**ANEXA6**

# DISCIPLINE DESCRIPTION

**1. Information on the study programme**

| | |
|---|---|
| 1.1 Academic institution | **UNIVERSITY OF ORADEA** |
| 1.2 Facultatea | **FACULTY OF ENVIROMENTAL PROTECTIO** |
| 1.3 Department | **AGRICULTURE - HORTICULTURE** |
| 1.4 Field of study | **HORTICULTURE** |
| 1.5 Cycle of study | **LICENCE** |
| 1.6 Study programme/Qualification | **HORTICULTURE/ ENGINEER** |

**2. Information on the discipline**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.1 Name of discipline | GENERAL VEGETABLE SCIENCE I | | | | | | |
| 2.2 Course holder | Chief of works dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | | | |
| 2.3 Seminar/Laboratory/Project holder | | | | | | | |
| 2.4 Year of study | III | 2.5 Semester | V | 2.6 Type of evaluation | Ex | 2.7 Regime of discipline | I |

(C) Compulsory; (O) Optional; (E) Elective

**3. Total estimate time** (hours per semester of didactic activities)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 Number of hours per week | 4 | Out of wich: 3.2 course | 2 | 3.3 seminar/laboratory/project | 2 |
| 3.4 Total hours in the curriculum | 56 | Out of wich: 3.5 curs | 28 | 3.6 seminar/laboratory/project | 28 |
| Time allotment | | | | | Hours |
| Study assisted by manual, course support, bibliography and notes | | | | | 30 |
| Additional documentation in the library/ on specialised electronic platforms and in the field | | | | | 50 |
| Preparation of seminars/laboratories/ topics/reports, portfolios and essays | | | | | 20 |
| Tutorship | | | | | 4 |
| Examinations | | | | | 4 |
| Other activities..... | | | | | |
| **3.7 Total hours of individual study** | **108** | | | | |
| **3.9 Total hours per semester** | **164** | | | | |
| **3.10 Number of credits** | 5 | | | | |

**4. Prerequisites** (where appropriate)

| | |
|---|---|
| 4.1 curriculum | Botany, Pedology, Agrochemistry, Plant Physiology |
| 4.2 competences | Student must have knowledge of Botany, Agrometeorology, Plant physiology and soil characteristics. |

**5. Conditions** (where appropriate)

| | |
|---|---|
| 5.1. related to course | Respect for the didactic program, active participation of the student in the content of the course |
| 5.2. related to seminar/laboratory/ project | Practical classes require order and discipline, the adoption of a specific attitude, the active participation in the working team, or the individual according to the content of the work. |

| **6. Specific competences acquired** | |
|---|---|
| Professioal skills | **C1.** Development and use of sustainable horticultural production technologies<br>**C2**.Diagnosis and solution of problems related to the organization and management of horticultural farms |
| Transversal skills | **CT2.** Applying effective communication techniques in specific activities of teamwork, assuming a role within the team and respecting the principles of division of labor |

**7. Objectives of discipline** (coming from the specific competences acquired)

| | |
|---|---|
| 7.1 General objective | The subject of Vegetable Culture aims at knowing the cultivated vegetable species; elaboration of high-performance technologies for vegetable crops; studying all the factors for the success of high-performance productions; the use of state-of-the-art materials in vegetable growing |
| 7.2 Specific objectives | The content of the seminar papers is based on the need to deepen the problems presented in the course.<br>The knowledge is useful in the formation of skills regarding the approach to the specific problems faced by a specialist in a vegetable farm. |

**8. Content***

| 8.1 Course | Methods of teaching | No. of hours/Remarks |
|---|---|---|

| | | |
|---|---|---|
| **Chap. 1. VEGETABLE SCIENCE AND VEGETABLES**<br>1. The social and economic importance of vegetable growing<br>1.1. The importance of vegetables in the diet<br>1.2. Consumption of vegetables<br>1.3. The economic importance of vegetable growing | Theoretical lectures related to the course topic. Student contributions on course-specific topics are requested | 4 |
| **Cap. 2. VEGETABLE PRODUCTION IN ROMANIA AND IN OTHER COUNTRIES**<br>2.1. The evolution and situation of vegetable growing<br>2.2. International trade in vegetables<br>2.3. Evolution and situation of production in the contemporary period 2.4. Brief history of vegetable cultivation<br>2.5. The history of vegetable growing on the Romanian territory | Theoretical lectures related to the course topic. Student contributions on course-specific topics are requested | 4 |
| . **Cap. 3 Diversity and classification of vegetable plants**<br>3.1.Origin and evolution of vegetable plants<br>3.2. Classification of vegetable plants<br>3.3.Cultivation essential factor in production<br>3.4.Agroeconomic classification of vegetables. | Theoretical lectures related to the course topic. Student contributions on course-specific topics are requested | 4 |
| **Cap.4 Peculiarities of vegetable growth and development**<br>4.1 The stages of the vegetation phases<br>4.2.Seed and germination<br>4.3.Vegetative growth<br>4.4.Flowering and fruiting<br>4.5. The old age phase. | Theoretical lectures related to the course topic. Student contributions on course-specific topics are requested | 4 |
| . **Cap. 5. The relationships of vegetable plants with environmental factors and their management through the organization of technology.**<br>5.1. Solar radiation.<br>5.2. Temperature.<br>5.3. Water and crop irrigation.<br>5.4. Air as a factor of vegetation.<br>55. Mineral nutrition, soil and crop fertilization | Theoretical lectures related to the course topic. Student contributions on course-specific topics are requested | 12 |

