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

Souphanouvong University

No _____/.....

Place, Date ____/___/___

Course Syllabus

1 Program

Title of the study programme: **M.Sc. on Agriculture and Environmental Forestry**

2 Course details

1. Course name: Environmental impact assessment of Agriculture

Course code: XXXXX

Number of credits (hours/week): 3 (2-3-4); 4 hours per week but two classes per week, total 144 hours. 32 hours Lecture and Practice 48 hours, assignment 64 hours.

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

Prerequisites courses: General Environment, chemistry, Environmental chemistry.

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:

Names and affiliations of lecturer(s): **Lecturer**: Mr. Anousith VANNAPHON. **Affiliation**: Department of Forest Resource, Faculty of Agriculture and Forest Resource. Souphanouvong University.

4 Course description

The course provides an overview of environmental assessment of Agriculture to design, evaluate, and replicate sustainable projects and programs. The course develops the tools to assess natural resources protection, improvements in population health, positive social impacts and poverty reduction, and economic appraisal that include sustainability measures at least cost. Students will practice assessment methods at project and strategic levels. Integrated Assessment using all methods will focus on the energy, water, forestry, and sustainable tourism sectors, applying both project and program analysis. At course end, students will apply practical methods that inform prudent investment decisions and support economic growth, social development, and environmental sustainability.

5 Course objectives

Course needs to improve students' knowledge and skills in term of principle of environmental impact assessment of Agriculture including the course of prerequisites. Students shall have comprehensive techniques for practicing and testing samples of specimen/area on environmental impact by themselves after learning this course, because they shall understand theory and practice altogether..

Knowledge:

Students shall obtain solid knowledge on the assessment of environmental impac of Agriculture t to design, evaluate, and replicate sustainable projects and programs, students can explain the relationship of situation and factors that impact to environment. The course focuses on develops the tools to assess natural resources protection, improvements in population health, positive social impacts and poverty reduction, and economic appraisal that include sustainability measures at least cost. Students will practice assessment methods at project and strategic levels. Integrated Assessment using all methods will focus on the energy, water, forestry, and sustainable tourism sectors, can explain both project and program analysis. At course end, students will apply practical methods that inform prudent investment decisions and support economic growth, social development, and environmental sustainability.

Skills:

Graduates can apply all disciplines to field practices of testing and examining the impact, e.g. on the energy, water, soils, forestry, and sustainable tourism sectors. Applying methods that inform prudent investment decisions and support economic growth, social development, and environmental sustainability.

Application of theories to practice:

Graduates shall be able to acquire new knowledge in all all methods for assessment of environmental impact of Agriculture, which is a key factor for sustainable development. They shall be able to efficiently apply acquired knowledge to all possible situations in sustainable development and economics of community.

Social knowledge and skills:

They can become leaders of all activities in the technology chain, as well as supervisor's person. In case of need they shall be able to guarantee a high-level standard in terms of quality as well as economic effectiveness.

Learning objectives of particular modules

If the course is divided into sections or modules, please state the learning objectives for the specific sections/modules taught within the course

6 Course teaching methods

This course will employ the mix approaches to teach including lecture, practices, and a group discussion relating any issue concerned.

7 Teaching plan

Week	Content	Method/activity	Hours
1	**Chapter 1 Introduction to EIA** 1. Definitions and terms 2. Objective 3. Principles and reasons required EIA 4. Relation to sustainable development 5. Environmental impact of the project 6. Problem of EIA	- Lecture - Propose topic to all students for writing final report with title specifically	**4**
2	Each group identifies and characterizes a system of Environmental Impact Assessment: The Relationship of Environment	- Group disscussion with knowledge and experiences in climate change	4
3	Each group identifies and characterizes a system of agroforestry in a specific location	Assignment	4
4	**Chapter 2: EIA Relevant with Laws** 1. Legal scope of EIA in Laos 2. Rules of EIA 3. Regulations on the EIA of the relevant ministries 4. Rules to be followed	- Lecture - Group discussion with any issues relating government document for climate change	**8**

