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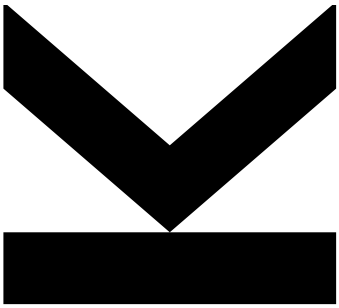
CURRICULUM FOR THE MASTER'S PROGRAM IN **CHEMISTRY AND CHEMICAL TECHNOLOGY (CCT).**



(in English)

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Contents

§ 1 Qualification Profile

(1) The English-language Master'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.

(2) The Master'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 advanced studies in various fields of chemistry, chemical technologies and chemical process engineering. Students who successfully complete the Master's program in "Chemistry and Chemical Technology" are qualified for admission to a corresponding PhD degree program or can opt to pursue a profession in the field of chemical-technology.

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

- Advanced knowledge in inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, chemical technologies of inorganic and organic materials and chemical process engineering;
- Specific state-of-the-art know-how in the area of chemistry and chemical technologies based on participation in research projects in the course of the Master's thesis;
- Apply science-based and interdisciplinary 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 chemical technology, and solve problems based on correctly selected factual knowledge.

§ 2 Admissions

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

(2) The Master's program in “Chemistry and Chemical Technology” is based on the Bachelor's program in "Chemistry and Chemical Technology" (K033/290). Graduates of this Bachelor's program or of the Bachelor's program in "Biological Chemistry" (K033/663) are admitted to the Master's program without any restrictions.

(3) In addition graduates of the following Bachelor's programs are admitted to the Master's program in “Chemistry and Chemical Technology” without any restrictions.

1. The graduates of the following Bachelors' programs are admitted concordantly to the Bachelor's program "Chemistry and Chemical Technology":

- Bachelor's program in Technische Chemie at the Technical University of Vienna
- Bachelor's program in Chemie at the Nawi Graz

2. The graduates of the following Bachelors' programs are admitted concordantly to the Bachelor's program "Biological Chemistry":

- Bachelor's program in Chemie at the University of Vienna
- Bachelor's program in Chemie at the University of Innsbruck

(4) Graduates of related programs at Universities, Universities of Applied Sciences and other recognized national or international post-secondary educational institutions can be admitted to the Master's program if their degree programs are equivalent in content and scope to the Bachelor's programs in "Chemistry and Chemical Technology" or "Biological Chemistry" at JKU. Equivalent programs are those in which the following subjects have been successfully completed in the stated minimum scope, whereby at least 25 ECTS must be in chemical lab/practical courses (chemistry laboratory work with one's own experimental activities):

(a) Equivalent to the Bachelor's program in "Chemistry and Chemical Technology":

- General and Inorganic Chemistry (22 ECTS)
- Analytical Chemistry (20 ECTS)
- Organic Chemistry and Polymer Chemistry (25 ECTS)
- Physical Chemistry (20 ECTS)
- Chemical Technologies and Process Engineering (15 ECTS)
- Mathematics and Fundamentals in Sciences (18 ECTS)

(b) Equivalent to the Bachelor's program in "Biological Chemistry":

- General and Inorganic Chemistry (14 ECTS)
- Analytical Chemistry (16 ECTS)
- Organic Chemistry (15 ECTS)
- Physical Chemistry (10 ECTS)
- Mathematics and Physics (14 ECTS)

(5) In the event of admission under para. 4, it must be determined during the official admission process whether equivalent standard has been met in accordance to para. 4 lit. a, or b and/or if the prerequisites for graduates of the Bachelor's degree program in "Chemistry and Chemical Technology" or "Biological Chemistry" have to be applied.

(6) If the undergraduate degree is considered principally equivalent and requires only individual supplements to be considered equivalent, the Rectorate can approve admission and require the student to successfully pass examinations totalling a maximum of 40 ECTS. The student must pass the examinations during the course of the Master's program.

(7) Graduates of a Diploma program with a longer duration than a Bachelor's program can obtain recognition for examinations of the Master's program (see § 78 UG) to the extent by which the Diploma program (excluding the diploma thesis) exceeds the Bachelor's program.

§ 3 Structure and Outline

(1) The Master's program in "Chemistry and Chemical Technology" covers 4 semesters and consists of 120 ECTS, which are distributed among the following subjects:

(a) Subjects for graduates of the Bachelor's program "Chemistry and Chemical Technology"

Subjects	**ECTS**
Mandatory Subjects	63
Elective Subjects	18
Master's Thesis (incl. Master's Thesis Seminar)	26

Master's Examination	1
Free Electives	12
Total	120

(b) Subjects for graduates of the Bachelor's program "Biological Chemistry"

Subjects	**ECTS**
Mandatory Subjects (incl. Bridge Subject)	81
Master's Thesis (incl. Master's Thesis Seminar)	26
Master's Examination	1
Free Electives	12
Total	120

(2) For free electives students have to pass examinations corresponding to 12 ECTS, which can be chosen from any recognized national or international post-secondary educational institution. The free electives shall provide additional skills beyond "Chemistry and Chemical Technology" and can be taken anytime during the Master's study.

