Electrotechnics 1 (Ist Year of study, IInd Semester)

Credit value (ECTS) 4

Course category
Fundamental discpline (Compulsory courses)

Discipline Code: A.EMIAIA.F.108

Course holder:
PhD. Lect. Mihai – Marius BĂETU

Discipline objectives (course and practical works)

The course aims to acquire basic theoretical knowledge of electrotechnics with applicability in the food industry.

The practical work is aimed at familiarizing students with electromagnetism and application in technology, aiming at acquiring elementary knowledge of electricity, as well as practical skills regarding the measurement of electrical quantities, the recognition of circuit components, the understanding of the operation of a electrical circuits, estimation of characteristic values of different electrical signals in a circuit, selection of appropriate measuring instruments, experimental assemblies, lifting, processing and interpretation of experimental data.

Contents (syllabus)

Course (chapters/subchapters)
Electrostatics.
Electrokinetics.
DC electric circuits: simplification of DC circuits.
AC electric circuits: R-L-C series circuit, R-L-C parallel circuit.
Power in monophase AC circuits
Rotary-current circuits: production of rotary-current symmetric voltage system, analysis of rotary-current circuits, power in rotary-current symmetrical circuits.
The economic importance of the power factor: ways to improve it.

Practical works
General training for NTN and PSI; Symbolism used in electrotechnics.
Study of DC electric circuits.
Study of alternating current series circuits formed with resistance, inductance and capacitance.
Improving the power factor
Measurement of active power and active energy in monophase AC circuits.
Rotary-current electric circuits. Magnetic spin field.
Measurement of power and energy in rotary-current AC circuits.
Final colloquium of knowledge evaluation

References
1. Băetu Mihai- Marius – Eletrotehnică – Îndrumar de laborator, Ed. Ion Ionescu de la Brad, 2023

2. Puiu – Berizinţu Mihai - Bazele electrotehnicii – Seminar și lucrări practice, Editura ALMA MATER, BACĂU, 2013
3. Vlad Ciprian, Gurguiatu Gelu, Bălănuţă Ciprian - Elemente de inginerie electrică - Îndrumar de laborator, Galati University Press, 2009
4. Milici M. – Noţiuni de teoria circuitelor electrice – Semnale. Legi, teoreme şi metode de analiză. Ed. MatrixRom, Bucureşti, 2005.
5. Voinea Radu Cociu, Sebastian Arădoaei - Electrotehnică şi Electronică - Îndrumar de laborator, Ed. PIM, 2015

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Writing examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

Contact

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