Bibliography


1. Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca
2. Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.
3. Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea
4. Cărbunar M.-Legumicultură generală şi specială, Oradea,2010
5. Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti
6. Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.
7. Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti
8. Maier I., 1969 – Culutra legumelor. Editura Agro-silvică, Bucureşti.
9. Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.

10. Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.
11. Săulescu N. A., Săulescu N.N., - 1967 – Câmpul de experienţe. Editura Agro-Silvică, Bucureşti.


| 8.2 Seminar | Methods of teaching | No. of hours/ Remarks |
|---|---|---|
| 8.3 Laboratory | | |
| 1. Morpho-anatomical study of the main species and varieties of vegetables. | Practical application | 4 |
| 2. Knowledge of vegetable seeds. | Recognition of vegetable seeds | 6 |
| 3 Knowledge of vegetables in the young phase | Recognition of young vegetables | 4 |
| 4. Greenhouses and solariums used in vegetable growing | Knowledge of constructions in vegetable growing | 2 |
| 5. Vegetable nurseries. | Knowledge of constructions in vegetable growing | 2 |
| 6. Preparation of greenhouses and solariums for cultivation. | Practical application | 4 |
| 7. Preparation of biofuel heated nurseries | Practical application | 2 |
| 8. Installations used in greenhouses, solariums and nurseries. | Practical application | 3 |
| 9. Summary test | Colloquy | 1 |
| | | |
| 8.4 Project | | |


Bibliography:

1.Apahideanu al. S., Maria Apahideanu – 2001 Legumicultură specială. Editura Academic Pres, Cluj-Napoca

2.Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.

3.Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea

4.Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti

5.Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.

6.Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti

7.Indrea D. Alex.-Silviu Apahidean 2004,Ghidul cultivatorului de legume Ed. Ceres Bucureşti

8.Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.

9.Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.


* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

**9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme**

The analysis and evaluation of the effectiveness of measures applied to increase vegetable production and

rural development and their impact on the environment and quality of life presented in this course makes it agreed by epistemic communities, social partners, professional associations and employers in the field of Horticulture. The content of the discipline is found in the curriculum of the Agriculture specialization and from other university centers in Romania that have accredited this specialization, so that the knowledge of the basic notions is an important requirement for all employers in the field.

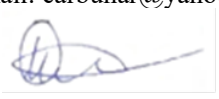
**10. Evaluation**

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the final grade |
|---|---|---|---|
| 10.4 Course | For grade 5: All subjects must be solved at minimum standards<br>For grades >5: All subjects must be solved at maximum standards | Written exam – duration 2 hours | 80 % |
| 10.5 Seminar | | | |
| 10.6 Laboratory | In the last laboratory session students must present their laboratory work and the results obtained | All laboratory work must be performed, provided you enter the exam.<br>- The value of the laboratory is 20% of the exam grade.<br>- Only the recovery of an outstanding laboratory is allowed (in the last week of the semester) | 20 % |
| 10.7 Project | | | |
| 10.8 Minimum standard of performance: Knowledge of the requirements of vegetable species towards pedoclimatic factors, recognition of the main vegetable species | | | |
| | | | |

Date of completion 01.10.2018

Signature of course holder**
Chief of works dr.ing.Cărbunar Mihai
E-mail: carbunar@yahoo.com

Signature of laboratory holder **
Chief of works dr.ing.Cărbunar Mihai
E-mail: carbunar@yahoo.com



Date of approval in the department

.....

Signature of the Head of Department

Phd.dr.ing. Bandici Gheorghe

Dean signature

Phd.dr.ing. Chereji Ioan

.....

** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.

.....

