

Metropolia UAS Engineering 29.1.2021		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	Know-how for circular economy and sustainable development	Clean water production	Efficiency for using materials and energy	Learning competence	Ethical competence	Working community competence	Innovation competence	Multicultural competence	Technological competence	
1st Year of study	Orientation to Field and Studies in Biotechnical, Chemical and Surface 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	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 Industrial Processes in Biotechnical, Chemical and Materials Engineering	30														
	Engineering Chemistry	5	x						x						x	
	Math and Science Basics 3	5	x							x				x		
	Basics in Biosciences	5	x			x	x	x		x					x	
	Food Chemistry and Nutrition	5	x			x	x	x	x	x					x	
	Project Course in Biotechnology and Chemical Engineering	5				x	x	x	x	x					x	
	In total	60														
2nd Year of study	Properties of Biomaterials	30														
	Sensory Evaluation	5		x	x				x	x		x	x			
	Biochemistry and Gene Technology	5	x		x					x	x		x		x	
	Industrial Microbiology	5	x		x	x	x	x		x	x		x		x	
	Statistics and Design of experiments	5	x		x					x	x	x	x		x	
	Heat Transfer and Fluid Mechanics in Food Engineering	5	x		x	x	x	x	x	x			x		x	
	Food Manufacturing 1	5			x	x	x	x	x	x	x		x		x	
	Biotechnical and Food Processes	30														
	Fermentation Technology	5	x		x	x	x	x	x	x			x		x	
	Food Manufacturing 2	5			x	x	x	x	x	x	x		x		x	
	Food Product Development Project	5	x	x	x				x	x	x	x	x		x	
	Bioprocess technology	5	x		x	x	x	x	x	x			x		x	
	Process Hygiene Project	5	x	x	x	x	x	x	x	x	x	x	x		x	
	Food packaging	5			x	x	x	x	x	x	x	x	x		x	
In total	60															
3rd Year of study	Products, Quality and Safety	30														
	Bioproducts	10	x		x	x	x	x	x	x	x	x	x		x	
	HSEQ	5	x			x	x	x	x		x				x	
	Multidisciplinary Innovation Project	5	x	x	x		x	x	x			x	x	x	x	
	Process Planning Project	10	x	x	x	x	x	x	x	x			x		x	
	Plant Design and Profitability Calculations	15														
	Current Topics in Biotechnology and Food Engineering	5	x	x	x		x		x	x	x		x	x	x	
	Engineering Swedish	5		x						x				x		
	Industrial Business	5					x			x	x	x		x	x	
	Finnish as a Second Language: Finnish at Work	5								x	x	x	x	x	x	
	Elective Study Module	15														
	In total	60														
	4th Year of study	Bachelor's Thesis	15													
		Bachelor's Thesis	15	x	x	x	x	x	x	x	x			x		x
Work Placement		30														
Work Placement 1		15		x			x					x	x	x	x	
Work Placement 2		15		x		x	x	x				x	x	x	x	
Elective Studies		15														
In total	60															