SEMESTER COURSE OUTLINE
& LESSON PLANS
FIRST SEMESTER
2023/2024



Agricultural Microbiology Major

Department of Agricultural Microbiology

Wood Physics Lab. and Adventure Design

KGY201921019

Team teaching:

변희섭(Hee Seop Byeon)

Tim MBKM Departemen Mikrobiologi Pertanian

UNIVERSITAS GADJAH MADA
FACULTY OF AGRICULTURE
2023

	Universitas Gadjah Mada Faculty of Agriculture Department of Agricultural Microbiology Second Semester of 2023/2024	**Code document:**

SEMESTER COURSE OUTLINE & LESSON PLANS

Course code	Course name	Credits		Semester	course status	Prerequisite courses
KGY201921019	*Wood Physics Lab. and Adventure Design*	*T: 0*	*P: 1*	*First semester*	*Elective course MBKM*	*None*

Course overview	The course on Wood Physics is designed to provide a comprehensive understanding of the physical properties, behavior, and utilization of wood as a fundamental engineering material. Throughout this course, participants will explore the intrinsic characteristics of wood, its mechanical behavior, environmental interactions, and its role as a sustainable resource. This course is taken by students who are participating in an exchange program at Gyeongsang National University, following the syllabus predetermined by the local university.	
Program Learning Outcome (PLO)	***PLO 1***	Able to explain theoretical concepts regarding plant production technology by giving attention to economic and social-humanitarian aspects to achieve quality, sustainable and profitable agriculture. (K1)
	PLO 2	Able to apply logical, critical, systematic, and innovative thinking by utilizing the technology of information to produce solutions according to the field of expertise with integrity and embodied in scientific documents. [G1]
	PLO 3	Able to identify, design, implement, and solve problems that arise in the implementation of agricultural businesses. [S1]
Course Learning Outcomes (CLO)	**After completing this course, students are expected to able:**	
	CLO 1	*Students can explain about wood characteristics [PLO 1] K2*
	CLO 2	*Students have the ability to identify wood Behavior and properties [PLO 2] G1*
	CLO 3	*Students can carry out application of wood properties [PLO 3] S1*

Correlation among CLO, the material, learning method and estimated time		**Course material**	**Course method (Offline/online) Learning**	**Alokasi Waktu Estimated time**
	CLO 1	Density	Offline Learning	*50 minutes of synchronous lectures*

	CLO 1	Importance	Offline Learning	*50 minutes of synchronous lectures*
	CLO 1	Moisture content	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Hygroscopicity	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Shrinkage rate	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Swelling rate	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Specific heat	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Thermal conductivity	Offline Learning	*50 minutes of synchronous lectures*
	CLO 2	Thermal diffusivity	Offline Learning	*50 minutes of synchronous lectures*
	CLO 3	Conductivity	Offline Learning	*50 minutes of synchronous lectures*
	CLO 3	Hereditary	Offline Learning	*50 minutes of synchronous lectures*
	CLO 3	Sound absorption coefficient	Offline Learning	*50 minutes of synchronous lectures*
	CLO 3	Sound absorption resistance	Offline Learning	*50 minutes of synchronous lectures*

	CLO 3	Color	Offline Learning	*50 minutes of synchronous lectures*
	CLO 3	Polish	Offline Learning	*50 minutes of synchronous lectures*
	Final exam/project assignment result/case analysis result			
Learning method	***SCL: Case based and Project Based Learning***			
Student learning experience	**Student exchange**			
Learning Media and Course Method Percentage	*(Offline 100%)*			

Methods of assessment in accordance with course learning outcome with course learning outcome

Evaluation basis	*Evaluation componen*	Bobot	*CLO 1*	*CLO 2*	*CLO 3*
A. ***Participatory Activity***	***Individual assignment***	20%			v
B. ***Project result/case study result***	***labolatory practice***	30%		v	
C. Cognitive	**Mid Exam**	25%		v	
	Final Exam	25%	v		
	Total	**100%**			

References

Main references:

1. 홍병화 외 4인. (2019). 목재물리 및 역학. 향문사.
2. 홍병화 외 1인. (2019). 목재공학. 향문사.
3. Brown, H. P., & Panshin, A. J. (1984). Textbook of Wood Technology (2nd ed.). McGraw-Hill.
4. 伏谷賢美. (2012). 목재의 물리. 문영당 출판.
5. 일본목재학회 물리.공학편집위원회. (2004). 목재과학실험서. 중외산업.
6. Haygreen, J. G. (1996). Forest Product and Wood Science. Iowa State University Press.

Team Teaching	1. 변희섭(Hee Seop Byeon) 2. Tim MBKM Departemen Mikrobiologi Pertanian			
Authorisation	**Authorisation datr**	**Course coordinator**	**Expertise coorfimator (If any)**	**Head of study program**
	August 14th 2023	변희섭(Hee Seop Byeon)	*Signature and name*	Ir. Ngadiman, M.Si. Ph.D.

수업 계획서

1. 강좌 및 담당교수

교과목명		목재물리학실험및어드벤처디자인	학수번호	11022882	수강반	001
외국어강의구분			강의시간	수(6)	강의실	[456-0309]
담당교수	소속	환경재료과학과	수업방법			
	성명	변희섭	연구실	456-320, 환경재료학연구실(055-772-1861)		
	전화번호	0557721861	E-mail	hsbyeon@gnu.ac.kr		

2. 교재 및 참고서적

구분	저자	도서명	출판사	비고
주교재	홍병화 외 4인	목재물리 및 역학	향문사	
참고서적	공저	목재공학	향문사	
참고서적	Brown & Panshin	Textbook of Wood Technology(2)	McGAW-HILL	
참고서적	伏谷賢美	목재의 물리	문영당 출판	
참고서적	일본목재학회 물리.공학편집위원회	목재과학실험서	중외산업	
참고서적	John G. Haygreen	Forest Product and Wood Science	Iowa State University Press	

3. 과제

과제	과제명	참고사항

과제	수시	

4. 평가방법

평가방법	중간고사	기말고사	출석	수시고사	과제물	기타	계
배점비율	10	10	30	0	40	10	100

5. 주별 강의계획

주차	강의내용	강의방법	활용기자재	비고(상세 수업방법)
1주차	밀도	대면		
2주차	비중	대면		
3주차	함수율	대면		
4주차	흡습성	대면		
5주차	수축률	대면		
6주차	팽윤율	대면		
7주차	비열	대면		
8주차	열전도율	대면(중간 고사)		
9주차	열확산율	대면		
10주차	도전성	대면		
11주차	유전성	대면		
12주차	흡음계수	대면		
13주차	흡음저항	대면		
14주차	색	대면		
15주차	광택	대면(기말 고사)		

과제 요약:

날짜	세부 정보