# DISCIPLINE DESCRIPTION

**1. Information on the study programme**

| | |
|---|---|
| 1.1 Academic institution | **UNIVERSITY OF ORADEA** |
| 1.2 Faculty | **FACULTY OF ENVIROMENTAL PROTECTION** |
| 1.3 Department | **AGRICULTURE- HORTICULTURE** |
| 1.4 Field of study | **HORTICULTURE** |
| 1.5 Cycle of study | **LICENCE** |
| 1.6 Study programme/Qualification | **HORTICULTURE/ ENGINEER** |

**2. Information on the discipline**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.1 Name of discipline | GENERAL VEGETABLE SCIENCE II | | | | | | |
| 2.2 Course holder | Chief of works dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | | | |
| 2.3 Seminar/Laboratory/Project holder | | | | | | | |
| 2.4 Year of study | III | 2.5 Semester | VI | 2.6 Type of evaluation | Ex | 2.7 Regime of discipline | I |

(C) Compulsory; (O) Optional; (E) Elective

**3. Total estimate time** (hours per semester of didactic activities)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 Number of hours per week | 4 | Out of wich: 3.2 course | 2 | 3.3 seminar/laboratory/project | 2 |
| 3.4 Total hours in the curriculum | 56 | Out of wich: 3.5 course | 28 | 3.6 seminar/laboratory/project | 28 |
| Time allotment | | | | | Hours |
| Study assisted by manual, course support, bibliography and notes | | | | | 30 |
| Additional documentation in the library/ on specialised electronic platforms and in the field | | | | | 50 |
| Preparation of seminars/laboratories/ topics/reports, portfolios and essays | | | | | 20 |
| Tutorship | | | | | 4 |

| | |
|---|---|
| Examinations | 4 |
| Other activities..... | |
| **3.7 Total hours of individual study** | **108** |
| **3.9 Total hours per semester** | **164** |
| **3.10 Number of credits** | 5 |

**4. Prerequisites** (where appropriate)

| | |
|---|---|
| 4.1 curriculum | Botany, Pedology, Agrochemistry, Plant physiology, Fitopatology, Entomology, Agrotechnics |
| 4.2 competences | The student must have knowledge of Botany, Agrometeorology, Plant Physiology, works and soil characteristics, as well as phytosanitary protection |

**5. Conditions** (where appropriate)

| | |
|---|---|
| 5.1. related to course | Respecting the didactic program, the active participation of the student in the course content. |
| 5.2. . related to seminar/laboratory/ project | At the practical work hours it is necessary to respect the order and discipline, to adopt a specific outfit, to actively participate in the work team, or individually depending on the content of the work. |

| **6. Specific competences acquired** | |
|---|---|
| Professionl skills | **C1.** Development and use of sustainable horticultural production technologies<br>**C2.**Diagnosis and solution of problems related to the organization and management of horticultural farms |
| Transversal skills | **CT2.** Applying effective communication techniques in specific activities of teamwork, assuming a role within the team and respecting the principles of division of labor |

**7. Objectives of discipline** (coming from the specific competences acquired)

| | |
|---|---|
| 7.1 General objective | The discipline of Vegetable Science aims to know the cultivated vegetable species; developing advanced technologies for vegetable crops; studying all the factors for the success of some performant |

| | |
|---|---|
| | productions; use of latest generation materials in vegetable growing |
| 7.2 Specific objectives | The content of the seminar works is based on the need to deepen the problems presented in the course.<br>Knowledge is useful in forming skills to address the specific problems faced by a specialist in a vegetable farm. |

**8. Content***

| 8.1 Course | Methods of teaching | No. of hours/Remarks |
|---|---|---|
| **Chap. 1 Basics of vegetable intensification.**<br>1.1. Zoning, concentration and specialization of vegetable production.<br>1.2. Vegetable production units and technical equipment | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 4 |
| **Chap.2 Rational use and land preparation for vegetable crops.**<br>2.1. Choice and landscaping<br>2.2. Crop rotation and rotation<br>2.3.Successive and associated vegetable crops<br>2.4. Soil works in vegetable growing<br>2.5.Fertilization of vegetable crops | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 6 |
| **Chap3. Establishment of vegetable crops**<br>3.1. The specificity of the multiplication of vegetable species<br>3.2.Sowing and preparation for sowing<br>3.3.Production of vegetable seedlings<br>3.4.Care work applied to seedlings<br>3.5. Planting seedlings | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 8 |
| **Chap.4. Vegetable maintenance work**<br>4.1. Improving the thermal regime, combating frosts and frosts<br>4.2.General care works<br>4.3.Special care works | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 6 |
| **Chap.5. Harvesting, conditioning and capitalizing on vegetables**<br>5.1.Vegetable harvesting | Theoretical lectures related to the course subject. Intercalated | 4 |

| | | |
|---|---|---|
| 5.2.Quality and conditioning of vegetables<br>5.3.Packaging and transport of vegetables<br>5.4.Valorization of vegetables | student contributions are requested on subject-specific subjects | |


Bibliography

1.Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca

2.Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.

