

ANKARA UNIVERSITY

Department of Energy Engineering

ENE450 Harvesting Energy from Lignocellulosic Biomass

COURSE SYLLABUS

Instructor

Işık Semerci

Assistant Professor of Energy Engineering

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Course Objectives: Learning major conversion methods for biofuel and biochemical production

Classroom Hours: Wednesdays between 13.30-16:15

Textbook: Biomass Fractionation Technologies for a Lignocellulosic Feedstock Based Biorefinery, Solange I. Mussatto

COURSE CONTENT

- 1- Introduction to Lignocellulosic Biomass
- 2- Classification of feedstocks, cell wall biochemistry, cell wall polymers; cellulose, hemicellulose and lignin
- 3- Recalcitrance of lignocellulosic biomass, recent technologies for lignocellulosic biomass pretreatment
- 4- Green techniques; supercritical CO₂ and ionic liquid pretreatments
- 5- Enzymatic hydrolysis
- 6- Fermentation
- 7- Bioethanol
- 8- Thermochemical bioconversion methods
- 9- Biogas production
- 10- Biodiesel
- 11- Platform chemicals
- 12- Process simulations