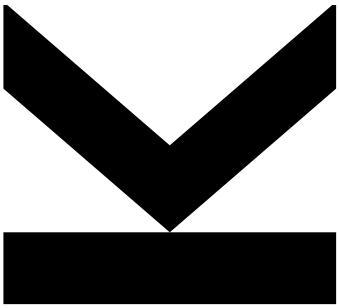
UK 066/480

CURRICULUM FOR THE MASTER'S PROGRAM IN **SUSTAINABILITY AND PLASTICS MANAGEMENT (SPM).**



(in English)

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§ 1 Qualification Profile

(1) The Master's program "Sustainability and Plastics Management" at the Faculty of Engineering and Natural Sciences (TNF) of the Johannes Kepler University Linz (JKU) is based on the Bachelor's program "Sustainable Polymer Engineering & Circular Economy" („Nachhaltige Kunststofftechnik & Kreislaufwirtschaft“) at the JKU and taught in English. Although the Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" (“Nachhaltige Kunststofftechnik & Kreislaufwirtschaft”) is the primary reference program, Bachelor's programs in “Chemistry and Chemical Technology”, “Technical Physics”, “Mechatronics”, “Electronics and Information Technology”, “Technical Mathematics”, “Biological Chemistry”, “Fundamentals of Natural Sciences for Technology”, “Molecular Biosciences”, “Mechanical Engineering”, “Medical Engineering” or equivalent programs are also acceptable.

The Master's program "Sustainability and Plastics Management" is supposed to teach and train knowledge, skills, and competences as follows:

- Thorough knowledge in the mandatory areas of ”polymer materials and testing“, ”polymer processing“, ”polymer product engineering“, ”management“, and ”sustainable development“.
- Special expertise in accordance with current science and technology by multiple elective subjects and the active participation in research projects in the context of the Master's thesis.
- Comprehensive skills in experimental, empirical, and computational methods in multiple aspects of polymer engineering, business and technology management, as well as management of transformative changes in sustainable development.
- Superior competence in the coupling and solving of engineering and management problems.
- Experience in interdisciplinary cooperation and communication within an international industrial and scientific environment, particularly supported by industry internships.
- Implementation and Execution of supply chain management considering sustainability and circularity requirements in the polymer industry.

(2) Successful completion of the Master's program provides a broad range of competencies in polymer engineering and science as well as in related management and business administration subjects to perform demanding professional activities at polymer producing and manufacturing companies, in research, development, or management positions. The program opens up excellent career opportunities in enterprises of different size with the following orientations:

- the plastics industry as a whole (polymer manufacturers and polymer processors, suppliers of plastics machinery);
- the entire spectrum of industry using plastics, in particular packaging, automotive, aeronautical, electrical, and medical engineering, building, infrastructure, and energy technologies, sports- and leisure,
- plastics engineering service and consulting offices or technology transfer centres,
- private and public research institutions,
- regional, national, and international supervisory authorities and agencies.

(3) Graduates of the Master's program are expected to provide significant contributions to the development and application of polymeric materials, processes, and products both in industry and management. The program's versatility creates ideal preconditions to qualify graduates for flexible adaptation to changing market requirements and new technological and societal developments. Students receive differentiated education offering numerous possibilities for elective studies along with subjects. Due to a combination of highly complementary technical and management courses, graduates are supposed to be prepared to expedite new accesses and novel approaches to industrial, economic, and sustainable development challenges. The multidisciplinary program and courses taught in English help students to develop competences for cooperation across the disciplines and for international communication in all aspects of sustainable polymer technologies

and management. Through specializing in selected areas of business administration and economy, graduates will be qualified to work in a management capacity in the plastics industry.

§ 2 Admissions

(1) In accordance with § 54 para. 1 UG the Master's program in "Sustainability and Plastics Management" belongs to the category of engineering degrees and is taught in English.

(2) The Master's program in "Sustainability and Plastics Management" is based on the Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" ("Nachhaltige Kunststofftechnik & Kreislaufwirtschaft") (UK033/220) at JKU.

