**ENGINES & TRACTORS (IInd Year, I st SEMESTER)**

**Credit value** ECTS 6

## Course category

Domain (Imposed)

**Discipline Code:** : A.EMIAIA.D.201

**Course holder:**

**Prof. PhD. Roşca Radu**

# Course objectives

The course aims to present the basic notions about tractor design and construction (internal combustion engines and particularly Diesel engines, tractor transmission, PTO, hydraulics, three point hitch etc.)

# Contents (syllabus)

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| **Course (chapter/subchapters)** |
| Basic notions about engines and their classification |
| Parts of the internal combustion engines |
| Operation of the four strokes Diesel engine |
| Operation of the two strokes spark ignition engine |
| Mechanisms and systems of the internal combustion engines (fueling system, lubrication system, cooling system etc.) |
| Electric motors |
| Tractor transmissions (mechanical, hybrid)  |
| PTO, three point hitch, hydraulics |
| **Practical training** |
| Materials, fuels, lubricants and special fluids for tractors and agricultural equipment |
| Machine parts |
| Construction of the internal combustion engines |
| Tractor transmission |
| Steering, braking and rolling systems |
| Tractor implement |

# References

1. Cazacu D. și colaboratorii, 2017 - *Tractorul pe înțelesul tuturor.* Editura PIM, Iași
2. Roşca R., Cazacu D. 2020 - *Construcţia tractoarelor* ", ed. a III-a. Editura Ion Ionescu de la Brad, Iași
3. Renius, K.T., 2020 – *Fundamentals of tractor design*, Springer, Cam, Switzerland.
4. Stout, B. A. (ed.)., 1999, - *CIGR Handbook Volume III.* American Society of Agricultural Engineers, St. Joseph, Michigan, USA.

**Final evaluation**

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| **Evaluation form** | **Evaluation method** | **Percent of final grade** |
| Course attending | - | 10% |
| Practical training | tests, activity | 30% |
| Exam | written test | 60% |

**Contact**

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