



No. \_\_\_\_\_ of \_\_\_\_\_

USAMV form 0101030104

**SUBJECT OUTLINE****1. Information on the programme**

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Agriculture
1.3. Department	II Crop Science
1.4. Field of study	Agronomy
1.5. Cycle of study <sup>1</sup>	Bachelor
1.6. Specialization/ Study programme	Agriculture
1.7. Form of education	Full time

**2. Information on the discipline**

2.1. Discipline name		Phytotechny 2						
2.2. Course coordinator				Prof.dr. Marcel M. DUDA				
2.3. Seminar/ laboratory/ project coordinator				Lecturer dr. Sorin MUNTEAN				
2.4. Year of study	III	2.5. Semester	II	2.6. Evaluation type	summative	2.7. Discipline status	Content <sup>2</sup>	DS
							Compulsoriness <sup>3</sup>	DI

**3. Total estimated time (teaching hours per semester)**

3.1. Hours per week - full time programme	4	out of which: 3.2. lecture	2	3.3. seminar/ laboratory/ project	2
3.4. Total number of hours in the curriculum	56	out of which: 3.5. lecture	28	3.6. seminar/laboratory	28
Distribution of the time allotted					hours
3.4.1. Study based on books, textbooks, bibliography and notes					24
3.4.2. Additional documentation in the library, electronic platforms and field experiences					15
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorials					5
3.4.5. Examinations					10
3.4.6. Other activities					
3.7. Total hours of individual study	69				
3.8. Total hours per semester	125				
3.9. Number of credits <sup>4</sup>	5				

**4. Prerequisites (if applicable)**

4.1. curriculum-related	Botany, Biochemistry, Pedology, Agrotechnics, Agrochemistry, Agricultural machinery, Phytopathology, Entomology, Irrigation, Plant Physiology, Phytotechny 1
4.2. skills-related	Students must have knowledge of: plant nutrition, physico-chemical properties of soils, biology, morphology and physiology of crop plants, weeds, pests and diseases of cultivated plants, economic thresholds, crop protection products, adjusting machinery, irrigation regime.

**5. Conditions (if applicable)**

5.1. for the course	The course is interactive, students may ask questions regarding the content of the exposure. Academic discipline requires compliance for the time to start and end of the course. No other kind of activities are tolerated during the lecture, mobile phones must be closed.
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5.2. for the seminar/ laboratory/ project	At practical works is mandatory to consult the practical book/tutor. Each student will conduct a single or small groups activity in the laboratory using materials available and described in the practical book/tutor. Academic discipline is imposed for the duration of works.
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## 6. Cumulated specific competences

Professional competences	<p>To know the specific agronomic language of the Phytotechnie.</p> <p>To know how the territory of our country is being used, the structure of the main crops and their favorability areas.</p> <p>To know the factors which determine field plant production.</p> <p>To know the areas of crop production in Romania.</p> <p>To understand the importance and role of the seed in crop production.</p> <p>To know how the seed quality control in our country is being organized.</p> <p>To know the stages of seeds control and certification in our country.</p> <p>To know the biological features of cereal plants.</p> <p>To know the importance of biology, ecology and technology of wheat cultivation.</p>
Transversal competences	<p>To demonstrate concern for continuing professional development.</p> <p>To participate in research in the experimental fields of the discipline.</p> <p>To be able to develop a project to ensure the necessary fertilizers and pesticides in wheat culture knowing their percentage of active substances.</p>

## 7. Discipline objectives (based on the cumulated specific competences)

7.1. General objective	To acquire knowledge of the importance, use, biology, ecology, zoning and cultivation technology of cereals and grain legumes.
7.2. Specific objectives	<p>To understand the necessity of cultivation, biological and ecological peculiarities of cereals and grain legumes.</p> <p>To assimilate information on the prevalence and zoning of agricultural studied species.</p> <p>To be able to apply the knowledge of cultivation of cereals and grain legumes in relation to vegetation factors and elements of their cultivation technology.</p>

## 8. Content

8.1.COURSE 28 hours	Methods of teaching	Observations
<b>CEREALS (continue Phytotechnics 1): 18 hours</b>		
<b>Wheat: Cultivation technology</b>	Lectures	1 lecture
<b>Rye: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Triticale: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Barley: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Oats: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Corn: Importance, Biology and Plant Ecology.</b>	Lectures	1 lecture
<b>Corn: Cultivation technology.</b>	Lectures	1 lecture
<b>Sorghum: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Millet: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>Rice: Importance, Biology, Plant Ecology.</b>	Lectures	1 lecture
<b>Rice: Cultivation technology.</b>	Lectures	1 lecture
<b>Buckwheat: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture
<b>PULSES: 10 ore</b>		
<b>Generalities.</b>		
<b>Peas: Importance, Biology, Ecology and Cultivation Technology.</b>	Lectures	1 lecture

