



TRANSLATION OF

GAZETTE

Administrative Bulletin of the Public Sector and the Foundation

Only the German version of the Leuphana Gazette is legally binding. The English version is provided solely for information purposes.

- First Amendment of the Subject-Specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Programs at the Graduate School of Leuphana University of Lüneburg for students starting their studies in winter semester 2019/2020
- Re-announcement of the Subject-Specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Program in Management at the Graduate School of Leuphana University for students who begin their studies in the winter semester 2019/2020 onwards

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First amendment of the Subject-Specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master Programs at the Graduate School of Leuphana University of Lüneburg for students starting their studies in winter semester 2019/2020

Based on § 44 para. 1 sentence 2 NHG, the Faculty Council of the Faculty of Management and Technology has adopted on April 13, 2022 the following first amendment to the subject-specific Annex 6.4 Master Management & Engineering dated February 13, 2019 (Leuphana Gazette No. 9/19 dated 27. March 2019) in the now applicable version to the Framework Examination Regulations for the Master's Programs at the Graduate School of Leuphana University of Lüneburg of February 18, 2015 (Leuphana Gazette No. 22/15 of June 25, 2015) as amended by the Third Amendment of November 20, 2019 (Leuphana Gazette No. 20/20 of March 31 . 2020). The Presidential Board of Leuphana University Lüneburg approved this amendment in accordance with Section 44 (1) Sentence 3 and Section 37 (1) Sentence 3 No. 5b) NHG on April 27, 2022.

SECTION I

The Subject-Specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Programs at the Graduate School of Leuphana University of Lüneburg for students starting their studies in the winter semester 2019/2020 is amended as follows:

1. The explanations "Transitional regulations for students who started their studies at the Leuphana Graduate School before the winter semester 2019/20" are amended as follows:
 1. Students who started their studies at the Leuphana Graduate School before the winter semester 2019/20 continue their studies until September 30, 2023 according to the subject-specific appendix 6.4b Master Management & Engineering (Leuphana Gazette 38/18 of July 18, 2018). In parallel, the modules listed in the appendix below are considered equivalent. The Subject Specific Annex 6.4b Master Management & Engineering (Leuphana Gazette 38/18 of July 18, 2018) expires on September 30, 2023.
2. The section entitled "Effective Date" is amended to read as follows:
 1. This subject-specific annex will enter into force after its approval by the Presidential Board of Leuphana University Lüneburg following its publication in the official bulletin of Leuphana University Lüneburg for the winter semester 2022/23.
 2. The appendix "Appendix Equivalent Modules to Subject-Specific Appendix 6.4 Major Management & Engineering to the Framework Examination Regulations for the Master's Program Management & Entrepreneurship at the Graduate School of Leuphana University of Lüneburg for Students Beginning their Studies in the Winter Semester 2019/2020. Valid from winter semester 2019/20 - summer semester 2022" is now: "Annex Equivalent Modules to the subject-specific Annex 6.4

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Master Management & Engineering to the Framework Examination Regulations for the Master's Program Management at the Graduate School of Leuphana University of Lüneburg for students who begin their studies from winter semester 2019/2020. Valid from winter semester 2019/20 - summer semester 2023".

SECTION II

This amendment shall enter into force after its approval by the Presidential Board of Leuphana University Lüneburg on the day after its announcement in the Official Gazette for the winter semester 2022/23.

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New version of the Subject-Specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Program in Management at the Graduate School of Leuphana University for students who begin their studies in the winter semester 2019/2020 and later

Based on § 44 para. 1 sentence 2 NHG, the Faculty Council of the Faculty of Management and Technology has adopted the following subject-specific Annex 6.4 Major Management & Engineering to the Framework Examination Regulations for the Master's Programs at the Graduate School of Leuphana University Lüneburg dated February 18, 2015 (Leuphana Gazette No. 22/15 dated June 25, 2015) in the version of the Third Amendment dated November 20, 2020 (Leuphana Gazette No. 20/20 dated March 31, 2020) on April 13, 2022. The Presidential Board of Leuphana University Lüneburg approved this amendment pursuant to Section 44 (1) Sentence 3 and Section 37 (1) Sentence 3 No. 5b) NHG on April 27, 2022.

SECTION I

Subject-specific Annex 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Program in Management at the Graduate School of Leuphana University

The regulations of the framework examination regulations for the Master's programs at the Graduate School of the Leuphana University of Lüneburg are supplemented as follows:

to § 3 para. 6, details of the structure and content of the Master:

Module overview Master Management & Engineering

(cf. also the subject-specific appendix 6.1 Management Studies as well as the subject-specific appendix 8 Complementary Studies).

