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Ministry of Education and Sports
Savannakhet University
Faculty of agriculture and Environment

No _____/FOA
Savannakhet, Date ____/___/2022

Course Syllabus

I. Program

1. Title of the study programme: Master of Science in Forest Resource Management (MSc in FRM)

II. Course detail

Course name: Forest Plantations
Course code: FOA04FP21213
Number of credit (hours/week): 2(1-2-3)
Course type (tick the appropriate box): ☐ Required, ☑ Elective, ☐ Other, if other please explain:
Prerequisites courses: Dendrology, Soil Sciences, forest mensuration, forest pest management
Semester, in which the course is taught: *tick the appropriate box below*

Year 1		**Year 2**	
Semester 1	**Semester 2**	**Semester 1**	**Semester 2**
☐	☐	☒	☐

III. Responsible unit

3.1. Department: SKU Administration office, and FOA

Name of lecturer 01: *Dr. Bounheaung NINCHALEUNE (SKU)*, Phone: +85620 55555921. Email: bnincha@yahoo.com; Office location: Savannakhet University, Savannakhet Province, Lao PDR, permanent lecturer.
Name of lecturer 02: *Bounyore KOULAVONG (SKU)*, Phone: +85620 55959557. Email: bounyore_max@yahoo.com; Office location: Savannakhet University, Nongpeua Campus, Savannakhet Province, Lao PDR, permanent lecturer.

IV. Course description

Graduates of the course have a comprehensive knowledge of all basic disciplines in connection to the management of forest plantations namely in tree breeding, establishing forest stands, silviculture, management of forest plantations, operations in forest plantations, and plantation protection, etc.

Course objectives; after graduation of the course, students will be able to:

Students shall acquire knowledge on the silviculture, protection, management, and forest operations linked to different kinds of plantations, namely lignicultures, valuable broadleaved plantations, bank protection stands, or urban forests etc.

V. Course objectives

After graduation of the course, students will be able to understand and apply knowledge on silviculture, protection, management, and forestry operations focusing on different kinds of plantations, namely, lignicultures, valuable broadleaved plantations, bank protection stands, urban forestry etc.

Knowledge:

Graduates shall gain knowledge on how the silvicultural regimes and the use of special species in forestry. Graduates shall understand the basic principles of forest tree breeding. Graduates shall apply knowledge of sustainable forest management. They shall be able to evaluate proper technology for seed, seedlings, and plants as well as reforestation using either bare-root or containerized seedlings. They shall understand a large spectrum of knowledge in operating forest plantations, which gives them competence not only in "classic" silviculture but also for trees outside of forests in the cities and villages. Students shall know how to optimize silvicultural interventions temporally and spatially to reach the desired yield or other parameter of the ligniculture they manage, they shall know how to plan and execute harvesting operations, and how to protect the stands from various biotic and abiotic injurious factors.

Skills:

Graduates shall be able to apply the acquired knowledge in all disciplines of silviculture i.e. seed technology, forest nursery, reforestation and stand tending; forest management, i.e. mensuration, spatial and temporal distribution of forest stands, production models, etc.; forestry operations in stand establishment, tending, and regeneration felling, as well as recultivation after a plantation ends its life cycle; forest protection, i.e. protecting against biotic and abiotic injurious factors throughout the plantation's life cycle. Graduates shall be able to design and establish forest plantations in the tropics and subtropics. Graduates shall be able to recommend suitable technology for logging and wood transporting from forest plantations. Graduates shall be informed on news in their disciplines (including foreign literature) and apply them adequately. They shall be able to create new technologies based on new knowledge.

Theories application in practice:

Graduates shall be able to independently evaluate the quality of reproductive material (both seed and planting stock). They can choose proper reproductive material for any given site, establish new forest stands with adequate species composition. They will be able to choose the appropriate planting technology, adequate to the site. They shall be able to apply appropriate thinning methods and methods leading to forest regeneration. They shall be able to select the appropriate technologies for forest operations in terms of efficiency and environment protection.

Social knowledge and skills:

They can become leaders or supervisors of all activities in the technology chain. In case of need, they shall be able to guarantee a high standard in terms of quality as well as economic effectiveness.

