Co-funded by the Erasmus+ Programme of the European Union

Institution name here

No _____/.....

Place, Date ____/___/___

Course Syllabus

1 Program

Title of the study programme: Wood Processing Technology

2 Course details

Course name: *Economic Valuation of Forestry Resource*

Course code: FOA04EVF11102

Number of credits (hours/week): 3(2-2-2)

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

Prerequisites courses: *Statistic, Introduction to economics*

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: Office of Post-Graduate Study

3.1 Department: Deparment of Forestry Resource

Names and affiliations of lecturer(s): *Assoc. Prof Dr. Sitha Khemmarath; Mobile: +85620 98961999; Email: khemmarathsitha@gmail.com, Savannakhet University, Naxeng Campus, Naxeng Village, Kaysone Phomvihane City, Savannakhet Province, Lao PDR.*

Inta Chanthavong MSc; Mobile: +85620 5849 9966; Email: inta.sku2009@gmail.com, Faculty of Agriculture and environment, Savannakhet University, Nong Phue Campus, Nong Phue Village, Kaysone Phomvihan City, Savannakhet Province, Lao PDR.

4 Course description

Introduction the importance of the course; Valuation of the intangible goods and services provided by forest resources is increasingly important at local, national and international level when the deterioration of tropical forests, wetlands and other biodiversity-rich ecosystems is at stake. National and International policies discussion are progressing towards a better understanding of these "hidden values", and they are calling for the development of simple new tools with which to arrive at a more comprehensive valuation of the resources involved. This course consists of ten chapters: An Introduction to economic valuation of forestry resources, Forest Economy in Laos, Marginal analysis and input decision, the two – input case, Multiple products, Interest and forest production, Demand, Supply and Elasticity, Demand for timber and timber products, Supply of timber and timber products, and Market structures and industrial organization.

5 Course objectives

Students will contribute to a better understanding of the scope and limitations of economic valuation of forestry resource concepts and methodologies for informed decision-making by policy-makers.

Knowledge: Affer finished this courses the students gain theoretical knowledge, and practical skills related to forest economics and policy, forest valuation, wooden products and services supply and demand elasticity analyses, price creation, market structure, and market behaviour. The students will gain practical skills in developing plans, forest enterprise management, and research project development via elaboration of projects and presenting their results to their peers.

Skills: The students will gain practical skills in developing plans, forest enterprise management, and research project development via elaboration of projects and presenting their results to their peers

Application of theories to practice: The students gain theoretical knowledge, and practical skills related to forest economics and policy, forest valuation, wooden products and services supply and demand elasticity analyses, price creation, market structure, and market behaviour.

Social knowledge and skills: Graduates become specialists/experts in economics evaluation of forestry resources. The graduates are able to analyze cost and revenue from forest resources product to the sustianable management of economic from scare of resource. They are competent to evaluate the demand, supply, elasticity and income. Graduates will be able to continuously create a new knowledge in market structures and stumpage price, definition of industrial organization, concentration ratio, elements of market structure, and market conduct. Students will have the opportunity to build solidarity and teamwork skills, division of roles and responsibilities from group assignments, and learn speaking or presenting skills in front of audience.

5.1 Learning objectives of particular modules

The economic valuation of forestry resources consists of ten modults such as : An Introduction to economic valuation of forestry resources, Forest Economy in Laos, Marginal analysis and input decision, The two – input case, Multiple products, Interest and forest production, Demand, Supply and Elasticity, Demand for timber and timber products, Supply of timber and timber products, and Market structures and industrial organization.

(1) An Introduction to economic valuation of forestry resources. This module is designed for graduates to understand definition and importance of economic valuation of forestry resource; Understand and explain theory of forest economics

(2) Forest Economy in Laos. This module is to provide graduates to understand about definition of economy, method for evaluation of forest economy, forest economy in Lao PDR, forest resources, forest industry and forest trade.

(3) Marginal analysis and input decision. This module is to provide gtaduates to understand the firm, assuption and production function, single variable input and single output.

(4) The two – input case. This module is to provide graduates to understand of production surface, isoquants, isocosts, least cost combination, maximizing net revenue and degree of factor substitutability.

(5) Multiple products. This module is to provide graduates to understand of joint production, tecnically fixed proportion, tecnically variable proportion, production possibility curve, isorevenue curves, expansion path and maximizing net revenue.

(6) Interest and forest production. This module is to provide graduates to understand of characteristices of timber capital, Interest and interest formulation, time as a factor of production and finacial objectives.

(7) Demand, Supply and Elasticity. This module is to provide graduates to understand of demand law, supply law, industry short run and long run supply curves, elasticity, elasticity and income, and elasticity measure by graph.

(8) Demand for timber and timber products. This module is to provide graduates to understand of method for study demand of timber, modthod for study direct demand of timber, Derives demand, and derived demand for sawlog.

