

DOCTORAL STUDY PROGRAMME

AGRICULTURAL ENGINEERING

Educational Classification Code of the Republic of Latvia – 51525

Accredited until **4 June 2019**

Director of the Doctoral Study Programme:

Gints Birzietis, professor, Dr.sc.ing.

Faculty of Engineering

Adrese: J. Cakstes Blvd. 5, Jelgava,

e-mail: gints.birzietis@llu.lv

phone: 28618372

ANNOTATION

The ***doctoral study programme*** was elaborated in accordance with the Law on Institutions of Higher Education, the Law on Scientific Activity, regulations of the Cabinet of Ministers, recommendations or instructions of the Council of Higher Education and the Latvian Council of Science, as well as the Standard of Doctoral Studies of LLU, the Regulation of Doctoral Studies of LLU.

The ***aim of Doctoral studies*** is to promote the development of agricultural engineering and build a new generation of internationally highly qualified scientists in agricultural engineering area, as well as to ensure the continuity of academic and scientific personnel at the Faculty of Engineering.

According to the programme, the main assignments for the doctoral students are as follows:

- to solve scientific problems independently and competently;
- to be competent in research methodology;
- to gain extensive knowledge in the chosen field of science and bring their original contribution to its development;
- to gain experience and competence within the teamwork of scientific projects in national and international level;
- to be skilled both at working independently and in co-operation on a joint interdisciplinary scientific project development
- to gain teaching experience and skills to introduce their own research findings to the national and international audience;
- and to develop and defend the PhD thesis.

Study results

Knowledge: know and understand topical scientific theories and knowledge in the field of agricultural engineering, scientific language/terminology and databases related to the research field; systemically understand the problems and regularities of selected research field; know the current theoretical and empirical research methodology within the selected study direction.

Skills: able to assess and choose independently appropriate research methodology; able to do theoretical and empirical investigations responsibly in cooperation with adviser and other persons involved in the investigation; able to improve scientific competence participating in projects, reporting in scientific conferences, discussing in seminars and work groups; able to

develop/create new knowledge and understanding on existing knowledge and their practical usage implementing important and genuine investigation results, part of which is on the level of internationally indexed publications; able to assess responsibly the field of investigation and its results in the context of interdisciplinary research and sustainable development; able to supervise the research or development tasks within enterprises, institutions and organizations; communicate on the field of investigation with scientists, experts and society in general.

Competence: Able to independently put forward innovative research ideas, analyze, synthesize and evaluate them critically in the field of agricultural engineering and interdisciplinary research context; able to carry out important scientific investigations and implement innovations responsibly, independently and critically in the field of agricultural engineering, publishing the research results both in Latvia and internationally recognized and indexed journals; able to independently plan and manage scientific projects, including international; able to supervise scientific theses and participate in education of young scientists; able to promote the sustainable development of agricultural engineering field in both academic and professional contexts.

The **scientific sub-sectors of Agricultural Engineering Doctoral Studies** at the Faculty of Engineering are:

- agricultural energetics (lauksaimniecības enerģētika);
- agricultural machinery;
- transport;
- machinery design and production.

The priority is set for following research topics:

- sustainable energy use in vehicles;
- smart technologies and robots in biosystems;
- renewable energy production and use;
- reduction and rational use of by-products and residues.

Full-time Doctoral Studies: 3 years = 48 weeks × 3 = 144 weeks.

Part-time Doctoral Studies: 4 years = 36 weeks × 4 = 144 weeks.

The volume of the full-time and part-time studies: 0.833 CP (1.25 ECTS)/week × 144 weeks = 120 (180 ECTS) credit points (CP)

The structure of the studies

Theoretical studies (20 CP (30 ECTS)):

- special course at sub-direction of scientific sub-sector 6 CP (9 ECTS);
- special course in research direction 6 CP (9 ECTS);
- professional foreign language course 4 CP (6 ECTS);
- research methodology..... 4 CP (6 ECTS).

Scientific work (100 CP (150 ECTS)):

- research, preparation of scientific articles and presenting results at international scientific conferences, publishing of research results, development and preparation of PhD thesis.

Plan of Full-time Doctoral Studies

1.1. The 1-st year of studies (40 CP (60 ECTS))

1.1.1.Theoretical studies – 8 CP (12 ECTS):

- professional foreign language course – 4 CP (6 ECTS), exam;
- research methodology course – 4 CP (6 ECTS), test.

1.1.2.Development of PhD thesis – 23 CP (34,5 ECTS):

- definition of research problem and development of research concept;
- scientific data collection and analysis;
- development of methodological base for theoretical studies;
- development of methodological and material base for experimental studies.

1.1.3.Publications and approbation – 9 CP (13,5 ECTS):

- study course “Preparation of Scientific Articles” – 3 CP (4,5 ECTS);
- preparation of scientific publication and submission to conference proceedings – 4 CP (6 ECTS);
- presentation of the research results – 2 CP (3 ECTS).

1.2. The 2-nd year of studies (40 CP (60 ECTS))

1.2.1.Theoretical studies – 6 CP (9 ECTS):

- special course at scientific sub-sector or sub-direction – 6 CP (9 ECTS), exam;

1.2.2.Development of the theoretical and experimental part of PhD Thesis – 20 CP (30 ECTS).

1.2.3.Publications and approbation – 14 CP (21 ECTS):

- preparation and submission of scientific publication or patent in Latvia – 4 CP (6 ECTS);
- preparation and submission of scientific publication abroad – 5 CP;
- presentation of the research results in international conference in Latvia – 2 CP (3 ECTS);
- presentation of the research results in international conference abroad – 3 CP (4,5 ECTS).

1.3. The 3-rd year of studies (40 CP (60 ECTS))

1.3.1.Theoretical studies – 6 CP (9 ECTS):

- special course in research direction – 6 CP (9 ECTS), exam.

1.3.2.Final preparation of PhD Thesis – 20 CP (30 ECTS):

- final developments of theoretical and experimental part of the PhD Thesis – 10 CP (15 ECTS);
- forming of the PhD Thesis – 10 CP (15 ECTS).

1.3.3.Publications and approbation – 14 CP (21 ECTS)

- preparation and submission of scientific publications or patents – 9 CP (13,5 ECTS);
- presentation of the research results in international scientific conferences – 5 CP (7,5 ECTS).