

22210 Introduction to Manufacturing Processes

Credit points: 2.5

Hours: lecture: 2, recitation: 1

Prerequisites: 22400 Materials Engineering

Corequisites: 22113 Computer Aided Design

Course Objectives

The course gives the student basic understanding of the following subjects:

- ✓ Acquaintance with various manufacturing processes starting with selection and ordering materials to final product manufacturing.
- ✓ Exposure to techno-economic considerations and production in a competitive environment.
- ✓ Planning manufacturing operations and acceptance testing. Preparing a sheet for carrying out specific technological actions (taught in the course) and constructing a routing chart that includes a list of all operations performed during production.

Course Structure

The course is composed of frontal lectures and recitations. A few homework assignments will be given during the course, these assignments are not mandatory.

Grading

Homework assignments – 30% (optional)

Final exam – 70% or 100%

The final exam grade should be 55 or higher in order for the student to pass the course, a final exam grade lower than 55 will become the course grade.

Course Contents

1. Introduction.
2. Casting processes.
3. Forming and shaping processes.
4. Machining processes.
5. Joining and cutting processes.
6. Surface technology.
7. Advanced processes.
8. Dimensioning and tolerancing, geometric tolerancing.
9. Quality assurance and acceptance tests.
10. Process planning.

Bibliography

Textbook:

Kalpakjian & Schmid, Manufacturing Engineering and Technology, 5th ed., Pearson Prentice-Hall, 2006

After studying Introduction to Manufacturing Processes, the student should be able to:

	Learning Objective
1	Know classification of main production processes.
2	Know of the main technological production processes studied in the course.
3	Know the basic principles of planning the technological processes studied in the course and their connection to material properties.
4	Know to relate a certain defect of a product to a certain improperly done manufacturing operation.
5	Select the most appropriate technological process for production for a certain product.
6	Know the methods of quality control.
7	Compose a correct list of operations required for manufacturing of a certain product according to the required technological steps.

Last Update: October 10th , 2019