

<b>Updated On</b>	2023/03/28																																
<b>Curricular Year / Period</b>	2022/23 / S2																																
<b>Course</b>	CTeSP - Agricultural Production																																
<b>Curricular Unit</b>	Botany and Plant Physiology																																
<b>Language(s) of Instruction</b>	Português português																																
<b>ECTS/tempo de trabalho (horas)</b>	<table border="1"> <thead> <tr> <th>ECTS</th><th>Total</th><th colspan="8">Horas de contacto semestral</th></tr> <tr> <th></th><th></th><th>T</th><th>TP</th><th>PL</th><th>S</th><th>TC</th><th>E</th><th>O</th><th>OT</th><th>EC</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> <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>	ECTS	Total	Horas de contacto semestral										T	TP	PL	S	TC	E	O	OT	EC											
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<b>Teacher in charge (GDPR consent)</b> [complete name, email]	Orlanda De Lurdes Viamonte Povia / opovia@ipportalegre.pt																																
<b>Prerequisites</b> [Curricular Units that must precede and specific entry competences]																																	
<b>Learning outcomes</b> [Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]	<p>With the curricular unit of Botany and Plant Physiology it is intended to make known to the students the external morphology of higher plants, as well as notions of taxonomy and plant systematics. It is also intended to equip students with knowledge about the major physiological processes of higher plants.</p> <ol style="list-style-type: none"> <li>1 - To know and to identify the morphology of the seed and the process of germination of the superior plants.</li> <li>2 - To know and to identify the external morphology of the root of the superior plants.</li> <li>3 - To know and to identify the external morphology of the stems of the superior plants.</li> <li>4 - To know and to identify the external morphology of the leaves of the superior plants.</li> <li>5 - To know and to identify the external morphology of the inflorescences and flowers of the superior plants.</li> <li>6 - To know and to identify the external morphology of the fruits, fruits, pseudofrutos and infructescences.</li> <li>7 - Know the rules of botanical and systematic plant nomenclature.</li> <li>8 - Know how to identify plants.</li> <li>9 - To know the processes of absorption and translocation of water and solutes in the plant.</li> <li>10 - Know the process of perspiration.</li> <li>11 - To know the different metabolisms of the photosynthesis of the higher plants.</li> <li>12 - Know the mechanisms of plant development.</li> <li>13 - To know techniques of sexual and asexual reproduction of cultivated species</li> </ol>																																
<b>Syllabus</b>	<ol style="list-style-type: none"> <li>1 - Seed morphology and seed germination.</li> <li>2 - Root morphology.</li> <li>3 - Stem morphology.</li> <li>4 - Leaf morphology.</li> <li>5 - Inflorescence and flower morphology.</li> <li>6 - Morphology of fruits, fruits, pseudofrutos and infructescences.</li> <li>7 - Taxonomy and nomenclature of higher plants.</li> <li>7.1 - Identification of crop weeds.</li> <li>8 - Absorption and translocation of water and solutes in the plant.</li> <li>9 - Plant transpiration.</li> <li>10 - Photosynthesis.</li> <li>11 - Vegetative productivity.</li> <li>12 - Plant development.</li> <li>13 - Sexual reproduction of cultivated upper plants.</li> <li>14 - Asexual reproduction of cultivated upper plants.</li> </ol>																																
<b>Teaching methodologies (including assessment)</b> [Specify the types of assessment and the weights and evaluation criteria]	<b>1 - Teaching methodologies</b>																																

