POLYMER PROCESS ENGINEERING

1.1. Identification

University:	Kungl Tekniska Högskolan (KTH), Stockholm, Sweden											
School:	School of Chemical, Science and Technology											
Course:	Polymer Process Engineering											
ECTS:	7.5											
Semester:	*Winter*						*Summer*					X
Category	*Fundamental course*						*Specialisation course*					X
Module	*MFI*		*MFII*		*MFIII*		*MSI*		*MSII*	X	*MSIII*	
Teachers:	Bengt Stenberg											
Language:	*English*	X	*Italian*				*Swedish*	X	*Spanish*			

1.2. Learning-outcomes

- Knowledge of different aspects of polymer process engineering.

1.3. Competencies

- **General**

- to have critical understanding of technical and scientific tools
- to work and manage teams
- communication skills (both written and oral)
- to work in an international context

- **Specific**

- to understand the different processing processes
- to analyse the influence of different processing methods .

1.4. Contents

Processing of polymers and the connections between choice of material, choice of method and properties of the final polymer product. The mechanical and physical behavior of polymer melts; rheology, orientation of molecules, solidification. The three dominant and technically most advanced processing methods, injection moulding, extrusion and calandering, are thoroughly discussed. Other processing methods are described more briefly. Special emphasis is put on the influence of different processing methods on the structure and properties of the materials, morphology, orientation of molecules, anisotropy, thermal residual stresses.

1.5. Teaching Methodology

- Lecture sessions
- Practical sessions: “cooperative work” for solving problems
- laboratory sessions

1.6. Evaluation

- written exams
- Laboratory work

1.7. Bibliography

- Analytical polymer rheology : structure, processing, property, relationships / Charles L. Rohn, Hanser 1995.