Course Module

Technology of Soil & Water Conservation

Faculty of Forestry

Mulawarman University

Module name	Technology of Soil & Water Conservation
Modul level, if applicable	Undergraduate Program
Code, if applicable	190401602P118
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	VI
Person responsible for the module	Ir. Sri Sarminah, M.P.
Lecturers	1 Dr Ir Triyono Sudarmadji, M.Agr. 2 Ir. Sri Sarminah, M.P. 3 Muhammad Syafrudin, S.Hut., M.Sc.
Language	Indonesian, English
Relation to curriculum	elective course for Forest Resource Conservation
Type of teaching, contact hours	Case method, project based learning, Lecture, Contact hours: 2 sks = 90 hours / semester (1 sks = 45 hours / semester)
Workload	Number of meetings per semester 16 meetings (14 meetings for learning activity, 1 meeting for mid-semester, 1 meeting for final examination) – For this course, students are required to meet a minimum of 90 hours per semester, which consist of : - 35 hours for lecture - 27 hours for structured assignments - 28 hours for individual study
Credit points	Credit points : 2 SKS /3.2 ECTS Details: 1 Credit = 170 min / week 1 Credit = 170 min x 14 week = 2380 min / semester 1 Credit = 39.7 h / semester 1 ECTS = 25 h/ Semester 1 Credit = 1.59 » 1.6 1 Credit = 1.6 x 2 = 1.6 ECTS 2 Credit = 1.6 x 2 = 3.2 ECTS 3 Credit = 1.6 x 3 = 4.8 ECTS

Requirements according to the examination regulations	Have attended not less than 80% class meetings
Recommended prerequisites	Basics of Soil & Water Conservation, Watershed Management,
Module objectives/intended learning outcomes	**Intended Learning Outcomes (2,3,4)** **Application of Critical and Innovative Thinking:** **ILO-2:** Able to apply logical, critical, systematic, and innovative thinking in implementing values according to the expertise in forestry and tropical environment. **Managerial and Leadership Skills:** **ILO-3:** Able to lead, work collaboratively in a team, and take responsibility for personal and group performance achievements, as well as communicate effectively both verbally and non-verbally. **Planning and Evaluation Skills:** **ILO-4:** Able to plan, execute, organize, and evaluate activities in the field of forestry and tropical environment. **Course Learning Outcomes** **Application of Critical and Innovative Thinking:** **CLO-1:** Able to apply logical, critical, systematic, and innovative thinking in Technology of Soil & Water Conservation **Managerial and Leadership Skills:** **CLO-2:** Able to lead, work collaboratively in a team, and take responsibility for personal and group performance achievements in Technology of Soil & Water Conservation **Planning and Evaluation Skills:** **CLO-3:** Able to plan, execute, organize, and evaluate activities in the field of Technology of Soil & Water Conservation
Content	**Soil and Water Conservation Technology** course explores the principles, methods, and technologies used to maintain ecosystem balance through sustainable soil and water management. Students will learn about factors influencing soil and water degradation, mechanical and vegetative conservation techniques, and strategies for rehabilitating degraded lands. Additionally, this course examines the role of technology in mitigating erosion, sedimentation, and watershed management to support forest ecosystem sustainability. The learning process includes both theoretical studies and field practices to understand the implementation of conservation techniques in the forestry context 1. Students are able to analyze the impacts of soil and water degradation, soil and water conservation, and soil and water conservation technologies. (2 meetings) **(CLO-1)** 2. Students are able to analyze the determination of critical land and the classification of critical land. (1 meeting) **(CLO-1)**

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3. Students are able to analyze vegetative soil and water conservation methods or techniques as conservation efforts through reforestation and greening. (1 meeting) (CLO-1)
4. Students are able to analyze, design, and apply vegetative soil and water conservation methods or techniques as conservation efforts using ground cover plants. (1 meeting) (CLO-1)
5. Students are able to integrate vegetative soil and water conservation methods or techniques as conservation efforts through contour planting and strip planting. (1 meeting) (CLO-2)
6. Students are able to integrate vegetative soil and water conservation methods or techniques as conservation efforts through forest and land rehabilitation. (1 meeting) (CLO-2)
7. Students are able to integrate mechanical soil and water conservation methods or techniques as conservation efforts through the construction of terraces and ridges. (1 meeting) (CLO-2)
8. Students are able to organize mechanical soil and water conservation methods or techniques as conservation efforts through the construction of drainage channels. (1 meeting) (CLO-3)
9. Students are able to organize mechanical/civil engineering soil and water conservation methods or techniques as conservation efforts through the construction of check dams. (1 meeting) (CLO-3)
10. Students are able to organize chemical soil and water conservation methods or techniques as conservation efforts through the use of chemical materials (soil conditioners). (1 meeting) (CLO-3)
11. Students are able to organize efforts and actions for controlling water quantity and quality. (1 meeting) (CLO-3)
12. Students are able to organize the entire course material of Soil and Water Conservation Technology and integrate its substance for field application. (2 meetings) (CLO-3)
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<td>Study and examination requirements and forms of examination</td>
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Evaluation and assessment of the learning process are following scheme 2 in the Academic Regulations of Mulawarman University:
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<tr><th>No.</th><th>Objects of Assessment</th><th>Forms of Assessment</th><th>Quantity (%)</th></tr>
<tr><td>1</td><td>affective and class attendance</td><td>participation</td><td>10</td></tr>
<tr><td>2</td><td>assignment</td><td>quiz</td><td>10</td></tr>
<tr><td>3</td><td>mid-semester test</td><td>written test</td><td>10</td></tr>
<tr><td>4</td><td>final semester test</td><td>written test</td><td>20</td></tr>
<tr><td>5</td><td>project based learning</td><td>presentation</td><td>25</td></tr>
<tr><td>6</td><td>case study</td><td>presentation</td><td>25</td></tr>
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	TOTAL	100
Media employed	Lecture, project based learning, relevan textbooks, Laptop, LCD	
Reading list	1. Arsyad, S., 2010. ***Konservasi Tanah dan Air***. Penebit IPB, Bogor. 2. Kartasapoetra,G., Kartasapoetra, A.G. dan Sutedjo, M.M., 2000. ***Teknologi Konservasi Tanah dan Air***. Penerbit Rineka Cipta, Jakarta 3. Mahida, U.N., 1986. ***Pencemaran Air dan Pemanfaatan Limbah Industri***. Penerbit C.V. Rajawali, Jakarta. 4. Nugroho,S.P.,2000. ***Minimalisasi Lahan Kritis melalui Pengelolaan Sumberdaya Lahan dan Konservasi Tanah dan Air*** secara Terpadu. 5. Rahim, S. E., 2000. ***Pengendalian Erosi Tanah dalam Rangka Pelestarian Lingkungan Hidup***. Bumi Aksara Jakarta. 6. Sarminah, S., 2014. ***Pemodelan Teknik Rehabilitasi Lahan dan Konservasi Tanah pada Lahan Kritis***. Lembusuana, XIV(158): 33-39. 7. Seta, A.K., 1991. ***Konservasi Sumberdaya Tanah dan Air***. Penerbit Kalam Mulia, Jakarta. 8. Setiawan, A. I., 2000. ***Penghijauan*** **dengan Tanaman Potensial**. Penerbit Penebar Swadaya, Jakarta. 9. Suripin, 2002. ***Pelestarian Sumber Daya Tanah dan Air.*** Penerbit ANDI. Yogyakarta. 10. Rujukan-rujukan lain yang tersedia dan dapat diperoleh.	