3.Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea

4.Cărbunar M.-Legumicultură generală şi specială, Oradea,2010

5.Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti

6.Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.

7.Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti

8.Maier I., 1969 – Culutra legumelor. Editura Agro-silvică, Bucureşti.

9.Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.

10.Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.

11.Săulescu N. A., Săulescu N.N., - 1967 – Câmpul de experienţe. Editura Agro-Silvică, Bucureşti.

12.Stan T. N., Stan N. T. – 1999 – Legumicultură, Vol.I., Editura Ion Ionescu de la Brad


| 8.2 Seminar | Methods of teaching | No. of hours/ Remarks |
|---|---|---|
| 8.3 Laboratory | | |
| 1 Mixtures used in the production of seedlings | Practical application | 2 |
| 2. Preparing the soil for greenhouses and nurseries | Practical application | 2 |
| 3. Sowing vegetables in greenhouses multiplier and nurseries. | Practical application | 2 |
| 4. Pots and nutrient cubes used for transplanting | Practical application | 2 |
| 5. Transplanting and maintenance work applied to seedlings. | Practical application | 4 |
| 6. Land preparation works for sowing. | Practical application | 2 |
| 7. Sowing and sowing methods | Practical application | 2 |
| 8. Planting vegetables | Practical application | 2 |
| 9. Field maintenance work | Practical application | 2 |
| 10. Maintenance work in greenhouses and solariums | Practical application | 4 |
| 11. Harvesting vegetables | Practical application | 2 |
| 12. Summary test | colloquy | 2 |
| 8.4 Project | | |


Bibliography:

1.Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca

2.Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.

3.Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea

4.Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti

5.Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.

6.Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti
7.Indrea D. Alex.-Silviu Apahidean 2004,Ghidul cultivatorului de legume Ed. Ceres Bucureşti
8.Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.
9.Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.


* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

**9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme**

The analysis and evaluation of the efficiency of the measures applied for increasing vegetable production and rural development, as well as their impact on the environment and quality of life presented in this course makes it agreed by epistemic communities, social partners, professional associations and employers. Horticulture license. The content of the discipline is found in the curriculum of Horticulture and other university centers in Romania that have accredited this specialization, so that knowledge of the basics is an important requirement for all employers in the field.

**10. Evaluation**

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the final grade |
|---|---|---|---|
| 10.4 Course | For grade 5: All subjects must be solved at minimum standards<br>For grades >5: All subjects must be solved at maximum standards | Written exam – duration 2 hours | 80 % |
| 10.5 Seminar | | | |
| 10.6 Laboratory | In the last laboratory session students must present their laboratory work and the results obtained | All laboratory work must be performed, provided you enter the exam.<br>- The value of the laboratory is 40% of the exam grade.<br>- Only the recovery of an outstanding laboratory is allowed (in the last week of the semester) | 20 % |
| 10.7 Project | | | |
| 10.8 Minimum standard of performance: Knowledge of the requirements of vegetable species towards pedoclimatic factors, recognition of the main vegetable species | | | |
| | | | |

Date of completion

01.10.2018

Signature of course holder**

Chief of works Dr.ing.
Cărbunar Mihai Marcel
E-mail: carbunar@yahoo.com

Signature of seminar laboratory/project holder **

Chief of works Dr. Ing.
Cărbunar Mihai Marcel
E-mail: carbunar@yahoo.com

Date of approval in the department

.....

Signature of the Head of Department

Phd. Dr. Ing. Bandici Gheorghe

…….

Dean signature

Phd. Dr. Ing. Chereji Ioan

……

** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.

.....

