

Course Title	Agricultural Machinery and Livestock Equipment				
Course Code	ABF 414				
Course Type	Theory				
Level	Undergraduate				
Year / Semester	Spring Semester/8 th Semester/4 nd year				
Teacher's Name	Dr. Michalakis Christoforou				
ECTS	5	Lectures / week	2x1.5 hrs	Laboratories / week	
Course Purpose and Objectives	The aim of the agricultural machinery and livestock equipment course, is to develop the knowledge and skills needed for students to recognize agricultural machinery and livestock equipment and to choose the type of machinery to use according to culture practices and soil conditions. The students will also be able to use satellite images from the Copernicus platform and operate different indicators i.e. vegetation, moisture etc.				
Learning Outcomes	During the section of Agricultural Machinery, students will be able to distinguish types of tractor, describe their usages and applications and the accessories used in the different types of tractors. They will also be taught the accessories needed according to different cultures, soil type depending on weather conditions and previous cultural practices. By the end of the course, students will be able to recommend the correct type of tractor and accessories needed for all the different types of cultural conditions. In the second section of the course, Livestock Equipment the students will be able to describe the modern types and systems of livestock equipment used in livestock farms such as cow, pig, poultry and rabbit farms. They will understand the purpose and function of feeding, water supply and cleaning equipment and how to manage and process livestock waste (Slurry and manure). In the third section student will be familiar with Remote sensing and Geographical Information Systems and collect, process, analyze, interpret, present and manage given data such as satellite images and orthophotos. Furthermore, students are expected to be able to use the Erdas imagine and ArcGIS soft wares, as also the Copernicus web-based platform.				
Prerequisites	None	Required	None		

Course Content	1. Agricultural Machinery a. Tractor types b. Tractor systems and function 2. Tractor accessories a. Tuber planting machines b. Cereal planting machines c. Smallgrain planting machines (Onions, lettuce etc) d. Pneumatic planting machines e. Sprayers f. Sprayers calibration g. Plough, disc plough, cultivator and disc cultivator h. Rotortiller and weed mowers 3. Combines a. Combines types b. Combine mode of action and seed separation c. Windrowers d. Balers and ball wrapping 4. Livestock equipment a. Cow farm b. Pig farm c. Goat and sheep farm d. Poultry farm e. Rabbit farm f. Methods of livestock slurry, manure and waste management 5. Remote sensing and Geographical Information Systems (GIS) a. Introduction to Remote Sensing b. Remote Sensing systems c. Satellites and mode of action d. GIS functions e. Spatial analysis f. Radiometric analysis g. Spectral analysis h. Temporal analysis i. Atmospheric corrections j. Use of GIS and remote sensing techniques in Agriculture k. Precision Agriculture l. Mapping, orthophotos and geodesy m. Multi-criterial analysis Ανάλυση n. Copernicus web-based platform o. Sentinel and landsat satellites p. Erdas imagine and ArcGIS softwares
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Teaching Methodology	Power point presentations Classroom Discussion Publication review Assignment
Bibliography	1. Power point presentations 2. Geographic Information Systems. Dawsen, Christopher J. Series: Environmental Science, Engineering and Technology. New York : Nova Science Publishers, Inc. 2011 3. Geographic information systems: applications in forestry and natural resources management / Peter Bettinger, Michael G. Wing. By: Bettinger, Pete. Boston [Mass.] : McGraw-Hill, Higher Education, c2004. x, 230 p. : ill., maps ; 28 cm. Language: English, Database: Pantognostis 4. Learning ArcGIS Geodatabases By: Nasser, Hussein; Mohanta, Pratyush. Series: Community Experience Distilled. Birmingham, [England] : Packt Publishing. 2014 5. Ειδικές εφαρμογές στο ArcGIS By: Μηλιαρέσης, Γιώργος Χαρ. Αθήνα : Ίων, c2006. 246 σ.: εικ. ; 28 εκ. Language: Greek, Modern (1453-)
Assessment	Final exams 60% Exams sheets contains multiple choice and free response questions Use of GIS softwares 20% Assignment 20% Students are obligated to perform an assignment based on one nematode species using scientific publications
Language	