Semester 4	Masterforum	Master thesis				
Semester 3	Management Studies	Elective module	Elective module	Teaching Research Project	Digital production	Complementary-study
Semester 2	Management Studies	Profile module	Materials & Engineering	Production simulation	Production logistics	Complementary-study
Semester 1	Management Studies	Profile module	Profile module	Profile module	Production management	Complementary-study

In the Master Management & Engineering one of the following profiles has to be chosen:

1. *Production systems* for students with a non-technical and business first degree.
2. *Production engineering* for students with a first degree in technology

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Upon enrollment, students are bindingly enrolled for one of the two profiles. The responsible examination board decides on subsequent profile changes.

The following modules must be completed in the **Production Systems** profile:

- in the 1st semester: engineering mathematics; engineering mechanics and manufacturing technology.
- in the 2nd semester: electrical and automation engineering.

The following modules must be completed in the **Production Technology** profile:

- in the 1st semester: measurement and sensor systems; machine learning and data mining; and robotics and handling technology.
- in the 2nd semester: numerical methods.

In addition, the following **mandatory modules must be** completed regardless of the profile:

- in the 1st semester: production management
- in the 2nd semester: Materials & Engineering; Production Simulation as well as Production Logistics
- in the 3rd semester: teaching research project as well as digital production

In the **3rd semester**, two of the following profile-independent electives must be selected and completed:

- Information technology aspects in engineering
- Recent developments in manufacturing technology
- Modeling and Simulation in Engineering
- Production networks

Alternatively, a maximum of one of the total of two elective modules to be completed from the elective modules of the other masters of the master's program Management can be completed, if the person responsible for the program of the study program Management & Engineering approves the respective selection. Approval to this effect must be submitted to Student Services by the registration deadline. Special attention must be paid to the contribution of these modules to the achievement of the overall qualification goal of the students (according to accreditation documents).

Regarding § 5, Determination of the Academic Degree

Master of Science

to § 7 para. 1, examination performance in the master forum (colloquium)

The examination to be taken in the Master Forum (Colloquium) of the Master Management & Engineering is ungraded and therefore to be graded as "passed" or "failed".

to § 8, Master thesis

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The processing time for the Master's thesis is twenty weeks.

to § 8 Para. 8, Oral Examination

The Master's thesis in the Master Management & Engineering is supplemented by an oral examination. The grade for the oral examination is to be included in the overall grade of the Master's thesis with a share of one fifth.

Modules of the 1st semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Mandatory modules					
Production Management (Ma-Eng-13)	The module imparts a deep understanding of the elementary logistic processes in the internal supply chain. This includes work processes, warehouse processes and convergence points in the material flow. The module provides a set of tools to evaluate the logistical performance of these elementary processes and to derive improvement measures. These measures are often implemented within the framework of production planning and control.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	
Profile modules					
Engineering Mathematics (Ma-Eng-14a)	The module deals with the basics of engineering mathematics such as differential equations (linear and nonlinear) and their application in engineering.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production systems
Technical Mechanics (Ma-Eng-15a)	The module deals with the relevant basics for engineers in the field of mechanics and engineering design. This includes in particular topics of statics, materials mechanics, kinematics and dynamics.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production systems
Manufacturing Technology (Ma-Eng-16a)	The module focuses on the breadth of classical manufacturing processes and also the current developments as well as the challenges in the manufacturing technology. This includes molding, forming, machining and joining technologies. The complex interaction between the manufacturing process and the resulting component properties is also dealt with.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production systems

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Modules of the 1st semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Measurement and sensor systems (Ma-Eng-14b)	The module deals with sensors and their physical and chemical effects for the generation of electrical quantities. Various measurement methods in which these sensors are used are also discussed. In addition, signal amplification and transmission will be discussed in order to enable further processing of the measured quantities - especially in sensor systems.	1 Lecture (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production engineering
Machine Learning and Data Mining (Ma-Eng-15b)	The module introduces the basic concepts of learning from data. Different techniques of supervised and unsupervised machine learning and data mining are derived and their characteristics discussed. Examples are theoretical/empirical risk minimization, decision trees, random forests, regularization, perceptron, multi-layer networks, support vector machines, k-means, probabilistic clustering methods using expectation maximization. Further topics are experimental setup, interpretation of results, communication of results, e.g. cross validation and non-linear feature generation, e.g. using core functions.	1 Lecture (2 CH) and 1 Exercise (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production engineering
Robotics & Handling Technology (Ma-Eng-16b)	This course is concerned with fundamentals of robotics, including kinematics, dynamics, motion planning, and in particular control. The goal is to provide an introduction to the most important concepts in these subjects as applied to robots and manipulators. Particular emphasis is given to the Cartesian and Mobile Robots which represent crucial aspects in production systems.	1 Lecture (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production engineering