Graduates shall be able to acquire new knowledge in all plantation forestry disciplines and forest regeneration, which is a key factor for sustainable forestry. They shall be able to efficiently apply acquired knowledge to all possible situations in forest management and silviculture.

5.1 Learning objectives of particular modules

Module 1: Introduction to forest plantations

Graduates shall be able to understand the concept of forest plantation principles and shall be able to critically assess the basic principles of forest tree breeding.

Module 2: Coniferous and broadleaved species suitable for forest plantations

Graduates shall be able to understand and apply knowledge on Coniferous and broadleaved species suitable for forest plantations

Module 3: Breeding of plantation tree species

Graduates shall be able to independently evaluate the quality of reproductive material (both seed and planting stock).

Module 4: Seed orchard plantations project and realization

Graduates shall be able to discuss and use the acquired knowledge in all disciplines of silviculture.

Module 5: Establishing Forest plantations

Graduates shall be able to organize the process of establishing forest plantations and assess the forest plantation system.

Module 6: Protection of forest plantations (biotic and abiotic injurious factors)

Graduates shall be able to describe forest plantation management, schedule working tasks on protection of forest plantation.

Module 7: Using chemicals in forestry

Graduates shall be able to describe and discuss the chemicals in forestry related to the protection of forest plantations

Module 8: Management of forest plantations

Graduates shall be able to classify, use theories, and design the plantation areas

Module 9: Management of forest plantations (Tending in plantations, pruning and thinning models)

Graduates shall be able to schedule and optimize operations related to coppices and young forest plantations.

Module 10: Production in forest plantations (growth models)

Graduates shall be able to describe forest plantation management, schedule working tasks on production in forest plantations.

Module 11: Temporal and spatial optimization models

Graduates shall be able to understand and use Temporal and spatial optimization models in forest management.

Module 12: Forestry operations in forest plantations

Graduates shall be able to understand and assess the process of harvesting forest plantations and plan and design any other operations necessary for proper management of a forest plantation.

Module 13: Economics of forestry plantations

Graduates shall be able to plan the costs and revenues related to plantation operation, assess the viability of forest plantations and decide on forest management of plantations based on sound economic principles.

Module 14: Evaluation of economic efficiency in forestry plantations

Graduates shall be able to demonstrate and examine the economic efficiency in forestry plantations

Module 15: Agroforestry and urban forestry

Graduates shall be able to describe and assess Agroforestry and urban forestry systems.

Module 16: Sustainable operation of forestry plantations

Graduates shall be able to recognize the stage of Sustainable operation of forestry plantations and reaction to the case study of forest plantation.

VI. Course teaching methods

The course consists of theoretical and practical lectures. The lectures form the background to develop and to train the knowledge of these special Silviculture. The students are required to develop projects and/or essays, showing various dimensions of Forest Plantations. These projects or essays are discussed by other students. Demonstrations and case studies are also used

throughout the course to illustrate the issues addressed. Field practice realized directly on selected forest plantation is part of the curriculum

VII. Teaching plan

Week	Content	Method/activity	Hour
1	**Theories**		
	Module 1: Introduction to forest plantations	✓ Lecturer provides instruction on lesson plan, course description, expected learning outcomes ✓ Lecture, project, panel discussion, watching video ✓ Provide the project assignment to students	1
	Practice		
	Module 1: Introduction to forest plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
2	**Theories**		
	Module 2: Coniferous and broadleaved species suitable for forest plantations	✓ Lecture, project work, panel discussion, watching video ✓ Provide the project assignment to students	1
	Practice		
	Module 2: Coniferous and broadleaved species suitable for forest plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2

3	**Theories**		
	Module 3: Breeding of plantation tree species	✓ Lecture, project work, panel discussion, watching video ✓ Provide the project assignment to students	1
	Practice		
	Module 3: Breeding of plantation tree species **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
4	**Theories**		
	Module 4: Seed orchard plantations project and realization	✓ Lecture, project work, panel discussion, watching video ✓ Provide the project assignment to students	1
	Practice		
	Module 4 : Seed orchard plantations project and realization **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
5	**Theories**		
	Module 5: Establishing forest plantations	Lecture, online video and discussion	1
	Practice		