(3) Graduates of this Bachelor's program as well as graduates of the Bachelor's programs in Chemistry and Chemical Technology (UK033/290), Technical Physics (UK033/261), Mechatronics (UK033/281), Biological Chemistry (UK033/663), Fundamentals of Natural Sciences for Technology (UK033/320), Electronics and Information Technology (UK033/289), Technical Mathematics (UK033/201), Molecular Biosciences (UK033/665), Mechanical Engineering (UK033/245) and Medical Engineering (UK033/254) at JKU are admitted to the Master's program without any restrictions.

(4) Graduates of Bachelor's programs or related programs of at least the same higher education level at recognized national or international post-secondary educational institutions can be admitted to the Master's program provided that such a degree program essentially provides the same qualifications as the Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" or as another Bachelor's program at JKU according to para. 3. Therefore, upon admission, it is necessary to establish whether the Bachelor's program is related to the Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" (para. 2) or to one of the Bachelor's programs listed in para. 3 and/or if the regulations of the curriculum for graduates of the Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" or for graduates of the other Bachelor's programs listed in para. 3 have to be applied.

(5) In order to compensate for significant subject-related differences, supplementary examinations amounting to a maximum of 40 ECTS points may be prescribed, which must be taken by the end of the second semester of the Master's program.

§ 3 Structure and Outline

(1) The Master's program in "Sustainability and Plastics Management" covers 4 semesters and consists of 120 ECTS points, which are distributed among the following subjects:

Subjects	**ECTS**
Subjects	80.5
Master's Thesis (incl. Master's Thesis Seminar)	25
Master's Examination	2
Free Electives	12.5
Total	120

(2) For Free Electives students have to pass examinations corresponding to 12.5 ECTS points, which can be chosen from any recognized national or international post-secondary educational institution. The Free Electives shall provide additional skills beyond "Sustainability and Plastics

Management" and can be taken anytime during the Master's study.

(3) The two recommended courses of study are shown in the annex. These recommendations are based on the requirements of a full-time degree program. However, taking program restrictions into account, the program can also be completed by those who have a flexible work schedule or family care responsibilities: Some courses are also offered remotely and although attendance is usually not mandatory, attendance is recommended. In other courses, attendance is usually mandatory; however, attempts are made to offer multiple courses at alternative times and/or remotely. In regard to exams, there is no guarantee that they can be held remotely or during off-peek hours. Depending on the extent of work flexibility and/or family care responsibilities, a longer period of studies is to be expected.

§ 4 Subjects

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

Code	Name	ECTS
480BIPT23	Basics in Polymer Technologies (Bridge Subject)	0/17.5
480ADPT24	Advanced Polymer Technologies	24.5
480MABA10	Management Basics	12
480MAAD10	Management Advanced	15
480AMPT23	Advanced Electives in Sustainability and Plastics Management	29/11.5

(2) The program includes either a Bridge subject "Basics in Polymer Technologies" or a different amount of ECTS points within the subject "Advanced Electives in Sustainability and Plastics Management". If admission to the Master's program has been based on a Bachelor's program in "Sustainable Polymer Engineering & Circular Economy" (according to § 2 para. 2), then the subject "Advanced Electives in Sustainability and Plastics Management" with an amount of 29 ECTS points is required. Alternately, if admission to the program had been based on another Bachelor's program according to § 2 para. 3, then it is necessary to take the Bridge subject "Basics in Polymer Technologies" and the subject "Advanced Electives in Sustainability and Plastics Management" with an amount of 11.5 ECTS points is required.

(3) In the subject "Advanced Electives in Sustainability and Plastics Management", students can choose courses which they did not already complete as part of the Bachelor's program which qualified them for this Master's program.

(4) "Seminars in Polymer Technologies" of at least 3 to max. 7.5 ECTS must be completed in the subject "Advanced Electives in Sustainability and Plastics Management". It is expected that "Soft Skills" courses in the subject "Advanced Electives in Sustainability and Plastics Management" in the amount of 3 ECTS are selected.