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Modules of the 2nd semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Mandatory modules					
Materials & Engineering (Ma-Eng-17)	The module teaches the interrelations between materials, their properties and possible applications, as well as the relevant manufacturing technologies. It provides an introduction to atomic structures, microstructures, phase transitions and the resulting mechanical, electrical or magnetic properties, especially with regard to their use and the connection to different manufacturing processes. A special focus is on material characterization methods, which are dealt with both in theory and in the laboratory.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	
Production Simulation (Ma-Eng-18)	The module provides an overview of the various application areas and deepens these for special applications in production technology. The basic problems and the necessity of simulations are presented. Process behavior of different production processes are discussed as examples. Optimization approaches for such processes are developed by means of modelling approaches and simulations. Basic methodological knowledge as well as the application of modern software tools will be imparted.	1 Lecture (3 CH)	1 Written Examination (120 min) or 1 Combined Examination	5	
Production Logistics (Ma-Eng-19)	The module aims at a deep understanding of the interactions within a factory with the focus on material and information flows in the internal supply chain. Students are provided with tools to evaluate and efficiently design logistic processes. The module focuses on principles of lean production and approaches to factory planning.	1 Lecture (3 SWS)	1 Written Examination (90 min) or 1 Written scientific paper	5	

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Modules of the 2nd semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Profile modules					
Electrical and automation engineering (Ma-Eng-20a)	The module deals with selected basics from the fields of electrical engineering, measurement and regulation technology, sensor technology and actuator technology. The students learn basic knowledge regarding these subjects (basic terms, relevant methods, components and areas of application) and their automation applications.	1 Lecture (3 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production systems
Numerical Methods (Ma-Eng-20b)	The module provides in-depth knowledge of methods for the numerical solution of partial differential equations. Different numerical simulation methods (e.g. finite element method) are derived and independently implemented or applied by the students within the module.	1 Lecture (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	Profile: Production engineering

Modules of the 3rd semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Mandatory modules					
Teaching Research Project (Ma-Eng-21)	Under guidance, students pursue a research question or a practical question. Teaching research projects are related to the content of the Major and/or the selected profile.	1 Seminar (2 CH)	1 Written scientific paper or 1 Combined Examination	5	
Digitale Production (Ma-Eng-22)	The students gain a basic understanding of the digitalization of production. Current developments in the industry are examined on the basis of USE cases. These include aspects of production management (lean and industry 4.0), cyber-physical systems and real-time capability, continuous and discontinuous conveyors (e.g. autonomous transport systems), discreet and cloud control.	1 Lecture (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	

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Modules of the 3rd semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Elective modules (profile-independent)					
Information technology aspects in the field of engineering (Ma-Eng-23)	The module provides in-depth knowledge on topics related to digitization trends in production. This also includes selected in-depth discussions on topics of industry 4.0, such as Cyber-Physical Production Systems (CPPS), Smart Factory and other methods, e.g. from data mining. Further topics of this module are IT strategies, for example for the management of sensor data (Internet Of Things) and networked production. The module highlights selected examples of digitization and explains the resulting opportunities and risks for future engineering.	1 Seminar (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	
Recent Developments in Manufacturing Technology (Ma-Eng-24)	The model explores in depth specific innovative and modern manufacturing processes such as laser material processing, joining, additive and similar procedures. Students will discuss examples from medical technology, lightweight construction and the automotive and aircraft industries.	1 Seminar (2 CH)	1 Written Examination (90 min) or 1 Combined Examination		
Modeling and Simulation in Engineering (Ma-Eng-25)	The module covers specific aspects of mathematical modelling and numerical simulation in engineering. This includes modelling in a range of engineering disciplines and numerical preparation of models for computer resolution. Various different analytical and numerical processes are used to find the optimal solution for a range of models. The models examined in the various fields will be illustrated on practical examples.	1 Seminar (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	
Production Networks (Ma-Eng-26)	The module imparts advanced knowledge about the design of global production networks. The topics covered include the development of globalisation, the evaluation of production sites, the management of production networks and the design of efficient supply chains.	1 Seminar (2 CH)	1 Written Examination (90 min) or 1 Combined Examination	5	

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Modules of the 4th semester in Master Management & Engineering

