UNIVERSITY OF BORÅS

Polymer Technology
Polymerteknologi

7.5 credits
7.5 högskolepoäng

Ladok Code: 42RP07
Version: 5.0
Established by: Committee for Education in Technology 2015-12-18
Valid from: Spring 2016

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Polymeric Technology (A1F)
Disciplinary Domain: Technology
Prerequisites: Meet the requirements for admission to the Masters programme in Resource Recovery.
Pre-requisite for this course is the course Introduction to polymeric materials (or equivalent knowledge).
Subject Area: Materials Technology
Grading Scale: Seven-degree grading scale (A-F)

Content

• Injection moulding, extrusion, film-blowing of plastics
• Rheology and characterisation of rheological properties
• The composition of composites and their properties and manufacturing methods
• Melt spinning of textile fibres
• Additives and fillers in polymeric materials
• Recycling of polymeric materials

Learning Outcomes

After completing this course, the student is to:
1 Knowledge and understanding
1.1 Be able to give an in-depth description of the most important manufacturing methods for plastics,
1.2 Understand the composition of composites, as well as how the properties of composites can best be used in different end-user products,
1.3 Understand how textile fibres can be manufactured from polymeric materials, as well as understand the most important material characteristics for a textile fibre,
1.4 Have knowledge of the importance of rheology in the processing of plastics, composites and textile fibres,
1.5 Have an in-depth knowledge of how plastics, composites and textile fibres can be recycled,
2. Skills and abilities
2.1 Have an in-depth understanding of the injection moulding and extruding process,
2.2 Have an in-depth understanding of the manufacture of composite materials,
2.3 Have an in-depth understanding of how textile fibres can be manufactured from polymeric materials,
2.4 Be able to explain how the properties of polymeric materials can be influenced by additives and fillers,
3. Judgement and approach
3.1 Be able to choose a manufacturing process based on specific technical and economic assumptions,
3.2 Be able to assess how different production methods impact the environment.

Forms of Teaching

Teaching consists of lectures and laboratory experiments.

The language of instruction is English.

Forms of Examination

The course will be examined through the following examination elements:

Exam - (All the Goals)
Learning outcomes:
Credits: 5.5
Gradingscale: Seven-degree grading scale (A-F)

Laboratory - (Goal 1.1 - 1.4 and 2.1-2.2)
Learning outcomes:
Credits: 1
Gradingscale: Fail (U) or Pass (G)

Class Seminars
Learning outcomes:
Credits: 1
Gradingscale: Fail (U) or Pass (G)

The module exam determines the final grade which is issued when all components of the course are approved.

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

Literature and Other Teaching Materials

McCrum, N. G., Bucknall, Clive B. & Buckley, C. P. (1997). *Principles of polymer engineering.* Oxford: Oxford Univ. Press (latest edition)
Course material 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