(5) The subject "Advanced Electives in in Sustainability and Plastics Management" provides the following subjects for the Master's Examination with the subject "Polymer Engineering and Science":

Code	Name
480MPPC14	Subject for the Master's Examination: Polymer Chemistry
480MPPM14	Subject for the Master's Examination: Polymeric Materials and Testing
480MPPP14	Subject for the Master's Examination: Polymer Processing

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Code	Name
480MPPE14	Subject for the Master’s Examination: Polymer Product Engineering & Design

(6) The subject "Advanced Electives in Sustainability and Plastics Management" provides the following subjects for the Master’s Examination with the subject “Management, Economics and Law”:

Code	Name
480MPMM14	Subject for the Master’s Examination: Management & Marketing
480MPFA14	Subject for the Master’s Examination: Finance & Accounting

§ 5 Courses

(1) The names and the types of all courses of the 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").

§ 6 Replacement of Subjects and Courses

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 aims 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 Master’s Thesis

(1) Students of the Master’s program "Sustainability and Plastics Management" must complete a Master’s Thesis according to § 81 UG and § 36 of the JKU statute (Section "Studienrecht").

(2) The Master’s Thesis is a written paper corresponding to an effort of 24 ECTS points.

(3) The Master’s Thesis serves as a proof that graduates are able to perform scientific work autonomously and systematically. It must include aspects of topics from “Polymer Engineering and Science” and “Sustainability" either "Plastics Management" and must be compatible with the list of "Subjects for the Master’s Examination". It must permit completion within a period of 6 months.

(4) The Curricular Committee for "Sustainability and Plastics Management" may specify guidelines for the formal structure of a Master’s Thesis.

(5) Subject to agreement with the 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 1 ECTS points.

§ 8 Examination Regulations

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

(2) The Master's program "Sustainability and Plastics Management" 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 subjects according to § 4.

(4) The second part of the Master's examination is a comprehensive oral exam (2 ECTS points) 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 defence of the Master's Thesis, followed by two oral exams. One of the exams covers the contents of the subject, which the subject of the Master's Thesis is taken from. The subject of the second exam must be chosen by the candidate out of the subjects for the Master's Examination listed in § 4 taking para. 6 and 7 (see below) into account.

(6) If the first exam covers the contents of a subject for the Master's Examination within the subject "Management, Economics and Law" listed in § 4 para. 6, the subject of the second exam has to be chosen from a subject for the Master's Examination within the subject "Polymer Engineering and Science" listed in § 4 para. 5.

(7) If the first exam covers the contents of a subject for the Master's Examination within the subject "Polymer Engineering and Science" listed in § 4 para. 5, the subject of the second exam can be chosen from any other subject for the Master's Examination listed in § 4 para. 5 and 6.

(8) 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 presentation and the defence of the thesis. The other two examiners suggest the assessment of the examinations in their subjects, respectively.

§ 9 Academic Degree

(1) Graduates of the Master's program "Sustainability and Plastics Management" are awarded the academic degree "Master of Science", abbreviated "MSc" or "MSc (JKU)" .

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

§ 10 Legal Validity

(1) This Curriculum comes into effect on October 1, 2024.

(2) The curriculum of the Master's program in "Management in Polymer Technologies" in the version published in the official newsletter of Johannes Kepler University Linz on May 23, 2023, 23rd piece, item 401 expires by the end of September 30, 2024, unless otherwise specified below. Transitional provisions shall remain in force as long as they still apply in scope and content.

§ 11 Transitional Provisions

(1) Students who were admitted to the Master's program in "Management in Polymer Technologies" before the winter semester 2024/25 have the right to complete the Master's program with the title "Management in Polymer Technologies" and the academic degree "Diplom-Ingenieurin/Diplom-Ingenieur" abbreviated "Dipl.-Ing." / "Dipl.-Ing. (JKU)" or "DI" / "DI (JKU)" by September 30, 2025. After expiry of this period all regulations of the current curriculum also apply to these students.

(2)The equivalences given in the JKU study handbook are effective for students who did examinations within the Master's program Management in Polymer Technologies.

(3) If one of the courses 479POPRIMMV13: VL Polymer Injection Moulding 1: Machine Engineering (3 ECTS) or 480ADPTTEC1V18: VL Polymer Extrusion and Compounding 1: Process Technologies - MPT (1,5 ECTS) was successfully completed before March 1, 2025, it can still be used to complete the subject "Advanced Polymer Technologies". If the course 480MAACEFU23: IK Circular Economy Fundamentals (3 ECTS) was successfully completed before October 1, 2024, it can still be used to complete the subject "Management Advanced".

