UK 033/290

CURRICULUM FOR THE BACHELOR'S PROGRAM IN **CHEMISTRY AND CHEMICAL TECHNOLOGY (CCT).**

(in English)

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§ 1 Qualification Profile

(1) The English-language Bachelor's program in "Chemistry and Chemical Technology" at the Faculty of Engineering and Natural Sciences (TNF) of the Johannes Kepler University (JKU) Linz has been designed to attract students and scholars from around the world and provide an internationally supportive environment for the advancement of science and technology. In the first academic year, some of the courses will also be offered in German.

(2) The Bachelor's program in "Chemistry and Chemical Technology" is offered by the Faculty of Engineering & Natural Sciences at the JKU. The program has been designed to educate chemists by providing a strong base in fields of engineering and natural sciences. The program includes broad, fundamental studies in various fields of chemistry, chemical technologies and chemical process engineering. Students who successfully complete the Bachelor's program in "Chemistry and Chemical Technology" are qualified for admission to a corresponding Master's degree program or can opt to pursue a profession in the field of chemical-technology.

(3) The Bachelor's program in "Chemistry and Chemical Technology" provides students with expertise in the following fields:

- Broad knowledge in analytical chemistry, inorganic chemistry, organic chemistry, polymer chemistry, physical chemistry, chemical technologies and chemical process engineering;
- Basic knowledge in mathematics, physics and other core areas in the field of natural sciences to support higher education in chemistry;
- Ability to work competently in a chemical laboratory environment and handle chemical substances safely and responsibly;
- Apply science-based strategies to address real-world issues and problems;
- Identify innovative approaches for product or process improvement;
- Ability to assess the technological impact and resulting effects on society and the environment in both the short-term and the long-term;
- Soft skills, such as general knowledge skills, inter-cultural communication skills, knowledge of foreign languages, presentation skills, how to be an effective part of a team, legal issues, and gender issues.

(4) The academic degree program focuses strongly on principles of research-supported learning and research-led teaching to ensure that graduates have the qualifications and academic understanding needed to address complex issues, keep up with continual advancements in the field of chemistry, and solve problems based on correctly selected factual knowledge.

§ 2 Structure and Outline

(1) In accordance with § 54 para. 1 UG the Bachelor's program in "Chemistry and Chemical Technology" belongs to the category of engineering degrees and is taught in English.

(2) The Bachelor's program in "Chemistry and Chemical Technology" covers six semesters and consists of 180 ECTS points, which are distributed among the following subjects:

Subjects	**ECTS**
Mandatory Subjects	162
Bachelor's Thesis	9
Free Electives	9
Total	180

(3) For Free Electives students have to pass examinations corresponding to 9 ECTS points, which can be chosen from any recognized national or international post-secondary educational institution. The Free Electives shall provide additional skills beyond the Bachelor's program in "Chemistry and Chemical Technology" and can be taken anytime during the Bachelor's study.

(4) The recommended study plan is listed in annex 1. This recommendation is based on a full-time program. Due to the academic requirements the degree program cannot be reasonably completed alongside a job or for those who have family care responsibilities.

§ 3 Studies Introductory and Orientation Phase

(1) According to § 66 para. 1 UG the studies introductory and orientation phase consists of courses which give an overview of the fundamental contents and structure of the corresponding curriculum of studies. The studies introductory and orientation phase of the Bachelor's program in "Chemistry and Chemical Technology" covers courses amounting to at least 8 ECTS points in total, which can be chosen out of the following list:

Code	Type of Course	Name	ECTS WS	ECTS SS
290GICHIGCV18	VL	Introduction to General Chemistry	3	
290ANCHIACV18	VL	Introduction to Analytical Chemistry	3	
290OPCHIOCV18	VL	Introduction to Organic Chemistry	3	
290GICHCCA23	Module	Chemical Calculations	4,5	
290GESKCLSK18	KV	Chemical Laboratory Safety	1	
290GICHIC1V18	VL	Inorganic Chemistry I	4,5	
290GICHIC2V18	VL	Inorganic Chemistry II		4,5
290ANCHANCV18	VL	Analytical Chemistry		4,5
290OPCHOC1V18	VL	Organic Chemistry 1		4,5
290PHCHCTDK18	KV	Chemical Thermodynamics		1,5