(3) The recommended free electives courses are further courses taught in the Master's programs "Biological Chemistry", "Polymer Chemistry" or "Management in Chemical Technologies".

(4) The two recommended courses of study are listed in the annex.

§ 4 Mandatory Subjects/Modules

(1) The following mandatory subjects have to be completed successfully:

Code	**Name**	**ECTS**
491ANCH19	Analytical Chemistry	3
491CHPE19	Chemical Process Engineering	12
491CTIM19	Chemical Technologies of Inorganic Materials	17
491CTOM19	Chemical Technologies of Organic Materials	14
491INCH19	Inorganic Chemistry	4.5
491ORCH19	Organic Chemistry	3
491PHCH19	Physical Chemistry	6
491SOSK19	Soft Skills	3.5

(2) Graduates of the Bachelor's program "Biological Chemistry" have to complete, as well as the mandatory subjects, listed in para. 1, additionally the subject "Bridge subject Chemistry and Chemical Technology for Biological Chemists" subject code: 491BRBC19, to the extent of 18 ECTS.

§ 5 Elective Subjects/Modules

(1) Graduates of the Bachelor's program "Chemistry and Chemical Technology" must choose a total of 18 ECTS from two of the five chemical electives.

Code	Name
491ESYN19	Electives Synthesis
491ECAN19	Electives Chemical Analysis
491ETEC19	Electives Technologies
491EMAT19	Electives Materials
491EPBC19	Electives Physical and Biophysical Chemistry

(2) Students must select only such courses from the electives that have not already been completed as part of the Bachelor's program which qualified them for this post-graduate program.

§ 6 Courses

(1) The names and the types of all courses of the mandatory and elective subjects, as well as their ECTS, 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").

§ 7 Replacement of Subjects and Courses

Mandatory and elective subjects according to §§ 4 and 5, as well as courses according to § 6 para. 1, may be replaced to a total extent of 18 ECTS 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 aims in the qualification profile, the academic context, as well as to the addition to the professional preparatory training. The application for the replacement of subjects and courses has to be filed by the Vice Rector of Academic Affairs.

§ 8 Master's Thesis

(1) Students of the Master's program "Chemistry and Chemical Technology" must complete a Master's thesis according to § 81 UG and § 36 of the JKU statute (Section "Studienrecht").

(2) The Master's thesis usually consists of experimental research, whose results are to be documented in the form of a written paper corresponding to an effort of 21 ECTS.

(3) The Master's thesis serves as a proof that graduates are able to perform scientific work autonomously and correctly in terms of methods and content. The topic of the thesis must be taken from the mandatory subjects listed in § 4 para. 1 with the exception of the subject "Soft Skills" or from the chosen elective subjects listed in § 5 and must permit completion within a period of 6 months.

(4) The curricular committee may specify guidelines for the formal structure of a Master's thesis.

(5) Subject to agreement with the supervisor (Academic Advisor), the Master's thesis can be submitted in English or German.

(6) In addition to the Master's thesis, students must pass the Master's thesis seminar with 5 ECTS.

§ 9 Examination Regulations

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

(2) The Master's program "Chemistry and Chemical Technology" is concluded by a Master's examination.

(3) The Master's examination consists of two parts: The first part is the successful completion of the mandatory and elective subjects according to §§ 4 and 5.

(4) The second part of the Master's examination is a comprehensive oral examination (1 ECTS) conducted by an examination committee. Prior to being admitted to the Master's examination, students must complete the first part of the Master's examination, the Master's thesis, the Master's thesis seminar, and the free electives.

(5) The second part of the Master's examination starts with a presentation and a defense of the Master's thesis, followed by an oral exam that covers the subject which includes the topic of the Master's thesis and as well as a second subject defined by the advisor of the Master's thesis.

(6) The examination committee consists of three members and is formed by the Vice Rector of Academic Affairs. The candidate may submit a proposal for the committee members. In general, the Academic Advisor of the Master's thesis is a member of the examination committee. The head of the committee suggests the assessment of the oral presentation. The other two examiners suggest the assessment of the examinations in their respective subjects.

§ 10 Academic Degree

(1) Graduates of the Master's program “Chemistry and Chemical Technology” are awarded the academic degree „Diplom-Ingenieurin/Diplom-Ingenieur” abbreviated “Dipl.-Ing.” or “Dipl.-Ing. (JKU) oder “DI” or “DI (JKU)”.

