COURSE DESCRIPTION

Course code	Volume in ECTS credits	Institution	Faculty	Department
AGR8020	7	VMU	Agronomy	Biology and Plant Biotechnology

Course title in Lithuanian

Fitopatologija

Course title in English

Plant Pathology

Study methods	Volume in ECTS credits
Lectures	1
Consultations	1
Seminars	1
Individual work	4

Short course annotation in Lithuanian (up to 500 characters)

Studijose analizuojami biotiniai ir abiotiniai augalų ligotumo veiksniai. Nagrinėjamos neinfekcinių ligų priežastys, simptomai, diagnostika ir plitimo kontrolė. Studijuojama virusinių, bakterinių ir grybinių ligų sukėlėjai, jų sistematika, ekologija ir dinamika. Aptariami patogeniniai procesai augaluose, imunitetas ligoms. Analizuojami modernūs augalų ligų identifikavimo, apskaitos, plitimo prognozės ir kontrolės metodai. Susipažįstama su žemės ūkio, sodo ir daržo, miško ir dekoratyvinių augalų ir augalinių produktų ligomis, jų plitimo bei žalingumo kontrole.

Short course annotation in English (up to 500 characters)

The studies analyze biotic and abiotic factors affecting plant disease. The origin, symptoms, diagnosis and control of non-infectious diseases are analyzed. The causing organisms of viral, bacterial and fungal diseases, their systematics, ecology and dynamics are studied. Pathogenic processes in plants, immunity to diseases are discussed. Plant disease identification, accounting, prediction and control methods are analyzed. Get acquainted with diseases of agriculture, horticulture, forest and ornamental plants and plant products, disease incidence, severity, harmfulness and control of their.

Relevance of the course

Upon completion of the course the students will be able to identify the causes and origin of infectious and non-infectious plant diseases; to estimate the environmental effects on the development of diseases, to understand the interaction between pathogen and host plant; to know the principals of plant disease epidemiology. Students will be able to recognize and identify most important agricultural, horticultural, forest and ornamental plant diseases and will be able to select appropriate control measures.

Students will be able to choose adequate methods for fundamental and applied research on plant pathogens, disease epidemiology and control measures; will be able to critically evaluate the research results on plant pathology.

Course aims

Aim of studies course is to acquire new knowledge about infectious and non-infectious plant diseases, their causes, origin, interaction of environment, pathogens and plants, about pathogenic microorganisms; to explore plant disease epidemiology; to gain detailed knowledge of the main agricultural plant diseases, their identification and control.

Content (topics) and methods

Topic 1. Introduction to plant pathology.
Topic 2. Non-infectious plant diseases.
Topic 3. Infectious plant diseases.
Topic 4. Plant diseases caused by viruses.
Topic5. Plant diseases caused by bacteria.
Topic 6. Plant diseases caused by fungi.
Topic 7. Plant diseases caused by parasitic higher plants.
Topic 8. Parasitism and disease development. Epidemiology of plant diseases.

Topic 9. How the pathogens attack plants and plants defend themselves against pathogens. Topic 10. Identification, assessment and forecasting of plant diseases. Topic 11. The diseases of agricultural plants: incidence, severity, harmfulness and control methods. Topic 12. The diseases of plant-derived products: prevention and control. Topic 13. The diseases of horticultural and vegetable plants: incidence, severity, harmfulness and control methods. Topic14. The diseases of forest and ornamental plants: incidence, severity, harmfulness and control methods.

Structure of cumulative score and value of its constituent parts

Individual task -25 Practical training and seminars- 25, Final exam -50 .

Compulsory reference materials

No.	Authors of publication, title, publishing house, year of publication.
1.	Agrios G.N. Plant Pathology – 5 th ed. – Elsevier Academic Press, 2005, 922 p.(1,2)[X]
2.	Biotic Interactions in Plant-pathogen Associations / edited for the British Society for Plant Pathology by M. J. Jeger, N. J. Spence. - New York, 2001, 353 p. (2)
3.	Lucas J. A. Plant Pathology and Plant Pathogens, 1998, -274 p. (1,2)
4.	Introduction to Plant Pathology / Strange Richard N. - New York: Wiley, 2003, 464 p. (2)
5.	Robert F. Nyval. Field Crop Diseases –Third edition. – Iowa State University Press/Ames, 1999.- 1021p. (2)

[X] Note: the books are available in libraries: (1) Vytautas Magnus University, Academy of Agriculture
(2) Lithuanian Research Centre for Agriculture and Forestry

Supplementary reference materials

No.	Authors of publication, title, publishing house, year of publication.
1.	Bacterial Plant Pathology: Cell and Molecular Aspects / David C. Sigee. - Cambridge, UK, 1993. 325 p. (1,2) [X]
2.	Carlile Bill. Pesticide Selectivity, Health and the Environment.- Cambrige University press, UK, 2006. 310 p. (1,2)
3.	Crop Protection Information. An International Perspective. Edited by K. M. Harris and P.R. Scott. – C.A.B. International, UK, 1989, 321 p. (2)
4.	Efficacy Evaluation of Plant Protection Products. Vol. 2 Fungicides & Bactericides: EPPO Standards.-Paris, France, 2004, 198 p. (1,2)
5.	Guidelines for the Efficacy Evaluation of Plant Protection Products. Vol. 1 Introduction, General & Miscellaneous Guidelines, New & Revised Guidelines: EPPO Standards.-Paris, France, 2004, 111 p. (2)
6.	Matthews G.A. Pesticide: Health, Safety and the Environment.-Blackwell Publishing, 2006. 235p. (1)
7.	Matthews' Plant Virology: 4nd ed. / Roger Hull, - Amsterdam, 2004, 1001 p. (2)
8.	Paul Holliday. A Dictionary of Plant Pathology – Second edition.- Cambrige University press, 1998. 536 p. (2)
9.	Plant-fungal Pathogen Interaction: a Classical and Molecular View / Hermann H. Prell, Peter R. Day, - Berlin, London, 2001, 214 p. (2)
10.	Viral Pathogenesis and Immunity / Neal Nathanson. - . New York, 2007, 266 p. (2)

[X] Note: the books are available in libraries: (1) Vytautas Magnus University, Academy of Agriculture
(2) Lithuanian Research Centre for Agriculture and Forestry

Course programme designed by

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