



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

USAMV-CN- form-0101040102

**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 Plant culture
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	Phytotechnics 4							
2.2. Course coordinator	Prof. Dan VARBAN Phd.							
2.3. Seminar/ laboratory/ project coordinator	Associate professor Sorin Muntean Phd.							
2.4. Year of study	IV	2.5. Semester	II	2.6. Evaluation type	summative	2.7. Discipline status	Continut <sup>2</sup>	DD
							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	40	out of which: 3.5. lecture	20	3.6. seminar/laboratory	20
Distribution of the time allotted					hours
3.4.1. Study based on books, textbooks, bibliography and notes					20
3.4.2. Additional documentation in the library, electronic platforms and field experiences					20
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					10
3.4.5. Examinations					10
3.4.6. Other activities					
3.7. Total hours of individual study	80				
3.8. Total hours per semester	120				
3.9. Number of credits <sup>4</sup>	4				

**4. Prerequisites (if applicable)**

4.1. curriculum-related	Pedology, Agrochemistry, Botany, Agro-technical, Phytopathology, Entomology, Irrigation, Physiology
4.2. skills-related	The student must have knowledge about plant nutrition, physico-chemical properties of soils, biology and morphology of crop plants and weeds, diseases and pests of plants, economic damage thresholds, pests control products, irrigation regime

**5. Conditions (if applicable)**

5.1. for the course	The course is interactive, students can ask questions about the content of the exhibition. The university discipline requires the observance of the start and end time of the course. No other activities are tolerated during the lecture, mobile phones should be closed.
5.2. for conducting the seminar /	At the labs works it is compulsory to consult the practical guide, each student will



laboratory / project	carry out an individual activity with the laboratory materials made available and described in the practical works guide.
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**6. Cumulated specific competences**

Professional competences	<p>To know the agronomic language specific to the discipline Phytotechnics</p> <p>To know the areas of favorability of plants</p> <p>To understand the mechanisms of nutrition and control of diseases and pests</p> <p>To recognize the main cultivated species, weed species, pests and diseases.</p> <p>To acquire the means of quantitative and qualitative increase of production</p> <p>To know the phenomena of growth and development of plants</p> <p>To master the mechanisms and adjustments to agricultural machinery used for maintenance and harvesting</p> <p>To thoroughly master the cultivation technologies</p>
Transversal competences	<p>Demonstrate the ability to develop a cultivation technology for plants grown in the field</p> <p>Be able to develop projects to ensure the need for fertilizers and pesticides knowing the percentage of active substance</p> <p>To be able to think of practical activities regarding the adaptation of certain elements of technology for specific conditions</p> <p>To show concern about professional development</p> <p>To participate in research activities in the field of experience of the discipline</p>

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

7.1. General objective	To acquire knowledge about biology, plant relationships with vegetation factors and cultivation technologies
7.2. Specific objectives	<p>To customize the knowledge of plant growth and development, the relationships with the vegetation factors and the elements of the cultivation technology for each particular crop plant</p> <p>To be able to develop a cultivation technology of any crop plant adapted to the pedoclimatic and economic conditions in a favorable agricultural area in the country.</p>

**8. Content**

8.1. COURSE Number of hours – 20	Teaching methods	Observations
<b>Oilseed plants</b> Importance, spread, cultivated areas worldwide and in our country.	Lecture	1 lecture= 2 hours
<b>Sunflower</b> The importance of culture, the chemical composition of the main product, cultivated areas, systematics, varieties, biology, ecology, areas of cultivation, cultivation technology.	Lecture	2 lecture= 4 hours
<b>Flax for oil and mixed flax</b> The importance of culture, the chemical composition of the main product, cultivated areas, systematics, varieties, biology, ecology, areas of cultivation, cultivation technology.	Lecture	1 lecture= 2 hours
<b>Rape (rapeseed)</b> Importance of culture, chemical composition of the main product, cultivated surfaces, systematics, varieties, biology, ecology, cultivation areas, cultivation technology	Lecture	1 lecture= 2 hours
<b>Textile plants</b> Importance, spread, cultivated areas worldwide and in our country <b>Flax for fiber</b> The importance of culture, the chemical composition of the main product, cultivated areas, systematics, varieties,	Lecture	2 lecture= 4 hours



biology, ecology, areas of cultivation, cultivation technology		
<b>Hemp for fiber</b> The importance of culture, the chemical composition of the main product, cultivated areas, systematics, varieties, biology, ecology, areas of cultivation, cultivation technology	Lecture	1 lecture= 2 hours
<b>Hemp for seed</b> Cultivation technology	Lecture	1 lecture= 2 hours
<b>Cotton</b> The importance of culture, the chemical composition of the main product, cultivated areas, systematics, varieties, biology, ecology, areas of cultivation, cultivation technology	Lecture	1 lecture= 2 hours