	<p>Theoretical classes with explanation of concepts and discussion. Theoretical-practical classes with exercises and presentation and analysis of practical cases. Laboratory classes with practical experiences.</p> <p>All practical evaluation reports should be made available to teachers in digital format.</p> <p>In order to waive the final exam the students must obtain a grade in the intermediate evaluations of 9.5 or higher; being the minimum classification of each of the theoretical tests and the seed identification test 8.5 values. Therefore, it is not mandatory to obtain a minimum classification for the practical weed identification report, nor in the botanical showcase (corresponding to 20% of the UC).</p> <p><b>2 - Period assessment</b></p> <p>1. Practical test of seed identification: 15%</p> <p>2. Identification of weeds (practical report): 10%</p> <p>3. Botanical showcase (practice): 10%</p> <p>4.1 - written test 1 - plant Morphology: 30%</p> <p>4.2 - written test 2 - plant Physiology: 35%</p> <p>All practical evaluation reports should be made available to teachers in digital format.</p> <p>For approval, presence at 75% of classes is mandatory (except working students or other students with special status).</p> <p>In order to waive the final exam the students must obtain a grade in the intermediate evaluations of 9.5 or higher; being the minimum classification of each of the theoretical tests and the seed identification test 8.5 values. Therefore, it is not mandatory to obtain a minimum classification for the practical weed identification report, nor in the botanical showcase (corresponding to 20% of the UC).</p> <p><b>3 - Examination assesement</b></p> <p>1. Practical test of seed identification: 15%</p> <p>2. Identification of weeds (practical report): 10%</p> <p>3. Botanical showcase (practice): 10%</p> <p>4.1 - written test 1 - plant Morphology: 30%</p> <p>4.2 - written test 2 - plant Physiology: 35%</p> <p>All practical evaluation reports should be made available to teachers in digital format.</p> <p>For approval, presence at 75% of classes is mandatory (except working students or other students with special status).</p> <p>In order to waive the final exam the students must obtain a grade in the intermediate evaluations of 9.5 or higher; being the minimum classification of each of the theoretical tests and the seed identification test 8.5 values. Therefore, it is not mandatory to obtain a minimum classification for the practical weed identification report, nor in the botanical showcase (corresponding to 20% of the UC).</p>
<b>Bibliography</b>	<p><b>1 - Main Bibliography</b></p> <p>Vasconcellos, J.C. 1969. Noções sobre a morfologia externa das plantas superiores. Ministerio da Economia, Direcção Geral dos Serviços Agrícolas. Lisboa.</p> <p>Yague, J. L. F. 1994. Botanica Agrícola. Mundi-Prensa. Madrid.</p> <p>Pereira, J.M. et al. 2010. Manual de trabalhos práticos em Biologia vegetal. UTAD. Vila Real.</p> <p>Espirito-Santo, M.D; Monteiro; A.M.2009. Infestantes das culturas agrícolas, Chaves de identificação. IsaPress.Lisboa.</p> <p>Vasconcellos, J.C. 2000. Infestantes das Searas. Chaves dicotómicas para a sua identificação antes da floração. DGPC.Lisboa.</p> <p>Saldivar, R. H.L. 1994. Fisiologia Vegetal. Editorial Trillas</p> <p><b>2 - Complementary Bibliography</b></p> <p>Bibliografia complementar</p> <p>Nobel, P.S. 1999. Plant Physiology. California Academic Press.</p> <p>Raven, P., Evert, R. Eichhorn, S. 1996. Biologia Vegetal. Editora Guanabara Koogan. Rio de Janeiro</p> <p>Hartmann, H.T., Kester, D.E., Davies, F.T., Geneve, R. 2002. Hartmann and Kester's Plant Propagation principles and practices. Prentice Hall. New Jersey</p> <p>Baskin, C., Baskin, J. 1998. Seeds, ecology, biogeography and evolution of dormancy and germination. Academic Press. London.</p> <p>Desai, B.B., Kotecha, P.M., Salunkhe, D.K. 1997. Seed handbook. Biology, production, processing and storage. Marcel Dekker. New York.</p> <p>Laranjo. J.G. 2004. Conceitos de termodinâmica para fisiologia vegetal. UTAD. Vila Real.</p> <p>Laranjo, J. G. 2005. Conceitos de nutrição mineral em Fisiologia vegetal. UTAD. Vila Real.</p>
<b>Special Situations</b> [Students with special status]	<p><b>1 - Period assessment - Students with special status</b></p>

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**2 - Examination assesement - Students with special status**

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