# DISCIPLINE DESCRIPTION

**1. Information on the study programme**

| | |
|---|---|
| 1.1 Academic institution | **UNIVERSITY OF ORADEA** |
| 1.2 Faculty | **FACULTY OF ENVIROMENTAL PROTECTION** |
| 1.3 Department | **AGRICULTURE - HORTICULTURE** |
| 1.4 Field of study | **HORTICULTURĂE** |
| 1.5 Cycle of study | **LICENCE** |
| 1.6 Study programme/Qualification | **HORTICULTURE/ ENGINEER** |

**2. Information on the discipline**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.1 Name of discipline | | **SPECIAL VEGETABLE SCIENCE I** | | | | | |
| 2.2 Course holder | | Chief of works.dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | | |
| 2.3 Seminar/Laboratory/Project holder | | Chief of works.dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | | |
| 2.4 Year of study | IV | 2.5 Semester | VII | 2.6 Type of evaluation | Ex;Pr | 2.7 Regime of discipline | I |

(C) Compulsory; (O) Optional; (E) Elective

**3. Total estimate time** (hours per semester of didactic activities)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 Number of hours per week | 4 | Out of wich: 3.2 curs | 2 | 3.3 seminar/laboratory/project | 2 |
| 3.4 Total hours in the curriculum | 56 | Out of wich: 3.5 curs | 28 | 3.6 seminar/laboratory/project | 28 |

| Time allotment | Hours |
|---|---|
| Study assisted by manual, course support, bibliography and notes | 30 |
| Additional documentation in the library/ on specialised electronic platforms and in the field | 60 |
| Preparation of seminars/laboratories/ topics/reports, portfolios and essays | 20 |
| Tutorship | 4 |
| Examinations | 4 |
| Other activities ..... | |

| | |
|---|---|
| **3.7 Total hours of individual study** | **118** |
| **3.9 Total hours per semester** | **174** |
| **3.10 Number of credits** | **4+1** |

**4. Prerequisites** (where appropriate)

| | |
|---|---|
| 4.1curriculum | Botany, Plant Physiology, Agrochemistry, Agrotechnics, General Vegetable Culture |
| 4.2 competences | Students must know, at least at the intermediate level General vegetable growing. |

**5. Conditions** (where appropriate)

| | |
|---|---|
| 5.1. related to course | During the course students must maintain order, discipline, not to undertake other activities but to actively participate with questions in any ambiguities. |
| 5.2. related to seminar/laboratory/ project | For practical work, appropriate attire is required for the work, it is mandatory to consult the practical work guides and laboratory materials. Also, consulting the course in advance will facilitate and improve the laboratory activity. |

**6. Specific competences acquired**

| | |
|---|---|
| Professional skills | **C1.** Development and use of sustainable horticultural production technologies<br>C4. Production and capitalization of seeds and horticultural planting material |
| Transversal skills | **CT2.** Applying effective communication techniques in specific activities of teamwork, assuming a role within the team and respecting the principles of division of labor |

**7. Objectives of discipline** (coming from the specific competences acquired)

| | |
|---|---|
| 7.1 General objective | The special Vegetable Culture discipline aims at knowing the cultivated vegetable species; elaboration of high-performance technologies for vegetable crops; studying all the factors for the success of high-performance productions; the use of state-of-the-art materials in vegetable growing |
| 7.2 Specific objectives | The content of the seminar papers is based on the need to deepen the problems presented in the course.<br>The knowledge is useful in the formation of skills regarding the approach to the specific problems faced by a specialist in a vegetable farm. |

**8. Content***

| 8.1 Course | Methods of teaching | No. of hours/Remarks |
|---|---|---|
| **Chap.1. Root vegetables.**<br>1.1. Carrot culture.<br>1.2. Parsley culture.<br>1.3. The culture of parsnips.<br>1.4. Celery culture.<br>1.5. Radish culture.<br>1.6. Beetroot culture.<br>1.7. Cinnamon culture.<br>1.8. Goat beard culture. | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 6 |
| Chap. 2. Vegetables from the cabbage group. | Theoretical lectures | 8 |

| | | |
|---|---|---|
| 2.1. White cabbage head culture: importance, relationships with vegetation factors, crop technology in the field and forced cultivation.<br>2.2. Red cabbage cultivation.<br>2.3. Cultivation of kale.<br>2.4. Brussels sprouts culture.<br>2.5. Leafy cabbage cultivation.<br>2.6. Chinese cabbage culture.<br>2.7. Cauliflower culture.<br>2.8. Broccoli culture.<br>2.9. The culture of gulia. | related to the course subject. Intercalated student contributions are requested on subject-specific subjects | |
| **Cap. 3.** Solanaceous vegetables<br>3.1. Tomato culture. in the field, greenhouses and solariums.<br>3.2. Pepper culture. in the field, greenhouses and solariums<br>. 3.3. Eggplant culture. in the field, greenhouses and solariums. | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 8 |
| **Cap. 4.** Cucurbitum vegetables.<br>4.1. Cucumber culture. in greenhouses and solariums.<br>4.2. Watermelon culture.<br>4.3. Watermelon culture.<br>4.4. Pumpkin culture. | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 6 |