(9) Supply of timber and timber products. This module is to provide graduates to understand of Chronological appoach, Sawlog supply curve, cost of availability, reservation price, price formation of sawlog, price formation of Stumpage, and Stumpage price and rent theory.

(10) Market structures and industrial organization. This module is to provide graduates to understand of market structures and stumpage price, definition of industrial organization, Concentration ratio, elements of market structure, and market conduct.

6 Course teaching methods

The course consists of lectures, seminars, group working projects, assignments, and field trips. Graduates are required to develop projects or essays to show the dimensions of economics valuation of forestry resources (individual and group working projects). Attendance of the course lectures, seminars, and field trips is mandatory, except in cases of sickness or other health problems documented by a physician. In case of excused unattendance, students will elaborate an extra assignment on the topic of the lecture/seminar/ field trip they failed to attend.

7 Teaching plan

Week	Content	Method/activity	Hour
1	**Theories**		2
	Module 1: An Introduction to economic valuation of forestry resources		
	1.1 Background and definition of economics 1.2 Principle of economics 1.3 Why economic valuation of forestry resources? 1.4 Special characteristics of forestry 1.5 Definition of economics valuation of forestry resources	Lecturers give suggestions on the economics and economic valuation of forestry resources	
	Practice		2
	Module 1: An Introduction to economic valuation of forestry resources		
	Individual Assignment: 1. Forest cover in Laos 2. Review of forestry economics in Laos 3. Special characteristics of forestry in Laos	Provide student with individual consult on assignment projects and submit	
3	**Theories**		**2**
	Module 2: Forest Economy in Laos		
	1.1 Definition of economy 1.2 Method for evaluation of forest economy 1.3 Forest economy 1.4 Forest resources 1.5 Forest industry • Forest area • Growing stock • Forest cultivation 2.6 Timber trade	Lecturers give suggestions on the economy, method for evaluation of forest economy and Forest economy	
	Practice		**2**
	Module 2: Forest Economy in Laos		

	Seminar topic: Importance of forest economy in Lao PDR.	Group discussions, panel discussions	
4	**Theories**		2
	Module 3: Marginal analysis and input decision		
	3.1 Firm, assuption and production function 3.2 Single variable input – single output ▪ Law of diminishing returns ▪ Cost and revenue ▪ Average or unit cost curves ▪ Marginal cost and marginal revenue ▪ Mathematical maximization of net revenue	Lecturers give suggestions on the marginal analysis and input decision	
	Practice		**2**
	Module 3: Marginal analysis and input decision		
	Individual Assignment: 1. Cost and revenue 2. Average or unit cost curves 3. Marginal cost and marginal revenue 4. Mathematical maximization of net revenue	Provide student with individual consult on assignment projects and submit	
5	**Theories**		**2**
	Module 3: Marginal analysis and input decision		
	3.2 Single variable input – single output ▪ Marginal cost and revenue in input terms ▪ Tabular method of marginal analysis ▪ Best combination in terms of output ▪ Best combination of productive agents in terms of input	Lecturers give suggestions on the marginal analysis and input decision	
	Practice		**2**
	Module 3: Marginal analysis and input decision		
	Individual Assignment: 1. Marginal cost and revenue in input terms 2. Tabular method of marginal analysis 3. Best combination in terms of output	Provide student with individual consult on assignment projects and submit	

	4. Best combination of productive agents in terms of input		
6	**Theories**		**2**
	Module 4: The two – input case		
	4.1 Production surface 4.2 Isoquants 4.3 Isocosts	Lecturers give suggestions on the production surface, Isoquants and Isocosts	
	Practice		**2**
	Module 4: The two – input case		
	Individual Assignment: 1. Production surface 2. Isoquants 3. Isocosts	Provide student with individual consult on assignment projects and submit	
7	**Theories**		**2**
	Module 4: The two – input case		
	4.4 Least cost combination 4.5 Maximizing net revenue 4.6 Degree of factor substitutability	Lecturers give suggestions on the Least cost combination, maximizing net revenue and degree of factor substitutability	
	Practice		**2**
	Module 4: The two – input case		
	Individual Assignment: 1. Least cost combination 2. Maximizing net revenue 3. Degree of factor substitutability	Provide student with individual consult on assignment projects and submit	
8	**Theories**		**2**
	Chapter 5: Multiple products		
	5.1 joint production 5.2 technically fixed proportion 5.3 technically variable proportion 5.4 production possibility curve	Lecturers give suggestions on the joint production, technically fixed proportion, technically variable proportion and	

