Curriculum B-CSE 2025-2026

*and **prominent** essential skills per module (in **bold** : explicitly taught, reflected on, and assessed in that module)*

YEAR 1

1 Chemistry 202000721	EC	2 Process Engineering 202000724	EC	3 Materials Science 202000727	EC	4 Equilibria & Electrochemistry 202000730	EC
Jonkheijm		Benes		van der Hoef		Susarrey Arce	
Introduction to Mathematics & Calculus 1A	4	Mathematics: Calculus 1B	3	Mathematics: Linear Algebra	3	Mathematics: Calculus 2	3
Fundamentals of chemistry - (in)organ. structures - reaction categories - reaction mechanisms - polymers (synthesis) - project	8.5	**Thermodynamics** - phases - laws - cycles - Maxwell relations	4.5	**Materials Science** - quantum phenomena - inorg. mat. Science - polymers (physical prop.) - project	9.5	**Equilibria** - chemical equilibria - phase equilibria	5
		Process engineering - mass and energy balances - distillation - project	5			**Think like a researcher (lab course in Electrochemistry)** - electrochemistry (theory) - lab course & project	7
Lab course 1: Basic skills & Synthesis	2.5	Lab course 2: Energy & Process engineering	2.5	Lab course 3: Materials	2.5		
inquiry and analysis *creative thinking* *written communication* *oral communication* *information literacy* ***teamwork*** *problem solving* *civic engagement* *intercultural knowledge*		*teamwork* ***intercultural knowledge***		*inquiry and analysis* ***written communication*** *reading* *information literacy* *teamwork* *problem solving* *civic engagement*		***inquiry and analysis*** ***critical thinking*** *teamwork* *problem solving*	

YEAR 2

5 Sustainable Industrial processes 202000733	EC	6 Transport Phenomena 202000736	EC	7 Molecules & Materials 202000740	EC	8A Process design 202000744	EC	8B Materials Science & Technology 202000748	EC
						Elective module: choose 8A or 8B			
Faría Albanese		Brilman		Lammertink		van der Ham		Elshof	
Vector calculus	2	Numerical Methods	3.5	Organic and Bio-organic Chemistry incl. Lab course	8	Introduction Chemical Reaction Engineering (incl. process control)	4	Chemistry & Techn. of Inorganic Materials	4
Kinetics & Catalysis	4.5	Physical Transport Phenomena - fluid dynamics - heat transfer - mass transfer	7.5			Introduction Separation Methods	4	Chemistry & Techn. of Organic Materials	4
Industrial Chemistry & Processes	4.0			Interface Science incl.project	3	Project process design	7	Advanced Materials Science - materials S&T - project	7
Project Sustainable Industrial Chemistry	4.0	Project Transport Phenomena	4	Characterization of Molecules & Materials Chemistry incl. Lab course	4				
Essential Skills	0.5								

inquiry and analysis
critical thinking
written communication
oral communication
information literacy
teamwork
problem solving
civic engagement

inquiry and analysis
critical thinking
creative thinking
written communication
oral communication
quantitative literacy
teamwork
problem solving
integrative learning

inquiry and analysis
critical thinking
creative thinking
written communication
oral communication
reading
quantitative literacy
information literacy
teamwork
problem solving
integrative learning

written communication
oral communication
reading
information literacy
teamwork

inquiry and analysis
critical thinking
reading
problem solving

YEAR 3

9 Minor 1	EC	10 Minor 2	EC	11 Intro Bachelor assignment 202000752 van Lente	EC	12 Bachelor assignment 202000762 van Lente	EC
Minor module - at the UT, or - exchange semester, or - getting teacher qualification	15	**Minor module** - at the UT, or - exchange semester, or - getting teacher qualification	15	**Statistics***	5	**Bachelor assignment** - lab work / simulations - interpreting results - report writing - final presentation	15
				Ethics*	2		
				Essential Skills II *	1		
				Preparation Bachelor Assignment**	2		
				Elective: Bionanotechnology / Process Equipment Design / Study Tour prep. / some Applied Physics courses / Other (via Board of Examiners)	5		
inquiry and analysis *critical thinking* ***integrative learning***		*inquiry and analysis* *critical thinking*		*inquiry and analysis* *critical thinking* ***creative thinking*** *written communication* *oral communication* ***reading*** *quantitative literacy* ***information literacy*** *teamwork* *problem solving* *civic engagement* ***ethical reasoning***		*inquiry and analysis* *critical thinking* *creative thinking* *written communication* *oral communication* *reading* *quantitative literacy* *information literacy* ***problem solving*** ***integrative learning***	

Notes
* Module 11 has a change compared to earlier years. If you started in September 2022 or earlier and not yet finished module 11 please see the transition regulation for module 11.
** PBA is also possible in Q1 with permission of the Examination Board.