Bibliography


1. Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca
2. Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.
3. Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea
4. Cărbunar M.-Legumicultură generală şi specială, Oradea,2010
5. Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti
6. Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.
7. Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti
8. Maier I., 1969 – Culutra legumelor. Editura Agro-silvică, Bucureşti.
9. Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.
10. Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.
11. Săulescu N. A., Săulescu N.N., - 1967 – Câmpul de experienţe. Editura Agro-Silvică, Bucureşti.


| 8.2 Seminar | Methods of teaching | No. of hours/ Remarks |
|---|---|---|
| 8.3 Laboratory | | |

| | | |
|---|---|---|
| 1. Carrot varieties and hybrids | | 1 |
| 2. Parsley, parsnip and celery varieties and hybrids | | 1 |
| 3. Varieties and hybrids of radishes and beets | | 1 |
| 4. White cabbage varieties and hybrids | | 1 |
| 5. Red and cabbage varieties and hybrids | | 1 |
| 6. Brussels sprouts and hybrids of Chinese cabbage and leaves | | 1 |
| 7. Cauliflower varieties and hybrids, broccoli, and kale | | 1 |
| 8. Tomato varieties and hybrids | | 1 |
| 9. Pepper varieties and hybrids | | 1 |
| 10. Eggplant varieties and hybrids | | 1 |
| 11. Cucumber varieties and hybrids | | 1 |
| 12. Melon varieties and hybrids | | 1 |
| 13. Watermelon varieties and hybrids | | 1 |
| 14. Zucchini varieties and hybrids | | 1 |
| 8.4 Project | | 1 |
| Theme: Establishment and operation of a vegetable microfarm. | | |
| Chap. 1 General notions about microfarm components | | 2 |
| Chap. 2 Establishment of crops<br>2.1. Choice of species<br>2.2. Establishment of crop rotation<br>2.3. Calculation of seed requirement | | 4 |
| Chap. 3. Establishment of cultures and culture technologies<br>3.1.Necessary machines and equipment<br>3.2.Establishing the need for fertilizers and pesticides<br>3.3.Elaboration of culture technology for each species<br>3.4.Evaluation of the harvest<br>3.5.Economic calculations | | 6 |
| Final evaluation of the project | | 1 |

Bibliography:


1. Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca
2. Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.
3. Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea
4. Cărbunar M.-Legumicultură generală şi specială, Oradea,2010
5. Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti
6. Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.
7. Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti
8. Maier I., 1969 – Culutra legumelor. Editura Agro-silvică, Bucureşti.
9. Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.
10. Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.
11. Săulescu N. A., Săulescu N.N., - 1967 – Câmpul de experienţe. Editura Agro-Silvică, Bucureşti.


* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

**9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme**

The analysis and evaluation of the efficiency of the measures applied for increasing vegetable production and rural development, as well as their impact on the environment and quality of life presented in this course makes it agreed by epistemic communities, social partners, professional associations and employers. Horticulture license. The content of the discipline is found in the curriculum of Horticulture and other university centers in Romania that have accredited this specialization, so that knowledge of the basics is an important requirement for all employers in the field.

**10. Evaluation**

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the final grade |
|---|---|---|---|
| 10.4 Course | For grade 5: All subjects must be solved at minimum standards<br>For grades >5: All subjects must be solved at maximum standards | Written exam – duration 2 hours | 80 % |
| 10.5 Seminar | | | |
| 10.6 Laboratory | In the last laboratory session students must present their laboratory work and the results obtained | All laboratory work must be performed, provided you enter the exam.<br>- The value of the laboratory is 20% of the exam grade.<br>- Only the recovery of an outstanding laboratory is allowed (in the last week of the semester) | 20 % |
| 10.7 Project | It will be checked if all the elements required in the project plan have been achieved. | Individual presentation of each project. | 100 % |
| 10.8 Minimum standard of performance: Knowledge of the requirements of vegetable species towards pedoclimatic factors, recognition of the main vegetable species | | | |
| | | | |

| Date of completion | Signature of course holder** | Signature of seminar laboratory/project holder ** |
|---|---|---|
| 01.10.2016 | Chief of works Dr.ing.<br>Cărbunar Mihai Marcel<br>E-mail: carbunar@yahoo.com | Chief of works Dr. Ing.<br>Cărbunar Mihai Marcel<br>E-mail: carbunar@yahoo.com |

Date of approval in the department

.....

Signature of the Head of Department

Phd. Dr. Ing. Bandici Gheorghe

…….

