

## Studies in the Doctoral Programme in Engineering Sciences and the Doctoral Programme in Engineering and Natural Sciences

These guidelines apply to the studies in the Doctoral Programme of Engineering Sciences (TTITO) and the Doctoral Programme in Engineering and Natural Sciences (TLTO).

### Learning outcomes

After graduation, the student is expected to be able to:

- Understand their field and its importance to society.
- Apply and develop research methods independently to solve problems.
- Critically evaluate and combine new ideas, ensuring scientific quality and integrity.
- Communicate complex ideas to different audiences and collaborate with diverse groups.
- Continue learning and be ready for various career paths in academia, industry, or other sectors.

Refer to the more detailed learning outcomes of [TTITO](#) and [TLTO](#).

Students can tailor their study choices and focus areas to align with their personal and professional goals, within the programme's guidelines.

### Common guidelines for postgraduate studies

- The studies included in the doctoral degree should be planned at an early stage. All studies are aimed at supporting the dissertation work and the future career of the doctoral student. The content of postgraduate studies is always personal and must be agreed upon with the supervisor. The student submits the study plan for approval in Sisu well before graduation. For more information on preparing the personal study plan in Sisu, please see the page [Personal study plan \(PSP\) of a doctoral student](#).
- Primarily, postgraduate studies completed at a university may be counted toward the degree. The same requirements for studies completed at the university also apply to those completed outside the university.
- Courses that are not marked as suitable for postgraduate studies can be included in the student's discipline- and field-specific studies if they are essential for building knowledge in the research field. In that case, including the courses in the degree needs to be justified in an informal application supported by the supervisor. The application is submitted to the education specialist of the programme. Further conditions, such as minimum grade requirements, may be imposed on such studies.
- Publications cannot, per se, count toward the studies outside of the dissertation course.

### Structure of the degree

When it comes to the structure of the degree, the key changes compared to the previous degree structure include a reduction in the total number of credits required (from 40 to 30), a decrease in the credits needed for discipline- and field-specific studies (from 25 to 10), and the introduction of an additional research ethics course.

Starting from 1 August 2025, the postgraduate studies must total a minimum of 30 credits including:

- General academic competences (a minimum of 10 credits), including TAU.TRI.102 Orientation to Doctoral Studies 4 cr, TAU.TRI.203 Research Ethics I 1 cr and TAU.TRI.205 Research Ethics II 2 cr, or equivalent knowledge
- Discipline- and field-specific studies (a minimum of 10 credits)

The remaining 10 credits will be allocated between the two modules based on content.

The programme may require people admitted as postgraduate students to complete a necessary amount of supplementary studies to ensure that they attain the competencies needed to pursue postgraduate studies. These studies shall not count towards the degree.

Before 1 August 2025, the degree comprised of 40 credits of postgraduate studies, with a minimum of 10 credits of general academic competences, including the orientation course and the 1-credit research ethics course, and a minimum of 25 credits of discipline- and field-specific studies. If you have started your studies before 1 August 2025, you can graduate with the old degree structure until 31 July 2029 or change into the new degree structure.

| <b>Students accepted before 1 August 2025 graduating with the old degree structure</b>   | <b>Students accepted before 1 August 2025 graduating with the new degree structure</b>  | <b>Students accepted after 1 August 2025</b>  |
|--|---|---|
| Studies (a minimum of 40 credits in total) include: <ul style="list-style-type: none"> <li>• general academic competences</li> <li>• discipline- and field-specific studies</li> </ul>   | Studies (a minimum of 30 credits in total) include: <ul style="list-style-type: none"> <li>• general academic competences</li> <li>• discipline- and field-specific studies</li> </ul>  | Studies (a minimum of 30 credits in total) include: <ul style="list-style-type: none"> <li>• general academic competences</li> <li>• discipline- and field-specific studies</li> </ul>  |
| General academic competences (a minimum of 10 credits) include: <ul style="list-style-type: none"> <li>• TAU.TRI.102 Orientation to Doctoral Studies 4 cr</li> <li>• TAU.TRI.203 Research Ethics I 1 cr or equivalent knowledge</li> </ul> | General academic competences (a minimum of 10 credits) include: <ul style="list-style-type: none"> <li>• TAU.TRI.102 Orientation to Doctoral Studies 4 cr</li> <li>• TAU.TRI.203 Research Ethics I 1 cr or equivalent knowledge</li> <li>• TAU.TRI.205 Research Ethics II 2 cr or equivalent knowledge</li> </ul> | General academic competences (a minimum of 10 credits) include: <ul style="list-style-type: none"> <li>• TAU.TRI.102 Orientation to Doctoral Studies 4 cr</li> <li>• TAU.TRI.203 Research Ethics I 1 cr or equivalent knowledge</li> <li>• TAU.TRI.205 Research Ethics II 2 cr or equivalent knowledge</li> </ul> |
| Discipline- and field-specific studies (a minimum of 25 credits)   | Discipline- and field-specific studies (a minimum of 10 credits)  | Discipline- and field-specific studies (a minimum of 10 credits)  |
| Remaining credits (a minimum of 5 credits) will be allocated between the two modules based on content  | Remaining credits (a minimum of 10 credits) will be allocated between the two modules based on content  | Remaining credits (a minimum of 10 credits) will be allocated between the two modules based on content  |
| It is possible to graduate with this degree structure until 31 July 2029. If you are unable to graduate before that, you'll need to switch to the new degree structure.  | It is possible to graduate with this degree structure from 1 August 2025 onwards  | It is possible to graduate with this degree structure from 1 August 2025 onwards  |