(2) Before completion of the studies introductory and orientation phase further courses to an extent of 22 ECTS points can be chosen out of the following list:

Code	Type of Course	Name	ECTS WS	ECTS SS
290GICHILCP18	PR	Introductory Lab Course (*)	2	
GS-ISE	KV	Introduction into Gender Studies in Science and Engineering	3	
290MAFSIPCK18	KV	Introduction to Physics for Chemistry	1,5	
290MAFSMC1V18	VL	Mathematics for Chemistry I	3	
290MAFSMC1K19	KV	Applications of Mathematics for Chemistry with Exercises I	4,5	
290PHCHELCV18	VL	Electrochemistry	1,5	

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Code	Type of Course	Name	ECTS WS	ECTS SS
290GICHLGCP25	PR	Lab Course in General Chemistry (*)		3
290ANCHLACP25	PR	Lab Course in Analytical Chemistry (*)		4
290PHCHLECP18	PR	Lab Course in Electrochemistry (*)		1
290MAFSPHCV18	VL	Physics for Chemistry		3
290MAFSPHCU18	UE	Exercises in Physics for Chemistry		1,5
290MAFSMC2V18	VL	Mathematics for Chemistry II		3
290MAFSMC2U19	UE	Applications of Mathematics for Chemistry with Exercises II		3

(*) This course has pre-requisites.

(3) For students, who within the curricula of the

1. Bachelor's program Fundamentals of Natural Sciences for Technology at JKU
2. Bachelor's program Biological Chemistry at JKU and the University of South Bohemia in České Budějovice
3. Bachelor's program Technische Chemie at the Vienna University of Technology
4. Bachelor's program Chemie at the University of Vienna
5. Bachelor's program Chemie at the Graz University of Technology or the University of Graz
6. Bachelor's program Chemie at the University of Innsbruck

have successfully completed the studies introductory and orientation phase in accordance with the relevant legal provisions and who, therefore, by the time of admission to the Bachelor's program in "Chemistry and Chemical Technology" at JKU were entitled to complete the further courses, examinations and bachelor's theses in accordance with § 66 para. 2 UG in the respective curriculum, the studies introductory and orientation phase of the degree program shall be deemed to have been successfully completed even without positive results in the particular courses referred to in para. 1 as part of the studies introductory and orientation phase for the Bachelor's program in "Chemistry and Chemical Technology" at JKU. This does not imply recognition of the examinations passed in the course of studies in accordance with subpara. 1 to 6 for the examinations defined in para. 1 as part of the studies introductory and orientation phase for the Bachelor's program at JKU. If there is no recognition in accordance with § 78 UG, the respective course examinations must be successfully completed separately.

§ 4 Mandatory Subjects/Modules

The following mandatory subjects have to be completed successfully:

Code	Name	ECTS
290GICH25	General and Inorganic Chemistry	26.5
290ANCH25	Analytical Chemistry	18
290OPCH18	Organic Chemistry and Polymer Chemistry	30,5
290PHCH18	Physical Chemistry	24,5

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Code	Name	ECTS
290CTPE18	Chemical Technologies and Chemical Process Engineering	27
290MAFS18	Mathematics and Fundamentals in Science	22,5
290GESK18	General Skills	13

§ 5 Courses

(1) The names and the types of all courses of the mandatory subjects, as well as their ECTS points, their duration in hours per week, their codes, their registration requirements, and their admission procedures (in case of limited availability of places) are described in the study handbook of JKU (studienhandbuch.jku.at).

(2) The possible types of courses as well as the examination regulations are described in §§ 13 and 14 of the JKU statute (Section "Studienrecht").