Dean signature

Phd. Dr. Ing. Chereji Ioan

……

** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.
.....

# DISCIPLINE DESCRIPTION

**1. Information on the study programme**

| | |
|---|---|
| 1.1 Academic institution | **UNIVERSITY OF ORADEA** |
| 1.2 Faculty | **FACULTY OF ENVIROMENTAL PROTECTION** |
| 1.3 Department | **AGRICULTURE - HORTICULTURE** |
| 1.4 Field of study | **HORTICULTURĂE** |
| 1.5 Cycle of study | **LICENCE** |
| 1.6 Study programme/Qualification | **HORTICULTURE/ ENGINEER** |

**2. Information on the discipline**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2.1 Name of discipline | | | **SPECIAL VEGETABLE SCIENCE II** | | | | |
| 2.2 Course holder | | | Chief of works dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | |
| 2.3 Seminar/Laboratory/Project holder | | | Chief of works dr. Ing. CĂRBUNAR MIHAI MARCEL | | | | |
| 2.4 Year of study | IV | 2.5 Semester | VIII | 2.6 Type of evaluation | Ex | 2.7 Regime of discipline | I |

(C) Compulsory; (O) Optional; (E) Elective

**3. Total estimate time** (hours per semester of didactic activities)

| | | | | | |
|---|---|---|---|---|---|
| 3.1 Number of hours per week | 4 | Out of wich: 3.2 course | 2 | 3.3 seminar/laboratory/project | 2 |
| 3.4 Total hours in the curriculum | 40 | Out of wich: 3.5 curs | 20 | 3.6 seminar/laboratory/project | 20 |

| | |
|---|---|
| Time allotment | hours |
| Study assisted by manual, course support, bibliography and notes | 30 |
| Additional documentation in the library/ on specialised electronic platforms and in the field | 60 |
| Preparation of seminars/laboratories/ topics/reports, portfolios and essays | 20 |
| Tutorship | 4 |
| Examinations | 4 |
| Other activities..... | |

| | |
|---|---|
| **3.7 Total hours of individual study** | **118** |
| **3.9 Total hours per semester** | **158** |
| **3.10 Number of credits** | **5** |

**4. Prerequisites** (where appropriate)

| | |
|---|---|
| 4.1 curriculum | Botany, Plant Physiology, Agrochemistry, Agrotechnics, General Vegetable Culture |
| 4.2 competences | Students must know, at least at the intermediate level General vegetable growing. |

**5. Conditions** (where appropriate)

| | |
|---|---|
| 5.1. related to course | During the course students must maintain order, discipline, not to |

| | |
|---|---|
| | undertake other activities but to actively participate with questions in any ambiguities. |
| 5.2. related to seminar/laboratory/ project | For practical work, appropriate attire is required for the work, it is mandatory to consult the practical work guides and laboratory materials. Also, consulting the course in advance will facilitate and improve the laboratory activity. |

| **6. Specific competences acquired** | |
|---|---|
| Professional skills | **C1. Development and use of sustainable horticultural production technologies**<br>**C4. Production and capitalization of seeds and horticultural planting material** |
| Transversal skills | **CT2. Applying effective communication techniques in specific activities of teamwork, assuming a role within the team and respecting the principles of division of labor** |

**7. Objectives of discipline** (coming from the specific competences acquired)

| | |
|---|---|
| 7.1 General objective | The special Vegetable Culture discipline aims to deepen the knowledge regarding the relations with the vegetation factors for each vegetable species, the elaboration of the cultivation technologies for each vegetable species, the implementation of the cultivation technologies of the vegetable species cultivated in protected areas |
| 7.2 Specific objectives | The content of the seminar papers is based on the need to deepen the problems presented in the course.<br>The knowledge is useful in the formation of skills regarding the approach to the specific problems faced by a specialist in a vegetable farm. |

**8. Content***

| 8.1 Course | Methods of teaching | No. of hours/Remarks |
|---|---|---|
| **Chap.1Green vegetables:** | Theoretical lectures | 6 |

| | | |
|---|---|---|
| 1.1. Garden salad,<br>1.2.Spanacul,<br>1.3.The garden shed<br>1.4. The garden chicory<br>1.5. Forcing chicory,<br>1.6.Radition,<br>1.7.The Florence fennel | related to the course subject. Intercalated student contributions are requested on subject-specific subjects | |
| **Chap.2 Bulbous vegetables:**<br>**2.1 Onions,**<br>**2.2.Garlic,**<br>**2.3.Leeks,**<br>**2.4.Winter onions,**<br>**2.5.Egyptian onions,**<br>**2.6.Cut onions** | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 6 |
| **Chap.3.**<br>Seasoning vegetables<br>3.1: Dill,<br>3.2.The thyme,<br>3.3.Busuiocul,<br>3.4.Tharon,<br>3.5.Levisticum | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 2 |
| **Cap.4. Perennial vegetables:**<br>**4.1.Asparagus,**<br>**4.2.The event,**<br>**4.3.Horse redish,**<br>**4.4.Artichokes,**<br>**4.5.Macrisul,**<br>**4.6.Ştevia** | Theoretical lectures related to the course subject. Intercalated student contributions are requested on subject-specific subjects | 4 |
| **Cap.5. Cultivated mushrooms:**<br>**5.1.White mushroom,**<br>**5.2.Pleurotus mushrooms** | | **2** |