	Module 5: Establishing forest plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
6	**Theories**		
	Module 6: Protection of forest plantations (biotic and abiotic injurious factors)	Lecture, online video and discussion	1
	Practice		
	Module 6: Protection of forest plantations (biotic and abiotic injurious factors)	Instruction, group discussion and group presentation	2
	Quiz: Focusing on the instruments		
7	**Theories**		
	Module 7: Using chemicals in forestry	Lecture, online video and discussion.	1
	Practice		
	Module 7: Using chemicals in forestry **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation.	2
8	**Theories**		
	Module 8: **Management of forest plantations**	Lecture, online video and discussion	1
	Practice		

	Module 8: Management of forest plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
9	**Theories**		
	Module 9: **Management of forest plantations (Tending in plantations, pruning and thinning models)**	Lecture, online video and discussion	1
	Practice		
	Module 9: Management of forest plantations (Tending in plantations, pruning and thinning models) **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
10	**Theories**		
	Module 10: **Production in forest plantations (growth models,)**	Lecture, online video and discussion	1
	Practice		
	Module 10: Production in forest plantations (growth models,) **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
11	**Theories**		
	Module 11: **Temporal and spatial optimization models**	Lecture, online video and discussion	1
	Practice		

	Module 11: Temporal and spatial optimization models **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
12	**Theories**		
	Module 12: **Forest operations in forest plantations**	Lecture, online video and discussion	1
	Practice		
	Module 12: Forest operations in forest plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
13	**Theories**		
	Module 13: **Economics of forestry plantations**	Lecture, online video and discussion	1
	Practice		
	Module 13: Economics of forestry plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
14	**Theories**		
	Module 14: **Evaluation of economic efficiency in forestry plantations**	Lecture, online video and discussion	1
	Practice		
	Module 14: Evaluation of economic efficiency in forestry plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2

15	**Theories**		
	Module 15: **Agroforestry and urban forestry**	Lecture, online video and discussion	1
	Practice		
	Module 15: Agroforestry and urban forestry **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
16	**Theories**		
	Module 16: **Sustainable operation of forestry plantations**	Lecture, online video and discussion	1
	Practice		
	Module 16: Sustainable operation of forestry plantations **Quiz: Focusing on the instruments**	Instruction, group discussion and group presentation	2
	Theories		
17-20	**Conclusion and review**	Lecture and discussion	1
	Field trip	Bualapha Company, Sun paper Company	48
	Review/additional week	**-**	**2**
	Final examination	-	3

VIII. Material needs

8.1 Course equipment: link to equipment needs/purchases as part of the project

- meters tape, Notebook, calculator, mobile phone, internet wifi.

IX. References

9.1 Compulsory reading list

9.2. Suggested reading list

• Libraries
• Website-internet

X. Assessment of students

10.1. Description of assessment

• Students will be assessed on the knowledge, skills, and competencies gained throughout the course via a {test, oral examination, written exam, essay}."

10.2. Grade Distribution and student assessment

✧ Grade Distribution

- ❖ Attendance 10 %
- ❖ Reporting 35 %
- ❖ Midterm examination 20 %
- ❖ Final examination 35 %

✧ Grading Scale

Score level	Meaning		Total score	Scale
Symbol	(Lao)	(English)		
A	ດີເລີດ	(Excellent)	80-100	4,00
B+	ດີຫຼາຍ	(Very Good)	75-79	3,50
B	ດີ	(Good)	70-74	3,00
C+	ດີພໍໃຊ້	(Fairly Good)	65-69	2,50
C	ພໍໃຊ້ໄດ້	(Fair)	60-64	2,00
D+	ອ່ອນ	(Poor)	55-59	1,50
D	ອ່ອນຫຼາຍ	(Very Poor)	50-54	1,00
F	ຕົກ	(Fail)	0-49	0,00
I	ບໍ່ສົມບູນ (ຮຽນບໍ່ຄົບ)	(Incomplete)		

Savannakhet, Date ...../...../.....

Head of Department (responsible lecturer) Course instructor

Dean of the Faculty of Agriculture and Environment