(3) An industry internship performed at a company that is actively involved in the area of chemistry may be accepted as one of the courses of the Bachelor's program in "Chemistry and Chemical Technology" up to an extent of 6 ECTS points. The student and respective course instructors must agree to the terms and conditions prior to starting the internship.

§ 6 Replacement of Subjects and Courses

Mandatory subjects according to § 4 as well as courses according to § 5 para. 1 may be replaced to a total extent of 18 ECTS points by other study specific subjects and courses upon student's request, provided that the purpose of academic professional preparatory training is not affected and the choice of the proposed subjects and courses seems reasonable with regard to the defined amins in the qualification profile, the academic context as well as to the addition to the professional preparatory training. The application of replacing subjects and courses has to be filed by the Vice Rector of Academic Affairs.

§ 7 Bachelor's Thesis

(1) Students of the Bachelor's program in "Chemistry and Chemical Technology" must complete a Bachelor's thesis according to § 80 UG in the course SE "Bachelor's Seminar Chemistry and Chemical Technology" (290BAARBSCS19). The Bachelor's thesis is an independent academic research paper submitted by a student in adherence to scientific and academic criteria while extending the level of a term paper in terms of quantity and quality. Students should also actively take part in a research project and the findings are to be incorporated into the Bachelor's thesis.

(2) The Bachelor's thesis can be completed starting with the 4th Semester and the bachelor's thesis has to be written and presented in English.

(3) The Bachelor's thesis will be graded in combination with the Bachelor's Seminar by the teachers of this course.

(4) The Curricular Committee for Technical Chemistry may specify guidelines for the formal structure of a Bachelor's thesis.

(5) The topics of the Bachelor's thesis have to be documented in the certificate.

§ 8 Examination Regulations

(1) The regulations for subject examinations and course examinations performed at JKU are described in the study handbook of JKU (studienhandbuch.jku.at).

(2) The Bachelor's program in "Chemistry and Chemical Technology" is concluded by a Bachelor's Examination, which consists of the successful completion of the mandatory subjects according to § 4. In order to graduate students must also receive a passing grade for their Bachelor's thesis as well as for the free electives examinations.

§ 9 Academic Degree

(1) Graduates of the Bachelor's program in "Chemistry and Chemical Technology" are awarded the academic degree „Bachelor of Science“, abbreviated „BSc“ oder „BSc (JKU)“.

(2) The certificate about the academic degree is issued in German and in English translation.

§ 10 Legal Validity

(1) This curriculum will come into effect on October 1, 2018.

(2) The curriculum of the Bachelor's program "Technische Chemie" in the version published in the official newsletter of the Johannes Kepler University Linz on June 23, 2017, 33rd piece, item 271 expires by the end of September 30, 2018 with the exception of the transitional arrangements unless otherwise specified below.

(3) § 1 para. 1, 2 and 3, § 2 para. 1, 2 and 3, § 3 para. 1, 2 and 3, § 5 para. 3, § 7 para. 1, § 8 para. 2, § 9 para. 1, § 11 para. 3 and annex 1 as published in the official newsletter of the Johannes Kepler University Linz on May 21, 2019, 26th piece, item 370 will take effect on October 1, 2019.

(4) § 2 para. 4 as published in the official newsletter of the Johannes Kepler University Linz on June 10, 2021, 29th piece, item 402 will take effect on October 1, 2021.

(5) § 3 para. 1, § 4, § 11 para. 4 and annex 1 as published in the official newsletter of the Johannes Kepler University Linz on May 30, 2023, 25th piece, item 437 will take effect on October 1, 2023.

(6) § 3 para. 2, § 4 and annex 1 as published in the official newsletter of the Johannes Kepler University Linz on June 17, 2025, 30th piece, item 314 will take effect on October 1, 2025.