| 8.2 Seminar | Methods of teaching | No. of hours/ Remarks |
|---|---|---|
| 8.3 Laboratory | | |
| 1. Lettuce varieties and hybrids | | 1 |
| 2. Spinach and loboda varieties and hybrids | | 1 |
| 3. Garden chicory varieties and hybrids | | 1 |
| 4. Onion varieties and hybrids | | 1 |
| 5. Winter onion, pruning and Egyptian varieties and hybrids | | 1 |
| 6. Dill and thyme varieties and hybrids | | 1 |
| 7. Basil, tarragon and larch varieties and hybrids | | 1 |
| 8. Asparagus varieties and hybrids | | 1 |
| 9. Resale varieties and hybrids, and horseradish | | 1 |

| | | |
|---|---|---|
| 10. Artichoke, sorrel and stevia varieties and hybrids | | 1 |
| 8.4 Project | | |


Bibliography

1. Apahideanu al. S., Maria Apahideanu – 2001 legumicultură specială. Editura Academic Pres, Cluj-Napoca
2. Dumitrescu M. şi colab., 1998 – Producerea legumelor. Editura Ceres, Bucureşti.
3. Cărbunar M.,Domuţa C.2009-Elemente de tehnologie a tomatelor în solarii,Ed.Univ. Oradea
4. Cărbunar M.-Legumicultură generală şi specială, Oradea,2010
5. Ciofu Ruxandra şi colab.-2004, Tratat de legumicultură, Ed. Ceres,Bucureşti
6. Horgoş A., 1999 – Legumicultură specială. Editura Mirton, Timişoara.
7. Indrea D. şi colab ,2007. – Cultura legumelor, Ed. Ceres Bucureşti
8. Maier I., 1969 – Culutra legumelor. Editura Agro-silvică, Bucureşti.
9. Popescu V. – 1996 – Legumicultură. Vol.I. Editura Ceres, Bucureşti.
10. Popescu V., Horgoş A. – 2003 – Tratat de legumicultură. Editura Ceres, Bucureşti.
11. Săulescu N. A., Săulescu N.N., - 1967 – Câmpul de experienţe. Editura Agro-Silvică, Bucureşti.


* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

**9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme**

The analysis and evaluation of the efficiency of the measures applied for increasing vegetable production and rural development, as well as their impact on the environment and quality of life presented in this course makes it agreed by epistemic communities, social partners, professional associations and employers. Horticulture license. The content of the discipline is found in the curriculum of Horticulture and other university centers in Romania that have accredited this specialization, so that knowledge of the basics is an important requirement for all employers in the field.

**10. Evaluation**

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the final grade |
|---|---|---|---|
| 10.4 Course | For grade 5: All subjects must be solved at minimum standards<br>For grades >5: All subjects must be solved at maximum standards | Written exam – duration 2 hours | 80 % |
| 10.5 Seminar | | | |
| 10.6 Laboratory | In the last laboratory | As an entry exam | 20 % |

| | | | |
|---|---|---|---|
| | session students must present their laboratory work and the results obtained | condition, all the laboratory work has to be done.<br>Only one laboratory recovery is allowed (in the last week of the semester) | |
| 10.7 Project | | | |
| 10.8 Minimum standard of performance: Knowledge of the requirements of vegetable species towards pedoclimatic factors, recognition of the main vegetable species | | | |
| | | | |

Date of completion

01.10.2016

Signature of course holder**

Chief of works Dr.ing.
Cărbunar Mihai Marcel
E-mail: carbunar@yahoo.com

Signature of seminar laboratory/project holder **

Chief of works Dr. Ing.
Cărbunar Mihai Marcel
E-mail: carbunar@yahoo.com

Date of approval in the department

.....

Signature of the Head of Department

Phd. Dr. Ing. Bandici Gheorghe

…….

Dean signature

Phd. Dr. Ing. Chereji Ioan

……

** - Name, first name, academic degree and contact details (e-mail, web page, etc.) will be specified.