SYLLABUS

Electronics production 7.5 credits E7022E

Elektronikproduktion

Course syllabus admitted: Autumn 2020 Sp 1 - Spring 2021 Sp 4

DECISION DATE
2020-06-18

Luleå University of Technology 971 87 Luleå, Sweden
Phone: +46 (0)920 49 10 00 • Corporate Identity: 202100-2841

LULEÅ TEKNISKA UNIVERSITET

Electronics production 7.5 credits E7022E

Elektronikproduktion

Second cycle, E7022E

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Elektroteknik	Electrical Engineering

Entry requirements

Knowledge in electronic circuit theory and electronics regarding components as transistors, diodes, and operational amplifiers. Knowledge in basic circuit design using these components. Corresponding to E0007E.
Alternative:
Alternative to completed courses can be corresponding knowledge acquired through work within the electronics sector.

Selection

The selection is based on 30-285 credits

Examiner

Shailesh Chouhan

Course Aim

The course objective is that the student will a thorough understanding with basic electronics production, its challenges and problems and how these are addressed in real life production.

Knowledge and understanding

The student having technology knowledge and economical understanding for:

- PCB/PWB technologies
- Interconnect technologies
- Material selection and material properties
- Thermal effects and properties
- Test
- Production equipment and efficiency
- Standards
- Environmental and legal aspects

Skills and abilities

The student having knowledge on:

- Material selections, production technologies, test methodologies, and be capable of using standards and legislation supporting production towards economical effectiveness . This is shown trough participation in lab works including preparation work, analysis and report. Also counting the compulsory study visit

Ability to assess and viewpoint

The student have to know:

- Identify her/his additional need for knowledge to solve specific problems and how to get/develop that knowledge. Shown through analysis and report on lab works and reporting of study visit.

Contents

The course comprises the following part:

- Electronics production – Generic
- PCB technologies
- Interconnect technologies
- Component handling
- Environmental aspects
- Production effectivity
- Production equipment
- Yield and volume effects
- Test
- Thermal effects and behaviors
- Material properties and selection

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.

The course do have lectures and minimum 2 lab works and one study visit. Lab works and study visit are compulsory and a visit at a company within the field of electronics development, design and production.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Requirements for pass (3) are basic understanding of the electronics production process, involved components, their handling, interconnect technologies, PCB/PWB technologies and product test. Requirements for grade 4 are in addition the understanding of environmental impact from electronics production and related standards and legislation. Requirements for grade 5 are in addition a thorough knowledge on the production process, relation ship to product quality, environmental aspect and the impact of production volume to all aspects of electronics production.

Literature. Valid from Autumn 2010 Sp 2

Clyde F Coombs (2007) Printed Circuits Handbook. (Edition 0006). McGraw-Hill Professional Publishing. ISBN10:0071467343.
Supplementary material will be found in Fronter.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	G U 3 4 5	6	Mandatory	A10	
0002	Laboratory work	U G#	1.5	Mandatory	A10	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Jonny Johansson, HUL SRT 2020-06-18

Syllabus established

by the Department of Computer Science and Electrical Engineering 2010-02-19