§ 11 Transitional Arrangements

(1) Students already enrolled in the Bachelor's program 2012 in the currently valid version as before October 1, 2018 are entitled to continue with this program until September 30, 2019. However, from winter term 2018/19, semesters 1 - 4 of the suggested order of study will be governed by the curriculum introduced on October 1, 2018. Any courses no longer offered from the Bachelor's program 2012 in the currently valid version must be substituted with the equivalent courses as listed in the study handbook. Students who do not complete the Bachelor's program 2012 by September 30, 2019, will automatically be subject to completing the program in accordance to the Bachelor's program 2018.

(2) Students enrolled in the Bachelor's program 2012 in the currently valid version can opt for switching to the Bachelor's program 2018 taking para. 3 into account.

(3) The equivalence between courses of the Bachelor's program 2012 in the currently valid version and courses of the Bachelor's program 2018 in its currently valid version is described in the study handbook of JKU (studienhandbuch.jku.at). In addition to the equivalences given in the study handbook of JKU the following equivalences are effective:

Subjects/package of subjects in the Bachelor Technische Chemie version of 2017	**equivalent subjects/package of subjects in the Bachelor Chemistry version of 2018**
290AACH12: Allgemeine und Anorganische Chemie (27 ECTS) + 290ANCH12: Analytische Chemie (26,5 ECTS) + 290OCPC16: Organische Chemie und Polymerchemie (29,4 ECTS) + 290PHCH12: Physikalische Chemie (22,5 ECTS) + 290PHCH12: Chemische Technologien und Verfahrenstechnik (22,2 ECTS) + 290MANA16: Mathematik und naturwissenschaftliche Grundlagen (19,6 ECTS) + 290SOSK12: Soft Skills, Recht, Genderfragen (10,9 ECTS)	290GICH18: General and Inorganic Chemistry (24 ECTS) + 290ANCH18: Analytical Chemistry (20,5 ECTS) + 290OCPC18: Organic Chemistry and Polymer Chemistry (30,5 ECTS) + 290PHCH18: Physical Chemistry (24,5 ECTS) + 290CTPE18: Chemical Technologies and Chemical Process Engineering (27 ECTS) + 290MAFS18: Mathematics and Fundamentals in Science (22,5 ECTS) + 290GESK18: General Skills (13 ECTS)
290AACH12: Allgemeine und Anorganische Chemie (27 ECTS)	290GICH18: General and Inorganic Chemistry (24 ECTS)
290ANCH12: Analytische Chemie (26,5 ECTS)	290ANCH18: Analytical Chemistry (20,5 ECTS)
290OCPC16: Organische Chemie und Polymerchemie (29,4 ECTS)	290OCPC18: Organic Chemistry and Polymer Chemistry (30,5 ECTS)
290PHCH12: Physikalische Chemie (22,5 ECTS)	290PHCH18: Physical Chemistry (24,5 ECTS)
290PHCH12: Chemische Technologien und Verfahrenstechnik (22,2 ECTS)	290CTPE18: Chemical Technologies and Chemical Process Engineering (27 ECTS)
290MANA16: Mathematik und naturwissenschaftliche Grundlagen (19,6 ECTS)	290MAFS18: Mathematics and Fundamentals in Science (22,5 ECTS)
290SOSK12: Soft Skills, Recht, Genderfragen (10,9 ECTS)	290GESK18: General Skills (13 ECTS)
290BAAR12: Bachelor Arbeit (9,9 ECTS)	220BAAR18: Bachelor's Thesis (9 ECTS)
290FRST12: Freie Studienleistungen (12 ECTS)	290FRST18: Free Electives (9 ECTS)

(4) For examinations taken in the curriculum of the Bachelor's program version 2022 until September 30, 2024, in addition to the equivalences given in the study handbook of JKU the following equivalences are effective:

