

Updated On	2021/09/28										
Curricular Year / Period	2021/22 / S1										
Course	Agronomia										
Curricular Unit	Pedologia										
Language(s) of Instruction	Português										
ECTS/tempo de trabalho (horas)	ECTS	Total	Horas de contacto semestral								
	3		T	TP	PL	S	TC	E	O	OT	EC
				32	16						
<p>T - Theoretical; TP - Theoretical and practical; LP - Laboratory Practice; S - Seminar; TG - Tutorial guidance; FW - Fieldwork; T - Training; ; EC - Clinical teaching; O* - Other hours typified as Clinical Training under the Directive 77/453/EEC of June 27, adapted by Directive 2005/36/EC.</p>											
Teacher in charge (GDPR consent) <small>[complete name, email]</small>	José António Vaz Caraças Telo Da Gama / jose.gama@ippportalegre.pt										
Prerequisites <small>[Curricular Units that must precede and specific entry competences]</small>											
Learning outcomes <small>[Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]</small>	<p>1. Knowledge of soil genesis. 2. Deep knowledge of the three phases that make up the soil (solid, liquid and gaseous). 3. The relationship between the three phases referred to above, what is their agronomic importance and which balances favor agricultural activity. 4. What techniques are available to humanity in order to create the balance between phases most favorable to agricultural activity. 5. A deep understanding of water and/or wind erosion processes, as well as the knowledge of the main conservation techniques. 6. Make students aware of soil, usability and aptitude cards. 7. Present to students the soil classification proposed by FAO, indicating which soil groups are most frequent in Portugal and what are their characteristics. Also in this item the students should be able to describe profiles and classify soils using the FAO classification.</p> <p>Skills to acquire</p> <p>1. Know the three phases that make up the soil 2. Know and understand the main characteristics of the three phases that constitute the soil and its implications for the agricultural potential of these soils. 3. Correctly use a set of knowledge to improve soil pedological characteristics, optimizing in each case its productive potential. 4. Know the factors that influence the erodibility of soils and use the most appropriate techniques for its preservation.</p>										
Syllabus	<p>1. Constitution of the soil 1.1 Soil and Pedon Concepts 1.2 Soil constituents 1.3 Factors of soil formation. Profile Concept 2. Characteristics and properties of soil 2.1 Basics 3. Soil organic matter 3.1 Properties and characteristics of soil organic substances 3.2 Types of existing organic matter 3.3 Main functions of soil organic matter 4. Cation Exchange 4.1 Exchange Cations 4.2 Adsorption Theories 5. Soil water 5.1 Definitions 5.2 Soil Water Classification 5.3 Ground water retention and displacement 5.4 Relationship between permeability and moisture stress</p>										

	<p>5.4.1 pF Scales</p> <p>5.5 Measurement of infiltration rate</p> <p>5.6 Field Capacity and Withering Coefficient</p> <p>5.7 Consistency of soil in very moist, moist and dry state.</p> <p>5.8 Soil expandability and contractibility</p> <p>6. The atmosphere of the soil</p> <p>6.1 Soil characterization for air</p> <p>6.2 Air Permeability</p> <p>6.3 Soil Air Composition</p> <p>6.3.1 Soil Air Renewal</p> <p>6.3.2 Influence of aeration on soil processes and its properties and plant life</p> <p>7. Soil structure</p> <p>7.1 Fundamental Concepts</p> <p>7.2 Meaning and importance of soil structure</p> <p>7.3 Aggregates genesis</p> <p>7.4 Soil Structure Classification</p> <p>8. The color of the soil</p> <p>8.1 Factors on which it depends</p> <p>8.2 Munsell Color Chart</p> <p>9. Soil Temperature</p> <p>9.1 Factors on which soil temperature depends</p> <p>9.2 Soil thermal regime</p> <p>10. Soil acidity and alkalinity</p> <p>10.1 General</p> <p>10.2 Soil reaction</p> <p>10.3 Soil Buffering Power</p> <p>10.4 Soil Reaction Correction</p> <p>11. Soil erosion and conservation</p> <p>11.1 Water erosion</p> <p>11.2 Wind Erosion</p> <p>12. Cartography and soil classification</p> <p>12.1 Basics of Topography and Cartography</p> <p>12.2 Soil Charts</p>
<p>Teaching methodologies (including assessment)</p> <p>[Specify the types of assessment and the weights and evaluation criteria]</p>	<p>1 - Teaching methodologies</p> <p>A methodology based on practical theoretical classes seems to us to be the best option for imparting skills to students in this area of knowledge. This methodology will be accompanied by some field classes with direct observation of profiles, followed by laboratory classes for soil classification. Two theoretical validation tests are performed.</p> <p>2 - Period assessment</p> <p>Two theoretical tests with a weight of 50% each.</p> <p>3 - Examination assesement</p> <p>Theoretical test, weighing 100%</p>
<p>Bibliography</p>	<p>1 - Main Bibliography</p> <p>Singer, M. J., 2005. Soils: An Introduction (6th Edition);</p> <p>Costa, J. B., 1995. Caracterização e constituição do solo. Fundação Calouste Gulbenkian Eds. Lisboa, Portugal. 527 p;</p> <p>Porta, J., López-Acevedo, M. & Roquero, C., 1994. Edafologia para la agricultura y el medio ambiente. Ediciones Mundi-Prensa (Eds).. p. 225 241. Madrid, Espanha;</p> <p>Santos, J. Q., 1995. Fertilização e Poluição. Joaquim Quelhas dos Santos Eds.. Lisboa, Portugal. 192 p.</p> <p>Foth, H., 1990. Fundamentals of Soil Science, eighth edition. John Wiley & Sons. (Eds.) p. 164-186. New York.</p> <p>Miller, R. & Donahue, R., 1995. Soils in Our Environment, seventh edition... Prentice Hal Eds. I. 649 p.</p>

	<p>Sparks, D. L., 1986. Soil physical chemistry. CRC Press Eds. New York, EUA. 307 p.</p> <p>Sparks, D. L., 1995. Environmental soil chemistry. Academic Press Inc. Eds. New York, EUA. 267 p</p> <p>Food and Agriculture Organization (FAO). 2009. Base referencial mundial del recurso suelo. Informes sobre recursos mundiales de suelos. FAO, Roma.</p> <p>2 - Complementary Bibliography</p>
<p>Special Situations [Students with special status]</p>	<p>1 - Period assessment - Students with special status</p> <p>2 - Examination assesement - Students with special status</p>