INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Agroecology			Field of study	Earth Sciences		
Bachelor in	Zootechnical Engineering			School	School of Agriculture		
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	1	Code	9129-312-2101-00-22		

Workload (hours)	162	Contact hours	T	TP	PL	TC	S	E	OT	O
			30	-	30	-	-	-	20	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Luís de Sousa Costa, Tomás de Aquino Freitas Rosa Figueiredo

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. The effect of the different elements of climate on plant development.
2. Interpret meteorological information relevant to climate classification.
3. Identify and characterize the different soil components.
4. The soil properties and their influence on plant development.
5. The nutrients that are essential for plant growth.
6. Techniques for assessing soil fertility status.
7. Recognize the importance of land resources in the ecosystems.

Prerequisites

Before the course unit the learner is expected to be able to:
None.

Course contents

Factors affecting crop yield. Atmosferic phenomena, climate factors, climate characterization. The soil: formation and the major components. Physical and chemical properties. Soil and plant relationships. Plant nutrition. Soil fertility evaluation. Practical classes: instruments of measurement of the climate, climatic data. Hydrological balance and climatic classification. Soil properties and soil fertility.

Course contents (extended version)

1. Climatic factors that affect the plant growth.
   - Astronomical causes of the atmospheric phenomena
   - Elements of climate and his effect in the development of the plants.
2. The soil
   - Soil formation. Organic and mineral constituents.
   - Physical and chemical soil properties.
3. Plant Nutrition and soil nutrients behaviour.
4. Techniques to the soil fertility evaluation.
5. Pratical Classes: Climate
   - Iinstruments and measurement of the elements of climate: climatic data and practical use.
   - Hydrological balance and climatic classification.
6. Practical Classes: Soil
   - Study of soil properties.
   - Evaluation of soil fertility.

Recommended reading

1. Feio, Mariano (1991) Clima e Agricultura. MAPA, Lisboa; Gonçalves, Dionísio (1980) Cadeira de Climatologia. IPVR, Vila Real.
2. Yague, F. (1989) Iniciacion a la Meteorologia Agrícola. MAPA/Mundi-rensa, Madrid.
3. Porta, L. , M. López Acevedo e C. Roquero. 1999. Edafologia para la agricultura y el medio ambiente. 2º ed. Ediciones Mundi-Prensa. Madrid.
4. Santos, J Q. 2000. Fertilização. Fundamentos da utilização dos adubos e correctivos. Colecção Euroagro. Publicações Europa-América
5. Costa, J. B. 1991. Caracterização e constituição do solo. 4ª ed. Fundação Calouste Gulbenkian. Lisboa

Teaching and learning methods

Lectures with exposure of the subjects. Practical classes with activities and exercises. Provision of study materials and work protocol . Support and assistance to the students.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
   - Practical Work - 40% (Practical Work - 40% (Practicals performed with positive assessement))
   - Final Written Exam - 60% (Final Written Exam - 60% (assessing all topics lectured, practical items with residual weigth))
2. Alternative 2 - (Student Worker) (Final, Supplementary, Special)
   - Final Written Exam - 100% (Final Written Exam - 100% (Exam assessing also practicals, 50%, minimum score 10/20))

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Luís de Sousa Costa, Tomás de Aquino Freitas Rosa Figueiredo	Margarida Maria Pereira Arrobas Rodrigues	Marieta Amélia Martins Carvalho	Maria Sameiro Ferreira Patrício
06-12-2022	21-12-2022	21-12-2022	21-12-2022