

Course Unit	General Agriculture		Field of study	Agriculture and Animal Production	
Bachelor in	Zootechnical Engineering		School	School of Agriculture	
Academic Year	2023/2024	Year of study	1	Level	1-1
Type	Semestral	Semester	2	ECTS credits	6.0
Code	9129-815-1203-00-23				
Workload (hours)	162	Contact hours	T -	TP -	PL -
			TC -	S -	E -
			OT -	O -	

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) Jaime Camilo Afonso Maldonado Pires, Álvaro José Lopes César

#### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. To know the main techniques in agricultural production.
2. To know how to use the agricultural equipment considering safety conditions and risk prevention.
3. To know how to choose the most appropriate equipment considering economic conditions and environment maintenance.
4. To acquire ability to plan and install a system of production of pastures and forage appropriate to certain ecological conditions and livestock production.
5. To know about pasture and forage management in order to improve its profitability (consumption, production factors and cultivation techniques).

#### Prerequisites

Before the course unit the learner is expected to be able to:

1. To know physical units.
2. To know physical and chemical soil characteristics.
3. To have basic knowledge on agriculture, climate and botany.

#### Course contents

Agricultural systems. Soil technology. Mechanization of agricultural operations. Automated systems of information in the control of agricultural equipment and its application in agriculture of precision. Background forage and pasture in agriculture. Fundamentals of forage and pasture production. Morphology and physiology of grasses and legumes growth in temperate zones. Deployment of pasture and forage. Management of pasture and forage. Fodder conservation.

#### Course contents (extended version)

1. Subsectors of agriculture activity.
  - General characterization.
  - Geographic and economic expression, conjuncture and prospects.
  - Its connections to animal production.
  - Agriculture systems, soil technology.
2. Fundamentals on traction units.
  - Mechanization of agricultural operations, soil management, fertilization, seeding and planting.
  - Equipment for crop protection and defense and Harvest equipment (forage, grains and fruits).
  - Costs of using agricultural equipment.
3. Background forage and pasture in agriculture.
  - Fundamentals of forage and pasture production.
  - Morphology and physiology of grasses and legumes growth in temperate zones.
  - Botanical classification, morphological characteristics, requirements for soil and climatic
  - Deployment of pasture and forage.
  - Management of pasture and forage. Mountain pastures. Fodder conservation.

#### Recommended reading

1. Moreira, N. 2002. Agronomia das forragens e pastagens. Ed. UTAD, Vila Real, 183 pp
2. Elorza, Pilar Barreiro et al, 2012. Las Maquinas Agrícolas Y Su Aplicación, Mundi-Prensa, Madrid.
3. Terrón, Pedro Urbano. 2008. Fitotecnia: ingeniería de la producción vegetal. Mundi-Prensa, Madrid
4. Stafford, J. V. (ed). 2007. Precision agriculture 07. Wageningen Academic Publishers. Netherlands.
5. Villalobos, Francisco J. et al. 2009. Fitotecnia : bases y tecnologías de la producción agrícola. Mundi-Prensa, Madrid

#### Teaching and learning methods

Presentation of the themes to develop in the unit curriculum, resolution of practical application problems and field works. Field work for application of knowledge with elaboration of technical reports. Resources: agricultural equipment available in ESA or provided by businesses.

#### Assessment methods

1. Evaluation 1 - (Regular, Student Worker) (Final)
  - Intermediate Written Test - 50%
  - Final Written Exam - 50%
2. Evaluation 2 - (Regular, Student Worker) (Supplementary, Special)

#### Language of instruction

Portuguese, with additional English support for foreign students.

#### Electronic validation

Álvaro José Lopes César, Jaime Camilo Afonso Maldonado Pires	Arlindo Castro Ferreira Almeida	Marieta Amélia Martins Carvalho	José Carlos Batista Couto Barbosa
01-02-2024	02-02-2024	02-02-2024	02-02-2024