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

§ 11 Legal Validity

(1) This curriculum comes into effect on October 1, 2019.

(2) The curriculum of the Master's program in "Technische Chemie" in the version published in the official newsletter of Johannes Kepler University Linz on June 29, 2016, 29th piece, item 255 expires by the end of September 30, 2019 with the exception of the transitional arrangements.

§ 12 Transitional Provisions

(1) For students who have passed examinations within the curriculum of the Master's program in "Technische Chemie" in a previous version, the equivalences listed in the study handbook of JKU (studienhandbuch.jku.at) apply.

(2) In addition to the mentioned equivalences given in the study handbook of JKU, the following equivalence table applies:

Course package in the Master's program "Technische Chemie" 2016	**Equivalent course package in the Master's program "Chemistry and Chemical Technology" 2019**
491CTAS13: Chemische Technologie Anorganischer Stoffe (17.4 ECTS) + 491CTOS10: Chemische Technologie Organischer Stoffe (14.8 ECTS) + 491SOSK16: Soft Skills für Master Technische Chemie (6.4 ECTS) + 491VETE10: Verfahrenstechnik (9.4 ECTS) + 491MAAR10: Masterarbeitsseminar in Technischer Chemie (3 ECTS)	491CTIM19: Chemical Technologies of Inorganic Materials (17 ECTS) + 491CTOM19: Chemical Technologies of Organic Materials (14 ECTS) + 491SOSK19: Soft Skills (3.5 ECTS) + 491CHPE19: Chemical Process Engineering (12 ECTS) + 491MAAR19: Master's Thesis Seminar Chemistry and Chemical Technology (5 ECTS)
491WAFA16: Wahlfächer (27.5 ECTS) + 491FRST13: Freie Studienleistungen (14.5 ECTS)	491ANCH19: Analytical Chemistry (3 ECTS) + 491INCH19: Inorganic Chemistry (4.5 ECTS) + 491ORCH19: Organic Chemistry (3 ECTS) + 491PHCH19: Physical Chemistry (6 ECTS) + 491ELEC19: Electives (18 ECTS) + 491FRST19: Free Electives (12 ECTS)
491BRBC13: Brückenfach Technische Chemie für Bachelor Biologische Chemie (25.5 ECTS) + 491WAFA16: Wahlfächer (3 ECTS) + 491FRST13: Freie Studienleistungen (13.5 ECTS)	491BRBC19: Bridge subject Technical Chemistry for Biological Chemists (18 ECTS) + 491ANCH19: Analytical Chemistry (3 ECTS) + 491INCH19: Inorganic Chemistry (4.5 ECTS) + 491ORCH19: Organic Chemistry (3 ECTS) + 491PHCH19: Physical Chemistry (6 ECTS) + 491FRST19: Free Electives (12 ECTS)
491CTAS13: Chemische Technologie Anorganischer Stoffe (17.4 ECTS)	491CTIM19: Chemical Technologies of Inorganic Materials (17 ECTS)
491CTOS10: Chemische Technologie Organischer Stoffe (14.8 ECTS)	491CTOM19: Chemical Technologies of Organic Materials (14 ECTS)
491SOSK16: Soft Skills für Master Technische Chemie (6.4 ECTS)	491SOSK19: Soft Skills (3.5 ECTS)
491VETE10: Verfahrenstechnik (9.4 ECTS)	491CHPE19: Chemical Process Engineering (12 ECTS)

491WAFA16: Wahlfächer (27.5 ECTS)	491ELEC19: Electives (18 ECTS) + 491ANCH19: Analytical Chemistry (3 ECTS) + 491INCH19: Inorganic Chemistry (4.5 ECTS) + 491ORCH19: Organic Chemistry (3 ECTS) + 491PHCH19: Physical Chemistry (6 ECTS)
491BRBC13: Brückenfach Technische Chemie für Bachelor Biologische Chemie (25.5 ECTS) + 491WAFA16: Wahlfächer (3 ECTS)	491BRBC19: Bridge subject Technical Chemistry for Biological Chemists (18 ECTS) + 491ANCH19: Analytical Chemistry (3 ECTS) + 491INCH19: Inorganic Chemistry (4.5 ECTS) + 491ORCH19: Organic Chemistry (3 ECTS) + 491PHCH19: Physical Chemistry (6 ECTS)
491FRST13: Freie Studienleistungen (14.5 or 13.5 ECTS)	491FRST19: Free Electives (12 ECTS)
491MAAR10: Masterarbeitsseminar in Technischer Chemie (3 ECTS)	491MAAR19: Master's Thesis Seminar Chemistry and Chemical Technology (5 ECTS)