Module	Content	Types of taught-components (type and number of course, CH)	Module requirements	CP	Commentary
Mandatory modules					
Masterforum (Ma-Eng-11)	The Masters Forum is a platform to discuss the Masters dissertation regarding its scientific approaches and methodology.	1 Colloquium (1 CH)	1 Written scientific paper or 1 Combined Examination (passed / failed)	5	
Masters dissertation (Ma-Eng-12)	Master's dissertation: composing a scientific final dissertation by each student	no event	1 Master Thesis and 1 Oral Exam	25	

Transitional regulation for students who started their studies at the Leuphana Graduate School before the winter semester 2019/20

Students who started their studies at the Leuphana Graduate School before the winter semester 2019/20 continue their studies until September 30, 2023 according to the subject-specific appendix 6.4b Master Management & Engineering (Leuphana Gazette 38/18 of July 18, 2018). In parallel, the modules listed in the appendix below are considered equivalent. The Subject-Specific Annex 6.4b Master Management & Engineering (Leuphana Gazette 38/18 of July 18, 2018) shall expire on September 30, 2023.

Entry into force

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Appendix Equivalent Modules to Subject-Specific Appendix 6.4 Master Management & Engineering to the Framework Examination Regulations for the Master's Program in Management at the Graduate School of Leuphana University of Lüneburg for students starting their studies in the winter semester 2019/2020. Valid from winter semester 2019/20 - summer semester 2023

Modules according to subject-specific annex (FSA) 6.4b for the major Management & Engineering of February 10, 2016 (Leuphana Gazette 15/16 of May 10, 2016) taking into account the first amendment of January 11, 2017 (Leuphana Gazette 24/17 of February 16, 2017) and the second amendment of February 14, 2018 (Leuphana Gazette 38/18 of July 18, 2018).	Equivalent modules according to subject-specific appendix 6.4 Master Management & Engineering (Leuphana Gazette 47/22 of 09 May 2022)
Fundamentals in Nonlinear Control (Ma-Eng-4a)	Measuring and sensor systems (Ma-Eng-14b)
Materials & Engineering (Ma-Eng-1a)	Materials & Engineering (Ma-Eng-17)
Numerical methods in engineering (Ma-Eng-3a)	Numerical methods (Ma-Eng-20b)
Material characterization (Ma-Eng-2a)	Machine Learning and Data Mining (Ma-Eng-15b)
Innovative manufacturing technologies (Ma-Eng-6)	Manufacturing Technology (Ma-Eng-16a)
Digital material design (Ma-Eng-8)	Production simulation (Ma-Eng-18)
Sensors, intelligent Systems and Elements of Robotics (Ma-Eng-7a)	Robotics & Handling Technology (Ma-Eng-16b)
Product development and technology management (Ma-Eng-9)	Production Management (Ma-Eng-13)
Industry 4.0 (Ma-Eng-10)	Digital production (Ma-Eng-22)
Production Management (Ma-Eng-4b)	Production Management (Ma-Eng-13)
Production simulation (Ma-Eng-2b)	Production simulation (Ma-Eng-18)
Engineering methods and processes (Ma-Eng-3)	Machine Learning and Data Mining (Ma-Eng-15b)
Fundamentals of engineering (Ma-Eng-1b)	Engineering Mathematics (Ma-Eng-14a)
Manufacturing Technology (Ma-Eng-6b)	Manufacturing Technology (Ma-Eng-16a)
Factory Planning (Ma-Eng-8b)	Materials & Engineering (Ma-Eng-17)
Production logistics (Ma-Eng-7b)	Production logistics (Ma-Eng-19)
Strategic production networks (Ma-Eng-9b)	Production networks (Ma-Eng-26)
Technology Management (Ma-Eng-10b)	Digital production (Ma-Eng-22)
Teaching Research Project (Ma-Eng-5)	Teaching Research Project (Ma-Eng-21)
Selected topics in production engineering (Ma-Eng-10i)	Recent developments in manufacturing technology (Ma-Eng-24)
Selected topics of product innovation	-

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(Ma-Eng-10a)	
Selected topics of digitalization in production (Ma-Eng-10f)	Information technology aspects in engineering (Ma-Eng-23)
Selected topics in modeling and simulation in the Engineering (Ma-Eng-10h)	Modeling and Simulation in Engineering (Ma-Eng-25)
Selected topics in the information technology of networked Systems (Ma-Eng-10g)	-
Selected topics of supply chain management (Ma-Eng-10e)	Production networks (Ma-Eng-26)
Master Forum (Ma-Eng-11)	Master Forum (Ma-Eng-11)
Master thesis (Ma-Eng-12)	Master thesis (Ma-Eng-12)

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