

## Precision farming equipments (2<sup>nd</sup> Year, 1<sup>st</sup> SEMESTER)

Credit value ECTS 7

### Course category

Domain (Imposed)

### Course holder:

Lecturer. PhD. Dan Cazacu

### Discipline objectives (course and practical works)

The discipline presents basic concepts of the construction and operation of equipment used in the practice of precision agriculture, which is becoming increasingly subject to integrated technologies and digitization that add value to the tractors and agricultural machinery, regarding their technical performance and thus making the connection between sustainable agriculture and precision agriculture as well as “smart” agriculture etc.

### Contents (syllabus)

Course (chapters/subchapters)
Brief history of the evolution of agriculture -
The general concept of sustainable development
Agriculture systems
GPS and GIS in precision agriculture
Agricultural robots
Tools, methods and devices for analysis and monitoring used in precision agriculture
Monitoring and control of tractors and agricultural equipment
The concept of VRT (variable rate technology) and agricultural equipment
Integrated technologies for different agricultural equipment

Practical works
GPS systems and their accuracy
Direct practical applications of the use of GPS systems in precision agriculture
Use of variable rate application technology for different agricultural equipment
Data types that a GIS works with
Introduction to the knowledge and use of NIRS (Near Infrared Spectroscopy technology)
Soil monitoring using IoT (internet of things)
Variotronic system (TIM) for the communication of the tractor with the agricultural equipment

### Bibliography

1. Bill A. Stout 1999 - *CIGRE Handbook Volume III*. Publisher American Society of Agricultural Engineers Texas A & M University, USA Co-Editor: Chez Bernard Ministry of Agriculture, Fisheries and Food, France

2. Cazacu Dan, 2021 - *General notions regarding the digitalization of agriculture*, publisher PIM Iași

3. *Precision farming and variable rate technology -A resource guide* -First Edition February, Alberta Council, 2010

### **Evaluation**

<b>Evaluation form</b>	<b>Evaluation Methods</b>	<b>Percentage of the final grade</b>
Exam	oral	60%
Laboratory activity	tests, laboratory activity	40%

### **Contact**

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