5	Analyze interaction of system components in a case study and discuss management options.	Assignment	**8**
6	- Environmental Protection *Law* - Majority of official documents	- Group discussion with any issues relating government document for Pollution	**4**
7	Personal work with essay onto any issues regarding any role to Environmental impact	Assignment	**4**
8	**Chapter 3: Describes the details of the project** 1. Type of project 2. Issues to be analyzed EIA 3. Analysis of production requirements 4. Importance of project details	Each group must review each system and each component depends on agroforestry system. - Get feedback - Next week submit Report	**4**
9	- Each group must review each system and each component depends on chemistry -environment and management impact	- Lecture - Group discussion onto issues and impact of climate change to agriculture and forestry and analyze problem in order to address it and build a option for adaptatoin in agriculture sector.	**8**
10	Individual and team work with own presentation for critical thinking for addressing above problem	Presentation, Q&A	**4**
11	**Chapter 4: Describes the current environment** 1. Physical natural resources 1.1. Geography 1.2. Soil 1.3. Natural 1.4. Water 1.5. Air resources 1.6. Sound 2. Bio-ecological environmental resources	- Lecture - Group discussion - Sharing ecperiences with advocating for coping and adaptation of farm intregation and smart farm	**8**

	3. The value of using people 4. Values for quality of life		
12	- Check for previous work - Create form interview and test form with forest	- Lecture - Group discussion - Sharing ecperiences with advocating for coping and adaptation of farm intregation and smart farm	**4**
13	Each group Air Quality Monitoring System – Research	Assignment	**4**
14	**Chapter 5: Public Involvement** 1. Involvement 2. Significance 3. Involvement mode 4. Involvement 5. Stakeholder group 6. Compensation 6.1. Damage assessment 6.2. Resolution of a faulty request	- Lecture - Group discussion, group assigment with any issues concerned	**8**
15	- Checking a full report - Checking a result of chapter 4 - Analyze problem and constrain of each group team area study	Assignment	**4**
16	3 Orirntatoin for new option for Public Involvement	- Lecture - Group discussion, group assigment with any issues concerned	**4**
17	Individual and team work with own presentation for critical thinking for addressing above problem	Presentation, Q&A	**4**
18	**Chapter 6: Environmental Impact Assessment Process** 1. Diagram of the Environmental Impact Assessment Process 2. Early stages of environmental relaxation 3. Environmental Impact Assessment Procedures of Lao PDR 4. Inspection of EIA reports	Lecture - Group Discussion - Select topic of world case study for doing report - Describe, Q&A, discuss and experiment	**8**

	- Each group spend 1 hour to capture the factors influencing Environmental Impact Assessment Process and present briefly - Check a full report and create PowerPoint for presentation - Lecture - Group Discussion - Use any paper concerns student field - Present a result of data collection	Assignment	**4**
	Chapter 7: EIA Analysis Procedures and Methods 1. EIA analysis procedure 2. Physical resource environmental impact analysis 3. Environmental impact analysis of biological resources or ecology 4. Environmental impact analysis of human utility values and quality of life 5. 6. Environmental impact analysis methods 6.1. Key elements to consider before analysis 6.2. Environmental impact analysis Procedures for analysis and acceptance	Check a full report and create PowerPoint for presentation - Lecture - Group Discussion - Use any paper concerns student field	**4**
	Each group spend 1 hour to capture the factors influencing EIA Analysis Procedures and Methods and present briefly - Present a result of data collection	**Assignment**	**4**
	Chapter 8: Environmental Monitoring 1. Purpose and importance 2. Follow up on project results 3. In order for the project owner to be careful in managing 4. To ensure pollution does not occur 5. Examine mitigation standards 6. Reduce risk	Lecture - Group Discussion - Select topic of world case study for doing report - Describe, Q&A, discuss and experiment	**4**

