
- to prepare doctoral degree holders for creative scientific research and development work in the field of electrical engineering and broader.

General competences acquired through the programme

- competence for individual creative scientific research and development work in the field of electrical engineering and broader,
- competence for following and accurately evaluating the latest achievements in the broader field of electrical engineering,
- critical evaluation of the results of one’s own research and development work,
- competence for active professional written and oral communication,
- competence for team work with experts from various fields,
- professional, environmental and social responsibility.
**DOCTORAL STUDY OVERVIEW**

**Publication of the call for applications** (by 1 March at the latest).

**Application submission (entry requirements):**
completed web application form via eVŠ.

**Study Department:** collection of printed applications with attachments,
**SRC** processes the applications,
**SD** invitation to enrol with all relevant documentation and the registration form.

**Enrolment in the 1st year**
upon/prior to enrolment
mentor selection (mentor requirements)
choice of subject (study plan)
completed registration form in the information system.

**SD:** enrolment in the 1st year,
notification regarding commencement of studies,
schedule of lectures.

**Commencement of studies, 1st year:**
normally two subjects in the winter semester (2x5=10 ECTS),
**RW** + winter seminar (overview of the subject area, 15+5=20 ECTS),
normally two subjects in the summer semester (2x5=10 ECTS),
**RW** + summer semester (topic outline, 15+5=20 ECTS).

**Enrolment in the 2nd year.**

**Continuation of studies, 2nd year:**
Research work: RW winter seminar,
preparation of the proposal,
submission of the topic proposal.

**SD:** collection of topic proposal,
**SRC:** proposal of the doctoral theme,
**SENATE:** confirmation of the **DT senior competent department:** announcement of presentation.

**Continuation of studies, 2nd year:**
public presentation of the proposal.

**Doctoral thesis examining board:**
**SRC:** assessment examination, presentation,
**Senate:** assessment confirmation,
**UL SENATE:** assessment confirmation,
**SD:** assessment notification (approving).

**Continuation of studies, 2nd year:**
approved topic: 10 ECTS.
Enrolment in the 2nd year.

Continuation of studies, 3rd year,
research work for the doctoral thesis,
publication of an article in an SCI (WoS-listed) journal,
preparation and submission of the doctoral thesis.

SD: receives the doctoral thesis,
DTEB: evaluation of the doctoral thesis,
SENATE: confirmation of the evaluation, appointment of the thesis defence board,
SD: announcement of the public thesis defence.

Public defence of the doctoral thesis:
procedure description + short thesis evaluation,
30-minute thesis presentation, questions, result announcement.

Enrolment requirement: topic/all exams/seminars

Year:
write the doctoral thesis topic.

Year:
O-year + RW summer semester,
and topic of the doctoral thesis (3 - 5 pages),
proposal to the Study Department.

Year:
SD (SRC): topic assessment
proposal of the UL FEE senate, consultation, decision,
(approx. 3 months after the topic submission).

SRC – Scientific Research Committee
RW – Research work
SD – Study Department
DTEB – Doctoral thesis examining board
The duration of the postgraduate doctoral study programme of Electrical Engineering is three years and inseparably connects the studies with scientific research and development work. The study programme comprises four elective subjects, two seminars and a doctoral thesis. The programme mainly focuses on independent creative research work of students, who are guided by their mentors. The programme enables mobility in the framework of both organized forms of study and individual research work.

**Title/name of the study programme:**
Electrical Engineering

**Duration of the study programme:**
3 years (6 semesters)

**Number of ECTS credits:**
180 ECTS credits

**Academic degree:**
180 ECTS credits

**Abbreviation of the title:**
dr. in front of the name

The first year focuses on organized studies in the form of lectures and seminars, the second and the third year of the programme are entirely devoted to research work and the preparation and presentation of the doctoral thesis.

One semester comprises 30 ECTS credits, one year 60 ECTS credits and the entire doctoral study programme 180 ECTS credits. Organized study comprises 60 ECTS credits; the other 120 ECTS credits are awarded to research work and the doctoral thesis.

An ECTS credit corresponds to 25 hours of students’ work. The total number of all study obligations thus equals 750 hours per semester, 1500 hours per year and the entire study programme amounts to 4500 hours of study obligations.
Before enrolling in the programme, students choose a mentor, who advises them on the selection of subjects and guides them through the studies. Together with their mentor, students select four subjects. The seminars are obligatory for all students of the doctoral study programme of Electrical Engineering. The main component of the studies is independent research work for the doctoral thesis.

**Professional subjects**  
All professional subjects are elective. Students choose two to four subjects corresponding to 10 to 20 ECTS credits (1st and 2nd semester) among the offered specialist subjects according to the research field of their doctoral thesis. All subjects are worth 5 ECTS credits.

**Mobility**  
Together with their mentor, students can select up to 10 ECTS credits worth of study contents from other doctoral study programmes at the University of Ljubljana and from comparable programmes of other universities (1st and 2nd semester). Students can attend two semesters at another university (up to 60 ECTS credits), so that they can complete one third of their study obligations elsewhere.

**Seminars**  
The seminars (1st and 2nd semester) are compulsory for all doctoral students of Electrical Engineering and are worth 5 ECTS credits each. Seminars are conducted by mentors. Students present the results of their work in written and oral form. Seminars require attendance at presentations by other students and participation in discussions. This ensures the extension of studies beyond the field of the doctoral thesis as well as interaction between doctoral students. In the first semester students prepare an overview of the field of their research work. In the second semester, doctoral students report on the pre-preparation of the subject of their thesis. This ensures an additional time check and a timely approach to thesis planning.

**Research work for the doctoral thesis**  
Research work is devoted to the preparation and completion of the doctoral thesis. It is evaluated with 120 ECTS credits. This includes individual scientific research work directed by the mentor. Research work requires active participation at Slovenian and international scientific and specialist meetings.

**Doctoral thesis proposal**  
By the end of the 4th semester, students should prepare the proposal of the subject of their doctoral thesis, which includes an appropriate breakdown of the subject, its incorporation into the field of the research work, an indication of the expected contribution to science, which should be methodologically supported with initial results. Students present the subject of their thesis in public. The preparation and presentation of the doctoral thesis are evaluated with 10 ECTS credits.

**Doctoral thesis**  
As a rule, students complete and publicly present their doctoral thesis – which together comprises 20 ECTS credits by the end of the 6th semester. In the doctoral work, in addition to demonstrating their capacity for thinking in a scientific manner and their aptitude for research work, the candidates also give proof of original contributions to science, which are usually published in international scientific publications indexed by SCIE. The doctoral thesis is an original contribution to science, which is prepared in accordance with the provisions of the Statute of the University of Ljubljana and the Rules on doctoral studies.
WITHOUT ELECTRICAL ENGINEERING THE WORLD AS WE KNOW IT WOULD NOT EXIST.