

# First year

1	2	3	4
<b>Chemistry</b>	<b>Process Technology</b>	<b>Materials Science</b>	<b>Physical &amp; Analytical Chemistry</b>
<b>Mathematics A, B1</b> - sets, logic - basic calculus	<b>Mathematics B2</b> - differential equations - complex numbers	<b>Mathematics C1</b> - linear algebra	<b>Mathematics D1</b> - apply partial derivatives - double, triple integrals
<b>Fundamentals of Chemistry</b> - (in)organic structures - reactivity - organic reactions - polymers (synthesis) - <b>research project (incl. lab)</b>	<b>Thermodynamics</b> - phases, basic laws - Carnot cycles - Maxwell relationships	<b>Materials Science</b> - quantum phenomena - inorganic mat. science - polymers (physical prop.) - <b>research project</b>	<b>Equilibria</b> - chemical potential - acid-base - electrochemistry - phase behaviour
<b>Lab Course 1</b> safety & basic skills	<b>Lab Course 2</b> energy & process techn.	<b>Lab Course 3</b> materials	<b>Analytical Chemistry</b> - spectroscopy, chromatograph. - <b>project</b> - <b>analysis lab</b>
15 EC	15 EC	15 EC	15 EC

# Second year

5	6	7	8a	8b
<b>Industrial Processes</b>	<b>Physical Transport</b>	<b>Molecules &amp; Materials</b>	<b>Process Design</b>	<b>Materials Science &amp; Technology</b>
<b>Mathematics D2</b> - integral theorems	<b>Physical Transport Phenomena (PTP)</b> - fluid dynamics - heat transfer - mass transfer	<b>(Bio)organic chemistry</b> - organic chemistry - bio-organic chemistry - <b>synthesis lab course</b>	<b>Intro. Chemical Reaction Engineering</b> - single phase reactions - idealized reactor models	<b>Advanced Materials Science</b> - atomic structures & composition of materials
<b>Kinetics &amp; Catalysis</b> - kinetics & homogeneous, heterogeneous, biocatalysis - characterisation			<b>Intro Separation Methods</b> - equilibria separations - rate based separations - lab course	<b>Chemistry &amp; Technology of Inorganic Materials</b> - relationship structure, synthesis, properties
<b>Industrial Chemistry &amp; Processes</b> - processes & products - industrial catalysis	<b>Lab Course PTP</b>	<b>Colloid- &amp; Nano chemistry</b> - colloid chemistry - nanochemistry - <b>project (incl. lab)</b>	<b>Project Process Design</b> - process design - process safety - process control - process economy	<b>Chemistry &amp; Technology of Organic Materials</b> - relationship structure, synthesis, properties
<b>Design Project Sustainable Processes</b> - alternative routes - social-ecologic life cycle	<b>Project Numerical Modelling</b> - numerical mathematics - Matlab programming			<b>Project Materials S&amp;T</b>
15EC	15EC	15EC	15EC	15EC

# Third year

9 Minor 1	10 Minor 2	11 Intro Bachelor Assignment	12 Bachelor Assignment
<p><b>Minor Module</b></p> <ul style="list-style-type: none"> <li>- UT module</li> <li>- exchange semester</li> <li>- teaching qualification</li> </ul>	<p><b>Minor Module</b></p> <ul style="list-style-type: none"> <li>-UT module</li> <li>- exchange semester</li> <li>- teaching qualification</li> </ul>	<p><b>Research &amp; Science</b></p> <ul style="list-style-type: none"> <li>- scientific reasoning</li> <li>- modelling</li> </ul> <p><b>Society</b></p> <ul style="list-style-type: none"> <li>- ethics</li> </ul> <p><b>Preparation Assignment</b></p> <ul style="list-style-type: none"> <li>- lit. study &amp; project set-up</li> </ul> <p><b>Elective</b></p> <ul style="list-style-type: none"> <li>- process equipment design</li> <li>- biochemistry</li> <li>- study tour preparation</li> </ul>	<p><b>Research Project Assignment</b></p> <ul style="list-style-type: none"> <li>- problem analysis</li> <li>- lab work</li> <li>- result analysis</li> <li>- report &amp; presentation</li> </ul>
15EC	15EC	15EC	15EC