## Content of the general academic competences

The meaning of the general academic competences is to prepare the students for scientific work and introduce them to applying and conveying scientific knowledge. The studies should also consider the needs of the personal aims and the student's future career. The studies must be agreed upon with the supervisor.

The courses TAU.TRI.102 Orientation to Doctoral Studies 4 cr, TAU.TRI.203 Research Ethics I 1 cr and TAU.TRI.205 Research Ethics II 2 cr, or equivalent knowledge, are compulsory. The courses need to be completed at an early stage of the studies.

Provided that the studies support the doctoral student's dissertation work and future career goals, the study module of general academic competences may contain courses in areas such as:

- research methods
- research methodology
- research ethics
- good scientific practice
- history and philosophy of science
- principles of scientific writing
- scientific communication
- business operations
- leadership
- commercialization of business
- career understanding in engineering sciences
- a maximum of 5 credits worth of pedagogical studies, with a good reason
- a maximum of 5 credits worth of Finnish as a foreign language courses
- a maximum of 5 credits worth of the course [DPENS.520 Transferable Skills in Practice](#)

The module may include courses such as:

- [DPES.512 ENS Research Seminar: Research Reading Cycle 1–5 cr](#)
- [Courses offered by the Language Centre for doctoral students](#)
- [Courses offered by the Doctoral School](#)

## **Content of the discipline- and field-specific studies**

The goal of the discipline- and field-specific studies is to provide the student with in-depth knowledge and understanding of their research area. The field of a student's postgraduate studies must be connected to the research field of their dissertation. The faculty supports interdisciplinarity. As a result, the discipline- and field-specific studies can include courses from other faculties and universities besides the courses offered by the own faculty. The courses must fulfill the common guidelines. Studies may include e.g. courses, literature, seminars, and summer or winter schools. The studies must be agreed upon with the supervisor.

## **Earning credits**

Credits can be earned in several different ways. Below are some of the most common methods for completing studies.

### **Courses at Tampere University**

Courses that support the research work and/or general academic competences can be taken from various units at Tampere University. Information about courses suitable for postgraduate studies is found in [the curriculum](#).

### **Courses at other universities**

Courses, seminars, summer/winter schools and online courses organised by other universities/research institutes can be taken as long as they are meant for doctoral students and support the research work and/or general academic competences.

Further information about applying for study rights at other universities is available on the page [Studies in other higher education institutions](#).

A certificate must be received upon completion of the course/seminar/winter/summer school/online course. If the credits are not predefined, the responsible supervisor can evaluate them based on the workload (1 credit = 27 hours of work). Credits for courses completed at other universities are primarily registered through inclusion in Sisu. The technical instructions for applying for inclusion in Sisu are available on the page [Recognition of prior learning](#) > Sisu instructions: applying for inclusion.

### **Independent assignments**

Independent assignments can include e.g. literature studies, seminars, workshops, presentations, learning diaries, exams, or a combination of assignments and exercises. The exact contents are determined on a case-by-case basis. Please contact your supervisor(s) for more details.

Credits for independent assignments are primarily registered as custom course credits in Sisu. The technical instructions for requesting custom course credits in Sisu are available on the page [Sisu instructions: Structure of studies and PSP](#) > Study draft.

Any cases that are not covered in the guidelines have to be approved by the committee.

*Approved by the Faculty Council of the Faculty of Engineering and Natural Sciences in 2/2025*