Kasetsart University

No _____/...........

Place, Date _3_/_01__/_2023__

Course Syllabus

1   Program

Title of the study programme: *Master of Science Program in Forestry*

2   Course details

Course name: *Farm Forestry*

Course code: 01306552

Number of credits (hours/week):   *3(3-0-6)*

Course type (tick the appropriate box):   ☐ Required, ☒ Elective, ☐ Other, if other please explain:

Prerequisites courses: *insert the titles and codes of prerequisite courses*

Semester, in which the course is taught: *tick the appropriate box below*

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

3   Responsible unit

3.1   Department: *Department of Silviculture*

Names and affiliations of lecturer(s): *Faculty of Forestry*

Asst. Prof. Wirongrong Duangjai, Dept. of Silviculture

Asst. Prof. Sapit Diloksumpun, Dept. of Silviculture

Asst. Prof. Nittaya Mianmit, Dept. of Forest Management

4   Course description

Background of farm forestry, forest trees domestication and productivity for designing farm forestry, trees and carbon farming, multi-purpose farm forestry patterns, certifications, and extension case studies in Thailand and abroad.

5   Course objectives

5.1   Learning objectives of particular modules

At the end of the course, students able to:

1. explain farm forestry background, definition, system, and patterns

2. identify concepts and principles of farm forestry

3. analyze data to select tree species for suitable farm forestry patterns by using criteria and indicators analysis

6   Course teaching methods

Lecture and discussion using cases studies, individual projects, group discussion and presentation.

For the lecture and discussion, structuring a lecture will be focused as follows:

1. The classical method—divide into broad sections, sub-sections and perhaps again in smaller units.

2. The problem-centered method—useful for examining alternative views and solutions to problems. It contains a statement of a problem's explicit and implicit criteria.

3. The sequential method—consists of a series of linked statements, which usually lead

to a conclusion. The teacher must both ensure that the steps are within the grasp of the students and frequently summarize the main steps and the procedure.

4. The comparative method—compares two or more processes, themes, stories, ideas

or systems. It may be a search for similarities or differences, for advantages or disadvantages.

For group and individual activities, the lessons learned will be addressed for students as the whole class, or demonstrating something to all students together, many activities can be carried out by the students in groups or individually. Learning activities as follows:

- Carry out experiments
- Prepare or use learning or demonstration materials (case studies, posters, charts, models, games, displays, etc.)
- Carry out a project
- Prepare and perform a role-play

7 Teaching plan

The first week, students will be given an overview of farm forestry, forest tree farming and related terms of academic definitions. The students will be pre-tested of ex-knowledges and discussion among them as a group discussion in the classroom. The second week, when the students get to know about the concepts and definitions of form forestry, they will be able to understand objectives for growing trees on farmlands. The roles of trees will be expressed and given more details on general functions of trees in agroecosystem and environment. The third week and the week later, the students will learn more about how to select the suitable trees for growing on farms, the criteria, and factors for tree selection (species-site matching) *will be focused on the lecture. For week of 5 to 6, the students will be given a question on how they plan to grow mixed trees on farms for improving productivities. After the students understand and able to identify tree species correctly with the suitable farm patterns, they will be assigned to design a pattern of farm forestry with a specific purpose or objective that allow them to search relevance information and create solution and choices as problem-based learning process. The student projects of designed farm forestry patterns will be presented in classroom and will be open session as a brainstorming discussion to all students in the class. The week of examination will be a take-home assignment in relation to what they found during the project discussion. The week after examination, the concept of society and environmental aspects related to farm forestry will be given lecture and discussion in the classroom. The outcome of this course will be focused on an individual designed and planned project of the students.*

Week	Content	Method/activity	Hours
1	The background of farm forestry, forest tree farming, agroforestry, and distinguished definitions	Lecture and discussion	3
2	The role of trees on farmlands	Lecture and discussion	3
3	Criteria and factors for tree selection (species-site matching)	Lecture, case studies, discussion	3
4	Criteria and factors for tree selection (species-site matching) (COND)	Lecture, case studies, discussion	3
5	Tree species mixing and productivity (yields)	Lecture and discussion	3
6	Tree species mixing and productivity (yields) (COND)	Lecture and discussion	3

Week	Content	Method/activity	Hours
7	Designing a forest tree farming - objectives and patterns	Lecture, case studies, discussion	3
8	Designing a forest tree farming (COND) - Trees species for farm forestry - Silviculture practices on farmlands	Lecture, case studies, discussion	3
9	Midterm Examination		2
10-13	Types of farm forestry and management (mixed stands/mixed species) - Co-management of on-farm trees - Aggregation and programmatic development approach for improving forest management - Adaptive management and analysis - Forest certification and carbon credit certification for smallholders	Lecture, case studies, discussion, individual case analysis and assignment	9
14	Concept of carbon farming, carbon credit and carbon certification	Lecture, case studies, discussion	3
15	Forest farming patterns and extension programs in Thailand	Lecture, case studies, discussion	3
16	Case studies of forest farming in other countries	Final examination	2

8   Material needs

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

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9   References

9.1   Compulsory reading list

Mark S. Ashton and Florencia Montagnini. (2000). The Silvicultural Basis for Agroforestry Systems. CRC press LLC. New York.

9.2   Suggested reading list

Calliope Panoutsou. (2017). Modeling and Optimization of Biomass Supply Chains. ELSEVIER. Academic Press. United Kingdom.

Duangjai, W., Schmidt-Vogt, and Shrestha, R.P. (2015). Farmers' land use decision-making in the context of changing land and conservation policies: A case study of Doi Mae Salong in Chiang Rai Province, Northern Thailand. Land Use Policy (48): 179-189.

Howley, P. (2013). Examining farm forest owners' forest management in Ireland: The role of economic, lifestyle and multifunctional ownership objectives. Journal of Environmental Management (123): 105-112.

Phimmavonga, S., Marasenib, T. N., Keenanc, R. J., Cockfield, G. (2019). Financial returns from collaborative investment models of Eucalyptus agroforestry plantations in Lao PDR. Land Use Policy (87): 1-11.

Ralph, D. Nyland. (2007). Silviculture: Concepts and Applications. 2nd ed. The McGraw-Hill Companies, Inc., New York.

Sears, R.R., Cronkleton, P., Villanueva, F. P., Ruiz, M. M., Matías Pérez-Ojeda del Acro. (2018). Farm-forestry in the Peruvian Amazon and the feasibility of its regulation through forest policy reform. Forest Policy and Economics (87): 49-58.

10 Assessment of students

10.1 Description of assessment

- Participation/assignment (individual project)	30%
- Case study analysis and presentation (group project)	40%
- Examination	30%
Total	100%

10.2 Grade distribution and student assessment

Grading scale

Grade		Scale
Symbol	Verbal grade	
A	Excellent	80-100%
B+	Very good	75-79%
B	Good	70-74%
C+	Almost good	65-69%
C	Fair	60-64%
D+	Almost fair	55-59%
D	Poor	50-54%
F	Failed	<50%

Place, Date ....3...../...1...../...23..........