

Metropolia UAS Engineering 31.1.2022		Biotechnology and Chemical Engineering														
		extent of credits	Strong engineering skills in mathematics and science	Good interaction skills	Skills to conduct projects	Clean and sustainable production technologies	Clean water production	Efficiency for using materials and energy	Learning to learn	Ethics	Operating in a workplace	Sustainable development	Internationality and multiculturalism	Proactive development		
1st Year of study	Orientation to Biotechnology and Chemical Engineering	30														
	Orientation to Field and Studies	5		x					x	x	x					
	Fundamentals of Chemistry 1	5	x						x			x				
	Introductory Project and Professional Communication	5	x	x	x				x		x					
	Fundamentals of Chemistry 2	5	x						x							
	Fundamentals of Mathematics and Natural Sciences 1	5	x						x							
	Fundamentals of Mathematics and Natural Sciences 2	5	x						x							
	Introduction to the Industry	30														
	The World of Microbes	5	x					x					x			
	Math and Science Basics 3	5	x						x					x		
	Project Course in Biotechnology and Chemical Engineering	10	x	x	x						x	x				
	Analytical and Organic Chemistry	5	x				x		x							
	Industrial Processes and Materials	5				x	x	x	x			x				
	In total	60														
	2nd Year of study	Becoming an Expert in Biotechnology and Chemical Engineering	30													
Engineering Chemistry		5	x					x								
Food Chemistry and Nutrition		5	x			x		x		x		x				
Statistics and Design of experiments		5	x					x				x				
Fluid mechanics and heat transfer basics		5	x		x	x	x	x	x			x				
Basics of Materials technology		5	x					x				x				
Engineering English and Communication Skills		5		x					x				x			
Becoming an Engineer in Biotechnology and Chemical Engineering		30														
Process Design Basics		5	x			x		x	x							
Health, Safety and Environmental Responsibility		5	x			x	x	x		x		x				
Industrial Business		5	x		x				x	x	x	x	x			
Automation Technology		5	x				x									
Process Operation Control and Maintenance		5	x			x	x	x		x						
Engineering Swedish		5		x					x				x			
Finnish as a Second Language: Finnish at Work		5		x					x				x			
In total	60															
3rd Year of study	Structure and Properties of Materials	10														
	Advanced materials technology	10	x			x		x	x				x			
	Protection of Metal Structures	25														
	Corrosion and Methods for Corrosion Protection	5	x			x	x					x				
	Anticorrosive painting and hot dip coating	10	x	x		x		x				x				
	Industrial Coatings	5	x			x		x				x				
	Project on Metallic Coatings and Industrial Painting	5	x	x	x	x		x	x			x				
	Coatings in Construction	15														
	Coatings of Buildings and Their Life Cycle	10	x			x		x	x		x	x				
	Coating Project on Building Construction and Repair	5	x	x	x	x		x		x						
	Innovations Activities	10														
	Multidisciplinary Innovation Project	10	x	x	x		x	x	x		x	x	x			
	In total	60														
	4th Year of study	Bachelor's Thesis	15													
		Bachelor's Thesis	15	x	x	x	x	x	x	x				x		
Work Placement		30														
Work Placement 1		15		x							x	x	x			
Work Placement 2		15		x		x	x				x	x	x			
Elective Studies		15														
In total		60														