Beans: Importance, Biology, Ecology and Cultivation Technology	Lectures	1 lecture
Soy: Importance, Biology, Ecology and Cultivation Technology	Lectures	1 lecture
Lentils, Chickpeas, Lupine: Importance, Biology, Ecology and Cultivation Technology	Lectures	1 lecture
Faba bean, Grass pea, Cowpea și Peanuts: Importance, Biology, Ecology and Cultivation Technology	Lectures	1 lecture
8.2.PRACTICAL WORK 28 hours Cereals (continued Phytotechnics 1) Rye and triticals (morphology, systematics and varieties)	Practical demonstration Identify categories of impurities Practical demonstration	1 laboratory work
Barley (morphology, systematics and varieties)	Practical demonstration	1 laboratory work
Oat (morphology, systematics and varieties)	Practical demonstration	1 laboratory work
Corn (morphology, systematics and hybrids)	Self-study	1 laboratory work
Assessment of autumn grain crops out of season. Sowing of springy grain cereals.	Practical demonstration	1 laboratory work
Other cereals (sorghum, millet, rice and buckwheat).	Self-study	1 laboratory work
Preparation of a technological file for a cereal species.	Submission of official documents. Models of completion.	1 laboratory work
Pulses - Biological peculiarities (species recognition by seeds, fruit and in different phases of vegetation).	Morphological presentation of grains.	1 laboratory work
Sowing of soy and corn.	Practical demonstration	1 laboratory work
Pea (morphology, systematics and varieties).	Practical demonstration	1 laboratory work
Beans (morphology, systematics and varieties).	Practical demonstration	1 laboratory work
Soybeans (morphology, systematics and varieties).	Practical demonstration	1 laboratory work
Other pulses (morphology, systematics and varieties). Preparation of a technological file for a kind of legume for grains.	Self-study	1 laboratory work
Field recognition of grains and legumes for grains. Production evaluation.	Self-study	1 laboratory work
<i>Compulsory bibliography:</i> 1. Duda M.M. (2019).- Course Notes. 2. Muntean S., M.M. Duda, C. Moldovan, Al. Ghețe, 2018, Fitotehnie – Îndrumător de lucrări practice. Partea I. Ed. Risoprint, 317 p., ISBN 978-973-53-2273-1. 3. Muntean L.S., S. Cernea, G. Morar, M.M. Duda, D.I. Vârban, S. Muntean, 2014. Phytotechnics. Edition II. Ed. Risoprint, Cluj-Napoca, ISBN 978-973-53-0506-2.		
<i>Facultative bibliography:</i> 1. Muntean L.S., 1995. Mic tratat de Fitotehnie – Cereale și leguminoase pentru boabe. Vol. I. Ed. Ceres, București. 2. Roman Gh.V., M. Ștefan, T. Robu, M. M. Duda și V. Tabără, 2015. Phytotechnics, Vol. 1. Cereals and legumes. Ed. Universitară, București. ISBN 978-606-28-0219-6. 379 p.		

**9. Corroborating the discipline content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field**

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems teachers participate in regular meetings where they meet with farmers and experts in specific areas being discussed current issues and future plant cultivation technology, control of pests and diseases with new products and new forms of fertilizer application on soil and foliage.

**10. Evaluation**

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	Presentation of the acquired knowledge regarding: importance, biology, ecology and technology of cultivation of cereals and pulses.	Oral exam	60%
10.5. Seminar/ Laboratory	Recognition of the species and the main varieties of cereals and legumes for grains. Possibility of drawing up a technological file for the cultivation of a species of cereals or pulses.	The ability to describe and recognize the species and the main varieties of cereals and legumes; technological fiche check.	40%
<b>10.6. Minimum performance standards</b>			
Sufficient mastery of the scientific information presented in lectures and practical work. Obtain the pass mark in the practical exam is a condition of participation in the oral examination..			

<sup>1</sup> Cycle of studies - choose one of the three options: Bachelor/Master/Ph.D.

<sup>2</sup> according to the educational plan

<sup>3</sup> Discipline status (compulsoriness) - choose one of the options - DI (compulsory discipline) DO (optional discipline) DFac (facultative discipline).

<sup>4</sup> One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on  
04.09.2019

Course coordinator  
Prof.dr. Marcel M. DUDA

Laboratory work/seminar coordinator  
Lecturer dr. Sorin MUNTEAN

Approved by the  
department on  
05.09.2019

Head of the Department  
Prof.dr. Marcel M. DUDA