		production possibility curve	
	Practice		
	Chapter 5: Multiple products		
	Individual Assignment: 1. joint production 2. technically fixed proportion 3. technically variable proportion 4. production possibility curve	Provide student with individual consult on assignment projects and submit	**2**
9	**Theories**		
	Chapter 5: Multiple products		
	5.5 isorevenue curves 5.6 expansion path 5.7 maximizing net revenue	Lecturers give suggestions on the isorevenue curves, expansion path and maximizing net revenue	
	Practice		**2**
	Chapter 5: Multiple products		
	Individual Assignment: 1. isorevenue curves 2. expansion path 3. maximizing net revenue	Provide student with individual consult on assignment projects and submit	
10	Midterm Examination		**2**
11	**Theories**		**2**
	Module 6. Interest and forest production		
	6.1 characteristics of timber capital 6.2 Interest and interest formulation • Compounding • Discounting • Capitalizing 6.3 time as a factor of production 6.4 Financial objectives • Net present value • Soil or land expectation value • Internal rate of return • Forest rent	Lecturers give suggestions on the Interest and forest production	
	Practice		**2**
	Module 6. Interest and forest production		
	Individual Assignment: 1. characteristics of timber capital 2. Interest and interest formulation 3. time as a factor of production	Assignment of student work	

	4. Financial objectives		
12	**Theories**		**2**
	Module 7. Demand, Supply and Elasticity		
	7.1 Demand law 7.2 Supply law 7.3 Industry short run and long run supply 7.4 Elasticity • Price elasticity • Income elasticity • Cross elasticity 7.5 Elasticity and income 7.6 Elasticity measure by graph curves	Lecture, discussion, demonstration video on Demand, Supply and Elasticity	
	Practice		**1**
	Module 7. Demand, Supply and Elasticity		
	1. Industry short run and long run supply 2. Elasticity • Price elasticity • Income elasticity • Cross elasticity 3. Elasticity and income 4. Elasticity measure by graph curves	Assignment of student work, and group discussion	
13	**Theories**		**2**
	Module 8: Demand for timber and timber products		
	8.1 method for study demand of timber 8.2 modthod for study direct demand of timber 8.3 Derives demand 8.4 Derived demand for sawlog	Presentation on Demand for timber and timber products	
	Practice		**2**
	Module 8: Demand for timber and timber products		
	Group Assignment 1. demand of timber in Laos 2. direct demand of timber in Laos 3. Derives demand 4. Derived demand for sawlog	Project assignment of student works (group working) on demand for timber and timber products	
14	**Theories**		**2**

	Module 9: Supply of timber and timber products		
	9.1 Chronological appoach 9.2 Sawlog supply curve 9.3 Cost of availability 9.4 Reservation price 9.5 Price formation of sawlog 9.6 Price formation of Stumpage 9.7 Stumpage price and rent theory	Presentation on supply of timber and timber products	
	Practice		**2**
	Module 9: Supply of timber and timber products		
	Seminar topic: Module 9: Supply of timber and timber products in Laos	Continous project assignment of student works (group working) on supply of timber and timber products	
15	**Theories**		**2**
	Module 10: Market structures and industrial organization		
	10.1 Market structures and stumpage price 10.2 Definition of industrial organization 10.3 Concentration ratio 10.4 Elements of market structure 10.5 Market conduct	Presentation on market structures and industrial organization	
	Practice		**2**
	Module 10: Market structures and industrial organization		
	Seminar topic: Market structures and industrial organization in Laos	Goup report on project assignment of student works (group working) on market structures and industrial organization	
16	**Theories**		**8**
	Field trip		
	Practice		**8**
	Field trip		
17	**Theories**		**8**
	Field trip		
	Practice		**8**
	Field trip		
18	**Theories**		**2**
	Final examination		
	Practice		**2**
	Final examination		

8 Material needs

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

Notebook, calculator, mobile phone, internet wifi

8.2 Information sources

- Libraries
- Website-internet
  - ✓ Lab-rooms

9 References

9.1 Compulsory reading list

Gregory S. Amacher. 2009. Economics of Forest Resources

Henk Lette and Henneleen de Boo. 2002. Economic Valuation of Forests and Nature. A support tool for effective decision-making

Paul V. Ellefson. 1989. Forest Resource Economics and Policy Research. 1st Edition.

Shashi Kant and Janaki R. R. Alavalapati. 2017. Handbook of Forest Resource Economics.

W. David Klamperer. 1996. Forest Resources Economics and Finance

9.2 Suggested reading list

Handbook for Economics of Forest Resources

Handbook for Economic Valuation of Forests and Nature

Handbook for Forest Resources Economics and Finance

Handbook for Maket and marketing

10 Assessment of students

10.1 Description of assessment

-Attendance 10 %

-Reporting 30 %

-Midterm examination 20 %

-Final examination 40 %

10.2 Grade distribution and student assessment

Grading scale

Score level (Symbol)	Meaning		Total score	Scale
	(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	ພໍໃຊ້	(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)		

Place, Date ...../...../.....

Head of Department..... Course Instructor

Dean of Faculty.....