

<b>Course name</b>	<b>Anatomical Features of Micropropagated Plants</b>	
<b>Course code</b>	<b>E.1z.AFP.SC.ECTIE.O</b>	
<b>Department</b>	<b>Institute of Plant Biology and Biotechnology, Unit of Botany and Plant Anatomy</b>	
<b>Faculty</b>	<b>Faculty of Biotechnology and Horticulture</b>	
<b>Course supervisor/Lecturer</b>	<b>Dr. Sc. Ewa Hanus-Fajerska, Alina Wiszniewska Ph.D.</b>	
<b>General information</b>	<b>Semester</b>	<b>winter or summer semester</b>
	<b>ECTS credits</b>	<b>6</b>
	<b>Lectures total</b>	<b>10 h</b>
	<b>Classes/labs/field classes</b>	<b>20 h</b>
<b>Objective and general description</b>	<p>The objective of the course is to present differences and similarities of development and structure between plants propagated traditionally and in tissue culture. Classes provide valuable practice on sectioning and staining procedures. Students are encouraged to study the anatomy of tissue cultured plants through creative exercises.</p>	
<b>Lectures 10 h</b> <b>5 x 2h</b>	<ol style="list-style-type: none"> <li>1. Principles of <i>in vitro</i> development of plant organs.</li> <li>2. Developmental biology (development of axillary and adventitious meristems, reproductive organs)</li> <li>3. Phases of growth (juvenile and adult phase, rejuvenation, etiolation)</li> <li>4. Hyperhydricity and malformation of cultured plants</li> <li>5. Differences between <i>in vitro</i> and <i>ex vitro</i> plant organs (stems, roots and leaves)</li> </ol>	
<b>Classes (labs) 20 h</b> <b>6 x 3h, 1 x 2h</b>	<ol style="list-style-type: none"> <li>1. Sectioning and staining procedures for anatomical studies, introduction to microscopy (2 h)</li> <li>2. Anatomical phases during adventitious root formation (3h).</li> <li>3. The anatomy of the root-to-shoot interface (1 h).</li> <li>4. The anatomy of adventitious buds and stems (3 h)</li> <li>5. The structure of <i>in vitro</i> developed leaves (the mesophyll, epidermis and cuticule structure, the stomatal apparatus) (3h)</li> <li>6. Anatomical features of reproductive organs developed <i>in vitro</i> (3 h)</li> <li>7. The anatomy of hyperhydric and malformed plant organs (3 h)</li> <li>8. Adventitious meristems in <i>in vitro</i> culture of unorganized tissue (2 h)</li> </ol>	
<b>References</b>	<ol style="list-style-type: none"> <li>1. Anatomy and morphology of tissue cultured plants. In: Plant propagation by tissue culture. Volume 1. The background. 2008. Eds. George E.F., Hall M.A., de Klerk G-J. Springer</li> <li>2. Vitrification: morphological and physiological disorders of <i>in vitro</i> plants. In: Micropropagation. Technology and application. 1993. Eds. Debergh P.C., Zimmerman R.H. Kluwer Academic Publishers</li> </ol>	

	3. Plant Tissue Culture: An Introductory Text. 2013. Eds. Bhojwani S.S., Dantu P.K., Springer India.
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