

Curriculum overview Bachelor Chemical Science and Engineering 2019-2020

July 2019

Year 1

1	15	2	15	3	15	4	15
Chemistry		Process Technology		Materials Science		Physical & Analytical Chemistry	
Mathematics: Intro Math, Calculus 1A	4	Mathematics: Calculus 1B	3	Mathematics: Linear Algebra	3	Mathematics: Calculus 2	3
Fundamentals of chemistry – theory and project - (in)organ. structures - reaction categories - reaction mechanisms - polymers (synthesis) - project	8,5	Thermodynamics - phases - laws - cycles - Maxwell relations Process technology – theory and project	9,5	Materials Science – theory and project - quantum phenomena. - inorg. mat. science - polymers (physical prop.) - project	9,5	Equilibria - chem. potential - acid-base - electrochemistry - phase behavior Analytical Chemistry: Theory & Project	9,5
Lab course 1: Basic skills & synthesis	2,5	Lab course 2: Energy & Process technology	2,5	Lab course 3: Materials	2,5	Lab course 4: Analytical Chemistry	2,5

Year 2

5 Industrial processes	15	6 Physical Transport	15	7 Molecules & Materials	15	8a Process design	15	8b Materials Science&Techn.	15
						Elective module: 1 out of 2			
Vector calculus	2	Physical Transport Phenomena (PTP): - fluid dynamics - heat transfer - mass transfer	7,5	(Bio)organic chemistry Theory	6	Intr. Separation Methods	4	Chemistry & Techn. of Inorganic Materials	3
Kinetics & Catalysis	4,5					Intr. Chem. Reactor Engineering (incl. process control)	4	Chemistry & Techn. of Organic Materials	4
Industrial Chemistry & Processes	8,5	Lab course PTP	4	(Bio)organic Lab course	2	Project process design	7	Advanced Materials Science Project Materials S&T	8
Project Sustainable Industrial Chemistry		Proj. Num. Modelling (using matlab)	3,5	Colloid & Nano chemistry Theory & Project	7				

Year 3

<p>9 Minor 1 15 EC</p>	<p>10 Minor 2 15 EC</p>	<p>11 Intro Bachelor assignment</p>	<p>15</p>	<p>12 Bachelor assignm. 15 EC</p>
<p>Minor module: At the UT Exchange semester Getting a teaching qualification</p>	<p>Minor module: At the UT Exchange semester Getting a teaching qualification</p>	<p>Research</p>	<p>2,5</p>	<p>Assignment: - lab work - interpreting results - report writing - final presentation</p>
		<p>Statistics</p>	<p>3</p>	
		<p>Ethics</p>	<p>2,5</p>	
		<p>Elective: - Study tour preparation - PED: Process equipment design - Biochemistry</p>	<p>5</p>	
		<p>Preparation bachelor assignm.</p>	<p>2</p>	