Annex 1a: Global map of study subjects - Master's Program Chemistry and Chemical Technology (CCT)
for graduates of the Bachelor's program "Chemistry and Chemical Technology (CCT)" (2019)

1st Semester (WS)		2nd Semester (SS)		3rd Semester (WS)		4th Semester (SS)	
Subject/Course	**ECTS**	**Subject/Course**	**ECTS**	**Subject**	**ECTS**	**Subject**	**ECTS**
Chemical Technologies of Inorganic Materials Advanced Inorganic Materials Inorganic Materials in High-Tech Applications Lab Course in Advanced Inorganic Technology	11	**Inorganic Chemistry** Inorganic Chemistry 3	3	**Inorganic Chemistry** Photochemistry 1	1.5		
		Physical Chemistry Physical and Theoretical Chemistry Physical Chemistry of Surfaces and Interfaces	4.5	**Analytical Chemistry** Mass Spectrometry Interpretation of MS and IR Spectra	3		
Chemical Technologies of Organic Materials Advanced Biotechnology	1.5	**Chemical Technologies of Inorganic Materials** Inorganic Technology Seminar	1.5	**Physical Chemistry** Catalysis and Reaction Mechanisms	1.5		
Chemical Process Engineering Advanced Chemical Process Engineering	3	**Chemical Technologies of Organic Materials** Advanced Organic Technology 1 Advanced Organic Technology 2 Lab Course in Advanced Organic Technology	11	**Chemical Technologies of Inorganic Materials** Industrial Thin Film Technologies Safety Engineering	4.5	**Master's Thesis**	21
Organic Chemistry Advanced Organic Chemistry 1	3			**Chemical Technologies of Organic Materials** Organic Technology Seminar	1.5		
Electives	6	**Chemical Process Engineering** Advanced Chemical Reaction Engineering Basic Plant Design and Engineering	4.5	**Chemical Process Engineering** Lab Course in Advanced Process Engineering Seminar in Process and Plant Engineering	4.5		
		Soft Skills Excursion to Industry	0.5	**Soft Skills**	3		
Free Electives	5.5	**Electives**	3	**Electives**	6	**Master's Thesis Seminar / Master's Examination**	6
		Free Electives	2	Free Electives	4.5	**Electives**	3
	30		**30**		**30**		**30**

Annex 1b: Global map of study subjects - Master's Program Chemistry and Chemical Technology (CCT) for graduates of the Bachelor's program "Biological Chemistry" (2019)

1st Semester (WS)		2nd Semester (SS)		3rd Semester (WS)		4th Semester (SS)	
Subject/Course	**ECTS**	**Subject/Course**	**ECTS**	**Subject**	**ECTS**	**Subject**	**ECTS**
Bridge subject Technical Chemistry for Biological Chemists Organic Technology Materials Characterisation Basic Lab Course in Inorganic Technology Chemical Process Engineering	14	**Bridge subject Technical Chemistry for Biological Chemists** Basic Lab Course in Organic Technology Basic Lab Course in Chemical Process Engineering	4	**Inorganic Chemistry** Photochemistry 1	1.5	**Master's Thesis**	21
				Analytical Chemistry Mass Spectrometry Interpretation of MS and IR Spectra	3		
		Inorganic Chemistry Inorganic Chemistry 3	3	**Physical Chemistry** Catalysis and Reaction Mechanisms	1.5		
		Physical Chemistry Physical and Theoretical Chemistry Physical Chemistry of Surfaces and Interfaces	4.5	**Chemical Technologies of Inorganic Materials** Industrial Thin Film Technologies Safety Engineering	4.5		
		Chemical Technologies of Inorganic Materials Inorganic Technology Seminar	1.5	**Chemical Technologies of Organic Materials** Organic Technology Seminar	1.5		
Chemical Technologies of Inorganic Materials Advanced Inorganic Materials Inorganic Materials in High-Tech Applications Lab Course in Advanced Inorganic Technology	11	**Chemical Technologies of Organic Materials** Advanced Organic Technology 1 Advanced Organic Technology 2 Lab Course in Advanced Organic Technology	11	**Chemical Process Engineering** Lab Course in Advanced Process Engineering Seminar in Process and Plant Engineering	4.5		
				Soft Skills	3		
Chemical Technologies of Organic Materials Advanced Biotechnology	1.5	**Chemical Process Engineering** Advanced Chemical Reaction Engineering Basic Plant Design and Engineering	4.5	Free Electives	9		
Chemical Process Engineering Advanced Chemical Process Engineering	3	**Soft Skills** Excursion to Industry	0.5			**Master's Thesis Seminar / Master's Examination**	6
Organic Chemistry Advanced Organic Chemistry 1	3	Free Electives	3				
	32.5		**32**		**28.5**		**27**