LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Industriella produktionssystem
Production Systems

MMTA05, 6 credits, G1 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED M
Date of Decision: 2023-04-11

General Information

Main field: Technology.
Compulsory for: I3
Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to provide a comprehensive understanding of the activities and processes involved in industrial production of products, as well as the design of manufacturing systems. The course will also provide a deeper understanding of the key manufacturing methods, the importance of materials in a manufacturing process and how to influence product quality and production system performance.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- master the fundamental nomenclature in product realization as well and be able to describe and define basic concepts in manufacturing.
- be able to explain basic concepts in materials technology and how the choice of materials affects the producibility.
- be able to describe different manufacturing principles, characteristics, constraints, opportunities and results.
- be able to perform calculations that provide the basic conditions for the production methods.
- be able to describe the characteristics of different production systems layout.
- evaluate how various process parameters affecting the production system performance

and cost.

Competences and skills
For a passing grade the student must

- independently search for and compile information on a given manufacturing process and present it in written and oral form.
- in a group apply calculation methodology on a real composite product to specify frames to manufacture this, and be able to document this in writing.
- be able to design central manufacturing processes starting from a given form, for a specified quality and specified equipment.
- identify key critical requirements for production tied to a product or component.

Judgement and approach
For a passing grade the student must

- be able to make considerations of sustainability when selecting materials and production methods in the product realization process.

Contents

The course covers an overview of the entire field of product realization, with a specialization in the production phase. The course focuses on those groups of industrial manufacturing methods used to give a material a desired shape and characteristics. For each group of methods conditions, equipment, tools, characteristics and results are covered. The method groups included are plastic molding, casting, machining, assembly, powder-based, polymer-based and laser-based methods.

The course also deals with the production system design and production development, where the links between production performance and costs is crucial. Since the material is of great importance for the result of processing operations, the course starts with basic materials technology. Further more, it is explained how sustainability in production can be influenced through both consciuos choices of methods and materials.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Continuous examination of three assignments and activities can give a maximum of 8 examination points, that together with a written exam with maximum 52 points will give the final grade. A compulsory laboration is also requires.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

The number of participants is limited to: No
The course overlaps following course/s: MMT012

Reading list

- Ståhl, Jan-Eric: Industriella Tillverkningssystem del I, Material och tillverkningsmetoder. KFS i Lund AB, 2014. Main book.
- S. Kalpakjian, S. Schmid: Manufacturing Engineering and Technology, Seventh edition. Pearson, 2014, ISBN: 978-981-06-9406-7. Reference book.

Contact and other information

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