

Biofuels

Biofuels are liquid or gaseous transport fuels, such as biodiesel and bioethanol, made from biomass. They serve as a renewable alternative to fossil fuels in the EU's transport sector, helping to reduce greenhouse gas emissions and secure supply availability in the EU. By 2030, the EU aims to increase the share of renewable energy in transport to at least 14%, including a minimum share of 3.5% of advanced biofuels. EU countries are required to set out an obligation for fuel suppliers that ensures the achievement of this target.

Period:	Period 1
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Lecturer:	Esa Toukoniitty, Metropolia University of Applied Sciences. Email: Esa.Toukoniitty@metropolia.fi
Educational management portal:	moodle.unitus.it
Objectives:	An introduction to biomass properties and potential. Overview of main conversion processes, raw materials and biofuel product properties.
Programme:	Setting the scene - fuels today (liquid, solid gaseous, applications, sustainability, fuel properties/standards, LCA, emissions). Introduction to biofuels, biomass chemistry - lignocellulose, fats and lipids, sugars composition, key reactions, chemistry of biomass conversion, catalysis. Biofuel processes (general overview, gasification, syngas, FT, bio-oils/upgrading, biomass monomer production and pre-treatment, sugar conversion, non-sugar monomers, triglyceride upgrading.
Pre-requisites:	Fundamentals of Chemistry and Process Technology
Study material:	<ul style="list-style-type: none">● Lecture slides;● Reading materials● Additional literature handed out during the course / made available via Blackboard/Moodle.

