

Module designation	<i>Soilless Culture Technologi</i>
Semester(s) in which the module is taught	<i>6th</i>
Person responsible for the module	<i>Ir. Yohannes C Ginting, M.S</i>
Language	<i>Indonesian language</i>
Relation to curriculum	<i>elective</i>
Teaching methods	<i>Lectures (100 minutes) Practicum sessions (170 minutes)</i>
Workload (incl. contact hours, self-study hours)	<i>Contact hours : 14 weeks x 100 minutes Structured learning: 14 weeks x 120 minutes Independent study: 14 weeks x 120 minutes Practicum sessions: 14 weeks x 170 minutes</i>
Credit points	<i>3 (2-1) CP or 4.76 (ECTS) ((14 weeks x 100 minutes) + (14 weeks x 120 minutes) + (14 weeks x 120 minutes) + (14 weeks x 170 minutes)) : 60 minutes/hour = 119 hours : 25 study hours/ECTS = 4.76 (ECTS)</i>
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	<ul style="list-style-type: none"> - <i>Students are able to apply the basic concepts and principles of cultivation technology and the development of sustainable agriculture technology</i> - <i>Students are able to identify, formulate, solve problems, and apply plant science, plant protection, soil science, socio-economic agriculture, and plant production engineering principles that are oriented towards good agricultural practices (GAP)</i> - <i>Students are able to plan, design, implement and develop plant production with the latest and environmentally friendly technology creatively and innovatively</i>
Content	<i>The principle of controlling the plant growing environment. Types of plant growing systems and media. Source of nutrition, movement, and management of nutrients in plants. Types of soilless cultivation systems, soilless media tags, solution composition and control of soilless cultivation systems, system modification and environment.</i>
Examination forms	<i>oral presentation, essay</i>

Study and examination requirements	<p><i>Participants are evaluated based on their performance in class (lectures) (70%) and lab (practicum) (30%).</i></p> <p><i>Performance in theory (100%):</i> <i>Mid Exam (20%)</i> <i>Final Exam (20%)</i> <i>Assignments (40%)</i> <i>Class participation (10%)</i> <i>Individual quiz (10%)</i></p> <p><i>Performance in practicum (100%):</i> <i>Practicum exam (30%)</i> <i>Pre-test or post-test (10%)</i> <i>Experiment reports (60%)</i></p>
Reading list	<ol style="list-style-type: none"> <i>1. Raviv, M., H. Lieth, A. Bar-Tal. 2019. Soilless Culture: Theory and Practice Theory and Practice. Department of Environmental Horticulture, Israel. 712p.</i> <i>2. Michael Raviv, J. H. Lieth. 2007. Soilless Culture: Theory and Practice. Elsevier Science. 608p</i> <i>3. Schwarz, M. 1995. Soilless Culture Management. Springer Berlin, Heidelberg. 197p.</i> <i>4. Suryani, R. 2015. Hidroponik Budi Daya Tanaman Tanpa Tanah. Penerbit: Arcitra. 191p.</i>