

## COURSE LAYOUT

### 1. GENERAL

<b>SCHOOL</b>	ENVIRONMENT AND AGRICULTURAL ENGINEERING		
<b>DEPARTMENT</b>	NATURAL RESOURCES DEVELOPMENT AND AGRICULTURAL ENGINEERING		
<b>STUDY LEVEL</b>	<i>Undergraduate</i>		
<b>COURSE CODE</b>	<b>183</b>	<b>SEMESTER</b>	<b>5o</b>
<b>COURSE TITLE</b>	AGRICULTURAL MACHINERY		
<b>INDEPENDENT TEACHING ACTIVITIES</b>		<b>WEEKLY TEACHING HOURS</b>	<b>ECTS</b>
Theory: Lectures,		3	3
Laboratory and practice		2	2
<i>Total</i>			
<b>COURSE TYPE</b>	Scientific Area		
<b>PREREQUISITES</b>	Physics		
<b>LANGUAGE:</b>	Greek		
<b>IS THE COURSE OFFERED For ERASMUS STUDENTS?</b>	YES (With individual lectures and assignments)		
<b>COURSE WEB PAGE</b>			

### 2. LEARNING OUTCOMES

<b>Learning Outcomes</b>
Specialised knowledge in the field of mechanisation of agriculture and agricultural machinery. The student will be able to identify agricultural machinery, their parts and their operation. They will be able to adjust and utilize agricultural machinery to meet specific crop needs. They will be able to supervise their maintenance and repairs. Finally, he will be able to calculate the cost of using farm machinery, calculating fixed and variable costs, as well as calculate the power to purchase new farm tractors.
<b>General Competenses</b>
-Search, analysis and synthesis of data and information, using the necessary technologies -Autonomous Work -Project design and management -Teamwork -Decision making -Promoting free, creative and inductive thinking

### 3. COURSE CONTENT

<ul style="list-style-type: none"> <li>- Agricultural mechanization, advantages, disadvantages, problems, stages of agricultural mechanization, standardization and its importance</li> <li>- The agricultural tractor and its use (types, characteristics, general comparison)</li> <li>- The internal combustion engine characteristics - operation, systems (cooling, lubrication, fuel transport, electrical)</li> <li>- Systems of the agricultural tractor. Mechanical transmission, hydraulic system, dynamo, steering system, braking system</li> <li>- Soil tillage machinery. Importance of soil tillage, effect on physical and other soil properties, tillage systems. Primary and secondary tillage machinery. Exercises.</li> <li>- Seedbed preparation machinery, PTO driven machinery</li> <li>- Plantation establishment. Methods and their use, sowing, sowing of cereals and small grains Exercises</li> <li>- Seed drills, planters and transplanters Exercises</li> </ul>
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- Crop care machinery. Fertiliser spreaders, hoeing machines. Exercises.
- Plant protection machinery. High pressure sprayers, mist sprayers, sprayers, applicators. Exercises.
- Crop harvesting machinery - combine harvesters, cotton harvesters, beet harvesters, potato harvesters, fruit harvesters
- Machinery for forage plants - mowers, forage handlers, forage harvesters, stalk crushers, silage machine
- Precision farming basics
- Calculation of the cost of using agricultural tractors and machinery. Fixed and variable costs.
- Method of calculating power of agricultural tractors and selection of machinery attachments.

#### 4. TEACHING and LEARNING METHODS - Evaluation

<b>TEACHING METHOD</b>	(face-to-face)	
<b>USE OF INFORMATICS and COMMUNICATION TECHNOLOGIES</b>	Exploitation of Information and Communication Technologies in teaching, and in the communication with students.	
<b>TEACHING ORGANISATION</b>	<b>Activity</b>	<b>Work Load</b>
	Lectures	75
	Laboratory work+ practice	50
	<b>Total contact hours and training (About 25 hours of study per ECTS)</b>	<b>125</b>
<b>STUDENTS EVALUATION</b>	<u>I. Theory</u> Final written Exam, of increasing difficulty, which may include: -Questions to develop a topic and Multiple-choice test -Exercise solving of graded difficulty. <u>II. Laboratory</u> Oral exam	

#### 5. SUGGESTED BIBLIOGRAPHY

- Online notes for laboratory exercises and lecture presentations.
- Τσατσαρέλης, Κωνσταντίνος (2000). Αρχές Μηχανικής Κατεργασίας του Εδάφους και Σπορά. Θεσσαλονίκη. ISBN: 960-7425-25-1
- Τσατσαρέλης, Κωνσταντίνος Α (2011). Γεωργικοί Ελκυστήρες. Εκδόσεις Γιαχούδη. Θεσσαλονίκη, ISBN: 960-6700-51-4