8.2. LABORATORY WORK Number of hours – 20	Teaching methods	Observations
<b>Oilseed plants</b> <b>Sunflower</b> The morphological anatomical characteristics of the sunflower Systematics of the sun flower. Determination of the carbonogen layer Determination % of shells. Determination of TGW (thousand grains weight), HM (hectolitic mass) seed and seed quantity per hectare.	The study of the plant	1 laboratory work= 2 hours
<b>Preparation of the technology sheet at sunflower.</b>	The individual study	2 laboratory work= 4 hours
<b>Rape</b> Morphological anatomical differences between Colza rape and Naveta rape The rape systematics Determination of TGW (thousand grains weight), HM (hectolitic mass) seed and seed quantity per hectare.	The individual study	1 laboratory work= 2 hours
<b>Preparation of the technological sheet at the rape</b>	The individual study	1 laboratory work= 2 hours
<b>Ricin (castor oil seed)</b> The morphological anatomical characteristics of the castor The castor systematics	The study of the plant	1 laboratory work= 2 hours
<b>Camelina</b> The morphological anatomical characteristics of the camelina Camelina systematics		
<b>Textile plants</b> <b>Flax</b> The morphological anatomical characteristics of the flax for oil and fiber Determining the thickness of the strains, the quality classes of the flax tow, TGW (thousand grains weight), HM (hectolitic mass) seed and seed quantity per hectare.	The study of the plant	1 laboratory work= 2 hours
<b>Hemp</b> The morphological anatomical characteristics of the hemp Determination of TGW (thousand grains weight), HM (hectolitic mass) in seed and seed quantity per hectare.	The study of the plant	1 laboratory work= 2 hours
<b>Cotton</b> The morphological anatomical characteristics of the cotton	Practical demonstration	1 laboratory work= 2 hours



Differentiation between flax, hemp and cotton fibers Sowing of technical crops in field conditions and care works		
<b>Verification of knowledge</b>		1 laboratory work= 2 hours
<b>Bibliography Required:</b>		
1. Vârban D. (2016).- Note de curs		
2. Muntean L.S., S. Solovăstru, G. Morar, M. Duda, D. Vârban, S. Muntean, C. Moldovan, 2014, FITOTEHNIE, Ed. Risoprint, Cluj-Napoca		
3. Roman Gh., G. Morar, T. Robu, M. Ștefan, V. Tabără, M. Axinte, I. Borcean, S. Cernea, 2012, Fitotehnie, Vol II Plante tehnice, medicinale și aromatice, Ed. Universitară, București		
Morar G., Cernea S., Duda M., Ștef L., 1997, Lucrări practice de Fitotehnie partea a II-a, Tipografia Agronomia Cluj-Napoca		
<b>Optional bibliography:</b>		
1. Muntean L.S., S. Solovăstru, G. Morar, M. Duda, D. Vârban, S. Muntean, 2008, FITOTEHNIE, Ed. AcademicPres, Cluj-Napoca.		
2. Muntean L.S., S. Solovăstru, G. Morar, M. Duda, D. Vârban, S. Muntean, 2011, FITOTEHNIE, Ed. Risoprint, Cluj-Napoca.		
3. Lucrări științifice Anale INCDCSZ 1967-2013		

**9. Corroborating the contents of the discipline with the expectations of the representatives of the epistemic communities, professional associations and representative employers in the field related to the program**

In order to identify ways of modernizing and continuously improving the teaching and the content of the courses, with the most current topics and practical problems, the teachers participate in meetings where they meet with farmers and specialists in the field, being debated current and perspective aspects of technology, plant cultivation, control of diseases and pests with new products and application of new forms of soil and foliage fertilizers.

**10. Evaluation**

Activity type	10.1. Evaluation criterias	10.2. Methods of evaluation	10.3. Percentage of the final grade
<b>10.4. Cours</b>	Assessment of the knowledge acquired by the biology, the relations of the plants with the factors of vegetation, the technology of cultivation and conservation of the plants	Written exam	70%
<b>10.5. Seminar / Laboratory</b>	Recognition of the studied species Plant morphology and systematics Determination of the carbonogen layer Presentation of the intensive technologies of cultivation of the studied plants	It is planned to evaluate the knowledge of the studied plants and to verify the cultivation technology developed by the student	30%

**10.6. Minimum standard of performance**

Mastery of scientific information transmitted through lectures and practical papers at an acceptable level. Obtaining the passing mark for the practical exam is a condition of participation in the oral exam.

<sup>1</sup> The cycle of studies - one of the variants is chosen - Bachelor / Master / Doctorate

<sup>2</sup> Discipline regime (content) - level undergraduate choose one of variantele- DF (fundamental discipline), DD (discipline domain), SD (Specialized discipline), DC (complementary discipline).

<sup>3</sup> The regime of the discipline (compulsory) - one of the variants is chosen - D1 (compulsory discipline) DO (optional discipline) DFac (facultative discipline).

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

Date completed  
04.09.2019

Course holder  
Prof. Dan VÂRBAN Phd.

Holder of laboratory works / seminars  
Associate professor Sorin Muntean Phd..

Date of approval in the department  
05.09.2019

Department Director  
Prof. Marcel DUDA Phd.