



USK
UNIVERSITAS
SYIAH KUALA

FACULTY OF AGRICULTURE
DEPARTMENT OF SOIL SCIENCE

UNDERGRADUATE PROGRAM

MODULE HANDBOOK

Module designation	Irrigation and Drainage (SSOL2036)
Semester(s) in which the module is taught	4 th Semester
Person responsible for the module	Prof. Dr. Ir. Hairul Basri, M.Sc
Language	Indonesian, English
Relation to curriculum	Compulsory module for Soil Science Department
Teaching methods	Lecture, small group discussion, interactive discussion
Workload (incl. contact hours, self-study hours)	<ul style="list-style-type: none">✓ 100 minutes lecture and discussion per week✓ 120 minutes structured tasks per week✓ 120 minutes learn to be independent per week
Credit points	2 SKS = 3.2 ECTS
Required and recommended prerequisites for joining the module	SSOL1002
Module objectives/intended learning outcomes	<ul style="list-style-type: none">✓ Students can explain the basic concepts of irrigation and drainage systems, as well as calculate flow rates and crop water requirements.✓ Students can explain irrigation networks and structures, irrigation efficiency, irrigation water quality, as well as various methods of irrigation and drainage for agricultural land.✓ Students can design, operate, and maintain irrigation and drainage systems, as well as develop solutions to problems related to agricultural land management
Content	This course covers the scope and fundamental concepts of irrigation and drainage systems, including flow rates and crop water requirements, various methods of irrigating and draining agricultural land, the operation and maintenance of irrigation systems, and issues related to the management of irrigation and drainage in agricultural areas.
Exams and assessment formats	Assignment, Quiz, Midterm exam, Final exam
Study and examination requirements	<ul style="list-style-type: none">✓ Quiz: 5%✓ Assignment: 5%✓ Case Method: 50%✓ Midterm exam: 20%✓ Final exam: 20%

Reading list	<ol style="list-style-type: none"><li data-bbox="679 197 1402 387">1. De Wrachien, D., Schultz, B., & Goli, M. B. (2021). Impacts of population growth and climate change on food production and irrigation and drainage needs: A world-wide view. <i>Irrigation and Drainage</i>, 70(5), 981-995.<li data-bbox="679 405 1402 595">2. . Van Der Zee, S. E. A. T. M., Stofberg, S. F., Yang, X., Liu, Y., Islam, M. N., & Hu, Y. F. (2017). Irrigation and drainage in agriculture: a salinity and environmental perspective. <i>Current perspective on irrigation and drainage</i>, 1-21<li data-bbox="679 613 1402 763">3. Li, X., Zhang, C., & Huo, Z. (2020). Optimizing irrigation and drainage by considering agricultural hydrological process in arid farmland with shallow groundwater. <i>Journal of Hydrology</i>, 585, 124785.<li data-bbox="679 781 1402 925">4. Vlotman, W., Smedema, L., & Rycroft, D. (2020). <i>Modern land drainage: Planning, design and management of agricultural drainage systems</i>. CRC Press.
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