COURSE DESCRIPTION

Course code	Volume in ECTS credits	Institution	Faculty	Department
AGR8010	7	Vytautas Magnus University Agriculture Academy	Agronomy	Institute of Agriculture and Food Sciences

Course title in Lithuanian

AUGALININKYSTĖ

Course title in English

PLANT GROWING SCIENCES

Study methods	Volume in ECTS credits
Lectures	40
Consultations	3
Abstract	42
Individual work	100

Short course annotation in Lithuanian (up to 500 characters)

Dalykas apžvelgia tradicinę augalininkystę bei adaptuotą kintančio klimato sąlygoms. Pateikiamos naujausios inovatyvios žinios apie augalininkystės mokslinių ir eksperimentinių tyrimų bei mokslo raidą Lietuvoje bei pasaulyje, augalininkystės reikšmę žemės ūkiui, bendrąją žemės ūkio politiką, augalininkystės plėtros galimybes bei perspektyvas, pagrindinių augalų morfologines ir biologines savybes bei jų augimo ir vystymosi kritinius tarpsnius ir ciklus, augalų produktyvumo ir pasėlio struktūros formavimo principus.

Short course annotation in English (up to 500 characters)

Subject overview of traditional crop production and adapted the changing climatic conditions. Here are the latest innovative knowledge on crop research and development and scientific developments in Lithuania and the world, crop value for agriculture, the common agricultural policy, crop development opportunities and prospects for the main plant morphological and biological characteristics of the growth and development of the critical stages and cycles of plants crop productivity and structure formation principles.

Relevance of the course

Plant productivity can generally vary at climate change. According to the latest research provided the knowledge, it is important to understand the major field crop growth and development of the system, improve existing or create a new field of plant breeding techniques that improve crop production business stability, modeling of plants, taking into account the biological and technological field crop characteristics and evaluation of specific habitats adapts the most suitable plant Biopotential forming patterns.

Course aims

The acquired knowledge and skills will help to understand the systematic plant science. The ability of researchers in the field of crop production and crop production methods used Mastering. Gaining knowledge about the optimal field crop productivity formation patterns, be able to analyze and assess the environmental factors affecting the productivity of the plant, to be able to assess and manage crop growth and development of the system, the risk factors in crop production resulting from the changing climate and the environment.

Content (topics) and methods

Lectures:

1. Plant science: object, purpose, objectives, definition of the inclusive nature of the development of the most significant findings of research methods.
2. The crop science development opportunities and prospects. Crop research and experimental research developments in Lithuania. Crop development opportunities and prospects in the world.
3. The main outdoor crop growth and development of the control system.

4. Plant productivity concept, crop structure formation principles and patterns. Competition plant community, its impact on plant productivity. Productive crop density decrease causes their management.
5. Soil fertility influence, forecasting major field crop yield potential and nutritional intensity. The main field of biological plant requirements at different growth stages.
6. Combine the regularities of structural elements at different growth stages. Environmental factors influence physiological processes taking place in plants.
7. Outdoor plants and soil microorganisms interactions, their importance for plant growth and productivity.
8. Different field crop yield forecasting and modeling. Optimal stand density concept, its prognosis and different outdoor plant stand density affect plant productivity modeling.
9. Phytopathogens and pests affecting crop density, crop productivity and crop production in the technological properties.
10. Plant Nutrition assessment of the level of growth in different periods. Plant nutrition level on energy transformation plants, plant condition assessment.
11. Outdoor plant stress. Factors that cause stress. Plant stress on productivity. Plant Stress Management.
12. Winter crop resistance to adverse environmental factors increasing plant Winter Storage evaluation.
Study organized consultations by way consistent with the schedule of doctoral students. Individual and group counseling. At a minimum the number of doctoral students, the teaching process is carried out according to individual consultation mode doctoral needs.
Consultation beginning graduate students provided self-employment – abstract tasks, taking into account the doctoral dissertation topic.
During training, use of modern learning tools, apply problem training elements, conducted case studies, doctoral students involved in the discussion, part of the lecture material asks to study and introduce yourself.
Scientific literature, legal documents, theoretical – information materials analysis, knowledge and systematic, comparative and logical analysis methods.

Structure of cumulative score and value of its constituent parts

Evaluated using ten (10) points criteria - cumulative scoring system. Abstract - 0.1, Exam - 0.9 (weight coefficient.). Answering written and oral. Doctoral students' knowledge and skills assessment exam and a final assessment carried out by the commission formed.

Compulsory reference materials

No.	Authors of publication, title, publishing house, year of publication.
1.	Agroekosistemų komponentų valdymas. Ilgalaikių agrocheminių tyrimų rezultatai: monografija / sudaryt. L. Tripolskaja ir kt. – Akademija, Kėdainių r., 2010. – 568 p.
2.	Jakienė, E.; Liakas, V. Cukrinių runkelių biologija ir jų auginimo technologijos / Aleksandro Stulginskio universitetas. Agronomijos fakultetas. Augalininkystės ir gyvulininkystės katedra. Akademija, 2012. 91 p.
3.	Lapinskas, E. Biologinio azoto fiksavimas ir nitraginas: Monografija. Akademija, 1998, 218 p.
4.	Maikštėnienė, S. (sudarytoja ir bendraautorė). 2008. Tausojamoji žemdirbystė našiuose dirvožemiuose. Monografija. Akademija, p. 568. ISBN 978-9955-650-31-7
5.	Šiuolaikinės augalininkystės technologijos. LŽŪU, Žemės ūkio mokslo ir technologijų parkas, Augalininkystės ir gyvulininkystės katedra. 1-7 tomai, Akademija, -2000-2005.
6.	Velička R. Rapsai. – Kaunas, 2002. – p. 319.
7.	Šlapakauskas, V.; Duchovskis, P. Augalų produktyvumas. K.: IDP Solutions. 2008. 253 p.
8.	Šlapakauskas, V., Kučinskas, J. 2008. Augalų mityba. Akademija. 298 p.
9.	Šiuliauskas, A.A. Praktinė augalininkystė. Javai ir rapsai. Vilnius, 2015. 630 p.

Supplementary reference materials

No.	**Authors of publication, title, publishing house, year of publication.**
1.	Agrios, G. N. Plant pathology. USA, San Diego, 1997. 635 p.
2.	Biologija // LMA periodinys leidinys.
3.	Scientific journal „Agricultural systems“ – paieška www.sciencedirect.com.
4.	Scientific journal „European Journal of Agronomy“ – paieška www.sciencedirect.com.
5.	Scientific journal „Journal of Agronomy and crop science“ – paieška www.blackwell-sygergy.com.
6.	Scientific journal „Russian Journal of Plant physiology“ – paieška www.maik.ru.
7.	Scientific journal „Agronomy Research“ – paieška www.agronomy.emu.ee.
8.	Scientific journal „Zemdirbyste – Agriculture“ – paieška www.zemdirbyste-agriculture.lt.
9.	„Žemės ūkio mokslai – Agricultural Sciences“ // LMA periodinis leidinys.

Course programme designed by

No.	**Name, surname**	**Institution**	**Degree**	**E-mail address**
1.	Vytautas Liakas	Vytautas Magnus University Agriculture Academy	Assoc. dr.	vytautas.liakas@vdu.lt
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