



Institution name here No _____/.....
 Place, Date ____/____/____

Course Syllabus

1 Program

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

2 Course details

Course name: *Application of Modern Forest Technology for Sustainable Forest Management*

Course code: 01303525

Number of credits (hours/week): 3(2-3-6)

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
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3 Responsible unit

3.1 Department:

Names and affiliations of lecturer(s): *Asst. Prof. Laddawan Rianthakool, Faculty of Forestry*
Asst. Prof. Chakrit Na Takuathung, Faculty of Forestry
Mr.Theerapong Chumsangsrilines, Faculty of Forestry



4 Course description

The background of sustainable forest management. Principle and concepts of LiDAR (Light Detection and Ranging). Principle and concepts of UAVs (Unmanned Aerial Vehicle). Principle and concepts of GNSS (Global navigation satellite system). Case study in forestry.

5 Course objectives

Principle of concepts of sustainable forest management, Principle concepts and application of LiDAR, UAVs, and GNSS, and case studies.

6 Course teaching methods

Lecture, Exercise, Self-study, Discussion, Presentation, Case study, Project based

7 Teaching plan

Specify the teaching plan for each week of the course, including the methods used to relay information to the students and the number of hours spent on the subjects

Week	Content	Method/activity	Hours
1	Principle, concepts of sustainable forest management <ul style="list-style-type: none"> • Benefits of SFM • Economics aspects • Environmental aspects • Social aspects 	Lecture Discussion	3
2,3,4	Principle concepts and application of LiDAR <ul style="list-style-type: none"> • Hardware & scanner basics • Scanning • Data preprocessing • Data registration • Data processing • Data exporting 	Lecture Exercise Practice Discussion	15
5,6,7	Principle concepts and application of UAVs <ul style="list-style-type: none"> • Hardware and basics • Preparation 	Lecture Exercise Practice Discussion	15



	<ul style="list-style-type: none"> • Image capture • Data preprocessing • Data registration • Data processing • Data exporting 		
8,9,10	Principle concepts and application of GNSS <ul style="list-style-type: none"> • Hardware • Software • Data exporting 	Lecture Exercise Practice Discussion	15
11	Case study/Practice <ul style="list-style-type: none"> • Scenario 1: Forest mapping 	Exercise Practice Discussion	3
12	Case study/Practice <ul style="list-style-type: none"> • Scenario 2: Yield estimation 	Exercise Practice Discussion	3
13	Case study/Practice <ul style="list-style-type: none"> • Scenario 3: Logging plan 	Exercise Practice Discussion	3
14	Case study/Practice <ul style="list-style-type: none"> • Scenario 4: Logging impact assessment 	Exercise Practice Discussion	3
15	Project presentation	Presentation	3

8 Material needs

8.1 Course equipment: laptop and software (Cloudcompare, QGIS, 3D Forest, FARO scene, Satlab)

Commented [1]: Any specific software the students will need?

9 References

9.1 Compulsory reading list

- 1) Matti Maltamo, Erik Næsset and Jari Vauhkonen. 2014. Forestry Applications of Airborne Laser Scanning: Concepts and Case Studies. Springer. 473p.
- 2) Faro. 2020. SCENE 2019 FARO Focus Laser Scanners Training Workbook. Faro. 338p.
- 3) FARO Technologies. 2020. FARO SCENE User Manual. FARO Technologies. 329p.
- 4) Satlab GeoBiz Solution. 2020. GNSS signal processing manual. Satlab GeoBiz Solution. 16p.

5) Satlab GeoBiz Solution. 2020. User Guide GNSS Field data collection. Satlab GeoBiz Solution. 38p.

9.2 Suggested reading list

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10 Assessment of students

10.1 Description of assessment

Assessment methods

Quiz	30%
Exam	30%
Project presentation	30%
Class participatory	10%
Total	100%

10.2 Grade distribution and student assessment

Grading scale

Grade		Total score	Scale
Symbol	Verbal grade		
A	Excellent	80-100%	4.0
B+	Very good	75-79%	3.5
B	Good	70-74%	3.0
C+	Almost good	65-69%	2.5
C	Fair	60-64%	2.0
D+	Almost fair	55-59%	1.5
D	Poor	50-54%	1.0
F	Failed	<50%	0.0

Faculty of Forestry, Date 29/03/2023