



Introduction to Polymer Materials

Introduktion till polymera material

5 credits

5 högskolepoäng

Ladok Code: 42RP05

Version: 2.0

Established by: Education Committee 2014-11-21

Valid from: Autumn 2015

Education Cycle: Second cycle

Main Field of Study (Progressive Specialisation): Resource Recovery (A1F)

Disciplinary Domain: Technology

Prerequisites: Meet the requirements for admission to the Masters programme in Resource Recovery.

This course assumes no prior knowledge of polymeric materials.

Subject Area: Materials Technology

Grading Scale: Seven-degree grading scale (A-F)

Content

- History of the development of polymers
- Basic concepts and definitions
- Characteristic features of polymers (molecular weight distribution, secondary bonding forces, atomic composition)
- The morphology of polymers: Amorphous and semi-crystalline material, phases and transitions
- Characterisation of the morphology and thermal properties of polymeric materials
- The mechanical properties of polymers and the characterisation of these mechanical properties
- Review of the commercially most common polymeric materials
- Review of the most important processing methods for plastics
- Recycling of polymeric materials

Learning Outcomes

After completing this course, the student is to:

1 Knowledge and understanding

1.1 Have acquired knowledge about polymeric materials,

1.2 Be able to understand and analyse basic concepts in polymer technology,

1.3 Be able to give an account of the difference between crystalline and amorphous polymers,

1.4 Be able to explain how the molecular structure of a polymer is related to its properties, process methods and areas of application,

1.5 Be able to describe how polymeric materials impact the environment and how they can be recycled,

2. Skills and abilities

2.1 Be able to describe how the most common polymeric materials can be produced and processed into a final product,

2.2 Be able to describe how you can characterise the most important thermal and mechanical properties of a polymer,

3. Judgement and approach

3.1 Be able to suggest which polymeric material might best be used in a finished product, taking into account the finished product's requirements in terms of its properties,

3.2 Be able to discuss how polymeric materials can be recycled in an environmentally sustainable manner.

Forms of Teaching

Teaching consists of lectures.

The language of instruction is English.

Forms of Examination

The course will be examined through the following examination elements:

Exam

Learning outcomes:

Credits: 5

Grading scale: Seven-degree grading scale (A-F)

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Materials

Lecture materials distributed by the lecturer.

Student Influence and Evaluation

The Head of Academy and course coordinator are responsible for ensuring that students are invited systematically and regularly to put forward their views on the course. The results of the evaluations will be reported back to the students and will form the basis for the future structure of the course.

Miscellaneous