	Each group spend 1 hour to capture the Environmental Monitoringand present briefly - Check a full report and create PowerPoint for presentation - Lecture - Group Discussion - Use any paper concerns student field - Present a result of data collection	**Assignment**	**4**
	Chapter 9: Environmental Quality Index 1. Important water quality index 1.1. pH 1.2. Conductivity 1.3. Oxygen 1.4. Dissolved Oxygen 1.5. Biochemical Oxygen Demand 1.6. Chemical Oxygen Demand 1.7. Coli form Bacteria 1.8. Hardness 1.9. Salinity 1.10. Suspended Solid 1.11. Total Dissolved Solids 1.12. Nitrogen Group 1.13. Cyanide 1.14. Heavy Metal 1.15. Fe 1.16. Pesticides 2. Important weather index 2.1. NOx 2.2. **CO_2** 2.3. Suspended Particulate 2.4. Metal pods and metal pods 2.5. HC O_3	Lecture - Group Discussion - Select topic of world case study for doing report - Describe, Q&A, discuss and experiment	**8**
	Check a full report and create PowerPoint for presentation - Lecture - Group Discussion - Use any paper concerns student field - Present a result of data collection	**Assignment**	**4**
	Individual and team work with own presentation for critical thinking for addressing above problem	Assignment	

19	3. Case study	Group discussion	**8**
20	Defense and Presentation	Presentation, Q&A	**8**

8 Material needs

8.1 Course equipment: Tools use in the classes and practices as LCD and Projector,

Environmental Quality meter.

9 References

9.1 Compulsory reading list

- Textbooks and manual of Environmental Impact assessment
- Environmental Impact assessment Guideline book
- The Proceeding in International Conference

- Environmental Impact Assessment:

- The Relationship of Environment, Plants and livestock

- Law off Environmental impact assessment . Environmental impact assessment

-SIDA, 2005.Guidelines for Environmental Impact Assessments in International Development Cooperation

- A Political Economy of Environmental Impact Assessment in the Mekong Region

- Environmental Monitoring: Models, Methods, and Systems

9.2 Suggested reading list

1. Environmental Chemistry is multidisciplinary science involving chemistry, physic online at: like
2. Air Pollution: Everything You Need to Know online at : Link
3. Journal of the Air Pollution Control Association Online at: like
4. Air Quality Monitoring System – Research Gate online at: like
5. Water Chemical Composition of Rivers, Lakes And Wetlands Online at: like
6. Wastewater Management - UN-Water Online at: like
7. An Introduction to Water Quality Analysis – ResearchGate Online at: like
8. Journal of Soil Science and Environmental. online at: like
9. Assessment of Soil Contamination with Potentially Toxic Online at: like

Environmental Toxicology and Chemistry (ET&C) - SETAC Online at: like

10. Reduce the Adverse Impacts of Chemicals in the Environment Online at: like

11. INTRODUCTION TO ENVIRONMENTAL CHEMISTRY Dr. T. Geetha Assistant Professor Department of Chemistry St. Mary's College, Thrissur Online at: like

12. Module I • Concept and scope of environmental chemistry – Segments of environment • Environmental pollution: Concepts and definition – Pollutant, contaminant, receptor and sink • Classification of pollutants - Global, regional, local, persistent and non- persistent pollutants Introduction to Environmental Chemistry – Dr. T. Geetha, St. Mary's College, Thrissur Online at: like

13. Environmental chemistry Environmental chemistry Chemistry, Physics Agriculture Medicine Biology Engineering Public health multidisciplinary science PDF at: like

14. Environmental chemistry • Environmental chemistry is the scientific study of the chemical and biochemical phenomena that occur in natural places. • Source, Reactions, Transport, Effect & fate of chemical species in environment • Effect of human activity • Effects on humans PDF at: like

15. World Environment Day (WED) • 5 June • First held in 1974 • Air Pollution - theme for 2019 PDF at: like

16. Atmosphere • Layer of gases - air -surrounds earth • Retained by earth's gravity • Major component – N2, O2 • Minor components – ar, CO2, H2O PDF at: like10. Assessment of students

10.1 Description of assessment

Course assessment for students' grade, this will collect the score from several criteria, as class participation 10 percent, Activities with Q&A 10 percent, Report 20 percent, Midterm 20 and final term 40 percent.

10.2 Grade distribution and student assessment

Grading scale

Grade		Total score	Scale
Symbol	**Verbal grade**		
A	Excellent	90-100	4.00
B^+	Very Good	85-89	3.5
B	Good	80-84	3.00
C+	Fairly Good	75-79	2.50

C	Fair	70-74	2.00
D+	Poor	65-69	1.50
D	Very Poor	60-64	1.00
F	Fail	59	0.00

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