Subjects/package of subjects in the Bachelor Chemistry and Chemical Technology version of 2022	equivalent subjects/package of subjects in the Bachelor Chemistry and Chemical Technology version of 2023
290GICH18: General and Inorganic Chemistry (24 ECTS) + 290ANCH18: Analytical Chemistry (20,5 ECTS)	290GICH23: General and Inorganic Chemistry (25,5 ECTS) + 290ANCH23: Analytical Chemistry (19 ECTS)

Annex 1: Global map of study subjects - Bachelor's Program "Chemistry and Chemical Technology" (2025)

1st Semester (WS)		2nd Semester (SS)		3rd Semester (WS)		4th Semester (SS)		5th Semester (WS)		6th Semester (SS)	
Subject/Course	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**
General and Inorganic Chemistry Introduction to General Chemistry Introductory Lab Course Inorganic Chemistry I Introduction to Chemical Calculations (*) Exercises in Chemical Calculations (*)	14	**General and Inorganic Chemistry** Inorganic Chemistry II Lab Course in General Chemistry	7,5	**Analytical Chemistry** Instrumental Analytical Chemistry	3	**Organic Chemistry and Polymer Chemistry** Lab Course in Preparative Organic Chemistry II	5	**Analytical Chemistry** Lab Course in Instrumental Analysis	5	**General and Inorganic Chemistry** Lab Course in Inorganic Chemistry	5
		Analytical Chemistry Analytical Chemistry Lab Course in Analytical Chemistry	8,5	**Organic Chemistry and Polymer Chemistry** Organic Chemistry 2 Lab Course in Preparative Organic Chemistry I In-depth Fundamentals in Organic Chemistry NMR Spectroscopy Interpretation of NMR Spectra and Structure Elucidation of Organic Molecules	13,5	**Physical Chemistry** Lab Course in Physical Chemistry Physical Chemistry II Exercises in Physical Chemistry II Chemical Kinetics Catalysis Exercises in Chemical Kinetics und Catalysis Lab Course in Electrochemistry	15,5	**Organic Chemistry and Polymer Chemistry** Polymer Chemistry Exercises in Polymer Chemistry	4,5	**Chemical Technologies and Chemical Process Engineering** Basic Lab Course in Chemical Process Engineering Biotechnology	3,5
Analytical Chemistry Introduction to Analytical Chemistry	1,5							**Chemical Technologies and Chemical Process Engineering** Organic Technology Basic Lab Course in Organic Technology Basic Lab Course in Inorganic Technology Chemical Reaction Engineering Exercises in Chemical Reaction Engineering Chemical Process Engineering	16		
Organic Chemistry and Polymer Chemistry Introduction to Organic Chemistry	3	**Organic Chemistry and Polymer Chemistry** Organic Chemistry 1	4,5	**Physical Chemistry** Physical Chemistry I Exercises in Physical Chemistry I Electrochemistry	7,5					**Mathematics and Fundamentals in Science** Biochemistry	3
Mathematics and Fundamentals in Science Mathematics for Chemistry I Applications of Mathematics in Chemistry with Exercises I Introduction to Physics for Chemistry	9	**Mathematics and Fundamentals in Science** Mathematics for Chemistry II Applications of Mathematics in Chemistry with Exercises II Physics for Chemistry Exercises in Physics for Chemistry	10,5	**Chemical Technologies and Process Engineering** Materials Characterisation	3	**Chemical Technologies and Chemical Process Engineering** Fundamentals of Inorganic Materials Industrial Lecture and Excursion	4,5	**General Skills** Computational Chemistry Scientific Writing and Presenting	4,5	**Bachelor's Thesis** Bachelor's Seminar Chemistry	9
General Skills Chemical Laboratory Safety Introduction into Gender Studies in Science and Engineering	4	**Physical Chemistry** Chemical Thermodynamics	1,5	**General Skills** Data Processing in Chemistry Literature Searching, Publishing and Patents	3	Free Electives	3			**General Skills** Legislation for Chemists	1,5
										Free Electives	6
	31,5		**32,5**		**30**		**28**		**30**		**28**

(*) belong to the module Chemical Calculations

Total **180**