Course title: **Advanced control of polymeric processes**

Units: 3
Type: Theoretical
Prerequisite: None
Hours: 48

Objectives:

- Dynamic modeling of processes and classic controller method
- Process control methods for polymeric processes

Syllabus:

Review of linear control

Modern control

- State space model
- Canonical forms
- Regulator and compensator design
- State estimation
- Integral action in modern control
- Optimal control

Digital control

- Discretization
- Discrete closed loop
- Digital controller

Fuzzy control

- Fuzzy concepts and sets
- Fuzzification
- Fuzzy calculation
- Fuzzy controller

Instrumentation

- Measuring of various variables
- Estimation of variables
- Relationship among product properties and variables

Special topics

* Case studies of polymerization and processing will be discussed.