

Major: Biomass Refining

Master's Programme in Chemical, Biochemical and Materials Engineering

Course substitution arrangements for students who continue their studies according to the curriculum of 2022-2024 during the transitional period of 1.8.2024 - 31.12.2025, when some of the courses of the curriculum 2022-2024 are no longer taught.

Common compulsory courses (3–5 cr)			
Code	Course name	ECTS credits	Equivalence in 1.8.2024 - 31.12.2025
<u>CHEM-E0105</u>	Academic Learning Community	3–5	Please contact the teacher
Compulsory courses (25–30 cr)			
Code	Course name	ECTS credits	Equivalence 1.8.2024 - 31.12.2025
<u>CHEM-E1100</u>	Plant Biomass*	5	CHEM-E1180 Plant Resources
<u>CHEM-E1110</u>	Lignocellulose Chemistry	5	No equivalence. Can be substituted by CHEM-E2121 Surface Chemistry of Bio-based Materials or CHEM-E2123 Characterization of Bio-based Materials
<u>CHEM-E1150</u>	Biomass Pretreatment and Fractionation – in Class D	5	CHEM-E1115 Biomass fractionation I D
<u>CHEM-E1210</u>	Bioproduct Mill Recovery Processes	5	The course continues
<u>CHEM-E1220</u>	Sustainability in Bioproduct Industry D	5	CHEM-E1170 Introduction to Sustainability in the Bioeconomy
<u>CHEM-E7100</u>	Engineering Thermodynamics, Separation Processes, part I D	5	CHEM-E7121 Separation Processes 1 D
*Compulsory course if not part of bachelor's degree			
Specialization courses in Pulp and Fibre track (30–35 cr)			
Code	Course name	ECTS credits	Equivalence 1.8.2024 - 31.12.2025
<u>CHEM-E0115</u>	Planning and Execution of a Biorefinery Investment Project	5	The course continues
<u>CHEM-E1160</u>	Biomass Pretreatment and Fractionation - in Laboratory	5	CHEM-E1125 Biomass fractionation II
<u>CHEM-E2120</u>	Fibres and Fibre Products	5	CHEM-E2122 Fibre Processes
<u>CHEM-E1105</u>	Advanced Fibreline Processes D	5	No equivalence. Can be substituted by CHEM-E2126 Introduction to the Packaging Value Chain

<u>CHEM-E1120</u>	Thermochemical Processes**	5	No equivalence. Can be substituted by CHEM-E1175 Sustainability Assessment for Bioproducts
<u>CHEM-E2140</u>	Cellulose-Based Fibres D**	5	CHEM-E2129 Nanocellulose Technology
<u>AAE-E2005</u>	Thermochemical Energy Conversion	5	The course continues

**Select one of these if CHEM-E1100 Plant Biomass is part of your compulsory studies

Specialization courses in Fuels and Chemicals track (30-35 cr)***

Code	Course name	ECTS credits	Equivalence 1.8.2024 - 31.12.2025
<u>CHEM-E1120</u>	Thermochemical Processes	5	No equivalence. Can be substituted by CHEM-E1175 Sustainability Assessment for Bioproducts
<u>CHEM-E1130</u>	Catalysis	5	The course continues
<u>CHEM-E2155</u>	Biopolymers D	5	The course continues
<u>CHEM-E2140</u>	Cellulose-Based Fibres D	5	CHEM-E2129 Nanocellulose Technology
<u>CHEM-E3140</u>	Bioprocess Technology II	5	CHEM-E3115 Industrial Biotechnology
<u>CHEM-E3190</u>	Metabolism D	5	The course continues
<u>AAE-E3100</u>	Energy Carriers	5	The course continues