(4) Credits earned for elective courses that were part of the former curriculum Management in Polymer Technologies can be counted towards the subject "Advanced Electives in Sustainability and Plastics Management".

Global map of study subjects - Master's Program Sustainability and Plastics Management (2024)

Admission according to §2 (2) - for Graduates of the Bachelor's Program "Sustainable Polymer Engineering and Circular Economy

1st Semester (WS)		2nd Semester (SS)		3rd Semester (WS)		4th Semester (SS)	
Subject/Course	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**
Management Basics VL+IK Finance, Accounting and Taxation VL+IK Management and Marketing	12	**Advanced Polymer Technologies** VL Polymeric Materials 3: Polymer Mechanics and Fracture Mechanics VL+SE Polymeric Materials 4: Functional Polymeric Materials VL Polymer Product and Process Development PR Characterization and Testing of Plastics 1b PR Polymer Processing for Sustainability and Plastics	13	**Management Advanced** IK Managerial Accounting for Engineers IK International Marketing for Engineers IK International Finance for Engineers	9	**Master's Thesis**	24
Management Advanced IK Environmental, Ressource and Quality Management for Engineers	3	**Management Advanced** IK Cross Cultural Management for Engineers	3	**Advanced Electives in Sustainability and Plastics Management**	12	**Advanced Polymer Technologies** KV Polymeric Materials 5 - Polymeric Mat. & Sust. Developm.	3
Advanced Polymer Technologies VL Industrial Chemistry for Plastic Engineering VL Polymer Processing Technologies VL+UE Polymer Product Design and Engineering III UE Company Visits: Polymer Industry	8,5	**Advanced Electives in Sustainability and Plastics Management**	11,5				
Advanced Electives in Sustainability and Plastics Management	5,5						
		Free Electives	3	**Free Electives**	9,5	**Master's Thesis Seminar / Master's Examination**	3
	29		**30,5**		**30,5**		**30**

Total: 120,0

Global map of study subjects - Master's Program Sustainability and Plastics Management (2024)

Admission according to §2 (3) - for Graduates of other Bachelor's Programs

1st Semester (WS)		2nd Semester (SS)		3rd Semester (WS)		4th Semester (SS)	
Subject/Course	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**	**Subject/Course**	**ECTS**
Basics in Polymer Technologies (Bridge subject) UE Basic Engineering calculations VL Polymerwerkstoffe 1 VL Technologien der Polymerverarbeitung 1: Einführung	7,5	**Basics in Polymer Technologies (Bridge subject)** VL Charakterisierung und Prüfung der Kunststoffe 1 VL Einführung in das recycling von Kunststoffen PR Characterization and Testing of Polymers 1 - MPT VL Polymer Chemistry and Chemical Process Technologies	10	**Management Advanced** IK Managerial Accounting for Engineers IK International Marketing for Engineers IK International Finance for Engineers	9	**Master's Thesis**	24
Management Basics VL+IK Finance, Accounting and Taxation VL+IK Management and Marketing	12	**Advanced Polymer Technologies** VL Polymeric Materials 3: Polymer Mechanics and Fracture Mechanics VL+SE Polymeric Materials 4: Functional Polymeric Materials VL Polymer Product and Process Development PR Characterization and Testing of Plastics 1b PR Polymer Processing for Sustainability and Plastics Management	13	**Advanced Polymer Technologies** UE Polymer Extrusion and Compounding 1: Process Technologies VL Industrial Chemistry for Plastic Engineering VL Polymer Processing technologies VL+UE Polymer Product Design and Engineering III	7	**Advanced Polymer Technologies** KV Polymeric Materials 5 - Polymeric Materials and Sustainable Development	3
Management Advanced IK Environmental, Ressource and Quality Management for Engineers	3	**Management Advanced** IK Cross Cultural Management for Engineers	3	**Advanced Electives in Sustainability and Plastics Management**	7		
Advanced Polymer Technologies UE Company Visits: Polymer Industry	1,5	**Advanced Electives in Sustainability and Plastics Management**	4,5	Free Electives	6,5	**Master's Thesis Seminar / Master's Examination**	3
Free Electives	6						
	30		**30,5**		**29,5**		**30**

Total: 120