

Basics of material science and engineering (1st Year of study, 1st SEMESTER)

Credit value (ECTS) 3

Course category

Domain (Imposed)

Course holder:

Lecturer Dr. Florin-Daniel LIPȘA

Discipline objectives (course and practical works)

The course aims to make students acquire theoretical knowledge with reference at materials and blanks used in the construction of agricultural machinery and to the food industry and their processing methods

Practical work aims to make students acquire theoretical and practical knowledge on methods of materials processing, of the interpretation of the iron carbon diagram, recognition of materials and semifinished used in the construction of machinery in agriculture and food industria.

Contents (syllabus)

Course (chapters/subchapters)
General notions about metals and alloys.
The materials properties
The structure of metals and alloys
Iron-carbon alloys
Nonferrous metal materials
Heat treatings
Thermochemical treatments.
Metal casting
The processing of materials by plastic deformation
Welding of metallic materials
Cutting metallic materials by thermal processes
The assembling by soldering of metallic materials
Unconventional methods of materials processing
Metal corrosion and corrosion protection
The processings on splintering machine tools

Practical works
Work safety rules;
Units of measurement used in the technics;
Multiples and submultiples of units;
Conversion tables measuring units.
Study regarding materials used in mechanical engineering
Study regarding construction characteristics of semifinished products used in the food industry.
Study regarding iron carbon diagram

Study regarding welding of metallic materials
Study regarding soldering of metallic materials
Study regarding processing on splintering machine tools.
Knowledge assessment

Bibliography

1. Chirilă C., – Elemente de ingineria materialelor – Note de curs
2. Cartiș Gh. I. + Tratamente termochimice – Editura Facla, Timișoara, 1988
3. Maria Rădulescu – Studiul metalelor –Editura Didactică și Pedagogică București 1982
4. Mehedințeanu M. Și colab. – Tehnologie mecanică și mașini unelte – Editura Didactică și Pedagogică, București, 1982
5. Popovici V. și colab – Ghidul lucrărilor de sudare, tăiere, lipire – Editura Scrisul românesc, Craiova 1984

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	written assessment	65%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	35%

Contact

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