

Modulhandbuch Studiengang Master Technical Management

Hochschule Emden/Leer
Fachbereich Technik
Abteilung Maschinenbau

(Stand: 22. August 2019)

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1 Abkürzungen der Studiengänge des Fachbereichs Technik

Abteilung Elektrotechnik und Informatik

BaI	Bachelor Informatik
BaE	Bachelor Elektrotechnik
BaEP	Bachelor Elektrotechnik im Praxisverbund
BaMT	Bachelor Medientechnik
MaI	Master Industrial Informatics

Abteilung Maschinenbau

BaMD	Bachelor Maschinenbau und Design
BaMDP	Bachelor Maschinenbau und Design im Praxisverbund
BaMDBQ	Maschinenbau und Design für Berufsqualifizierte
BaIBS	Bachelor Industrial Business Systems
MaMb	Master Maschinenbau
MaTM	Master International Technical Management

Abteilung Naturwissenschaftliche Technik

BaBTBI	Bachelor Biotechnologie/Bioinformatik
BaCTUT	Bachelor Chemietechnik/Umwelttechnik
BaEnP	Bachelor Engineering Physics
BaEnPP	Bachelor Engineering Physics im Praxisverbund
BaEE	Bachelor Energieeffizienz
MaEnP	Master Engineering Physics
MaALS	Master Applied Life Science

2 Modulverzeichnis

2.1 Pflichtmodule

Module	Applied Statistics	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements	Linear Algebra, Analysis, Linear Equations, Matrices, Series, Differentiation, Integration, Elementary Functions	
Applicability	MaTM	
Type/Duration of Assessment	written exam (2h) or oral examination or project or draft or report or computer program or experimental work	
Teaching Method	seminar form lecture	
Module Coordinator	E. Wings	
Aims and Objectives	Statistic is a tool for acquisition, arranging, presentation and valuation of data. In this course students get the basics of the tool; this knowledge is necessary to get the following capacities: Detection of statistical assumptions; Correct choice of the methods for data evaluation and testing of statistical hypothesis; Appraisal and interpretation of statistical reports;	
Course content	mathematical expectation and variants; distribution, distribution function; conditional expectation; expected value and moments; estimation, testing.	
Literature	Sheldon M. Ross: Introductory Statistics, 3rd Edition, 2010 Andrew Siegel: Practical Business Statistics, Elsevier, 2011	
Courses		
Lecturer	Course Title	SPPW
E. Wings	Applied Statistics	4

Module	Business Administration	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h or oral examination or report	
Teaching Method	lecture, group discussion, case studies	
Module Coordinator	O. Passenheim	
Aims and Objectives	Understanding, analysing and evaluating of the basic processes in business administration; specially, the students are able to draw up a budget and to rate an operational result.	
Course content	forms of organisation, business management, key data in business administration, process-oriented organisation, cost-type accounting, cost center accounting, full cost accounting, capital expenditure budgeting	
Literature	Thommen, Achleitner: Allgemeine Betriebswirtschaftslehre, Gabler, 2012 Vorlesungsskript	
Courses		
Lecturer	Course Title	SPPW
O. Passenheim	Business Administration	4

Module	Communication and Culture	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h or oral examination or project or report	
Teaching Method	Seminar form lecture	
Module Coordinator	M. Krüger Basener	
Aims and Objectives	<ul style="list-style-type: none"> - Basic knowledge in theories on cultures and intercultural communication - Abilities to perceive cultural differences in communication within practical situations and to reflect one's personal doing - Competencies to cope with cultural diversity in business and in daily life situations 	
Course content	<p>Cultural Information: Germany in Comparison to selected students' countries of origin: Values and norms in business and in everyday life Basics of interpersonal communication Models and theories on international communication within international enterprises Communication in international teams International communication systems and virtual team work Development of international communication in the course of time</p>	
Literature	<p>Edward T. Hall, Mildred Reed Hall: Understanding cultural differences, intercultural Press, 1990. Geert H. Hofstede, Gert Jan Hofstede, Michael Minkov, Michael: Cultures and organizations. Software of the mind : intercultural cooperation and its importance for survival, McGraw-Hill, 2010. Kirk St. Amant, Sigrid Kelsey: Computer-mediated communication across cultures. International interactions in online environments, Hershey, 2012.</p>	
Courses		
Lecturer	Course Title	SPPW
M. Krüger-Basener	Communication and Culture	4

Module	Computer Sciences	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h or oral examination or project or draft or report or computer program or experimental work	
Teaching Method	Seminar form lecture, exercises	
Module Coordinator	R. Götting	
Aims and Objectives	Completing this course the students should be able to implement complex project using standard libraries. Understanding von standard paradigms in creating guis and implementing multi-thread applications. Understanding and using of standard methods in object-oriented software-systems. Developing an application using a ide.	
Course content	The course contents might be summarized by four topics + Advanced concepts of a higher language + Frameworks + design patterns + software development using an ide	
Literature	J. T. Streib, T. Soma: Guide to Java, Springer Verlag, 2014 lecture notes	
Courses		
Lecturer	Course Title	SPPW
R. Götting	Advanced Programming	4

Module	Introductory Futures Studies for Engineers	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	project	
Teaching Method	The students prepare topics from the perspective of different stakeholders. Through discussions a holistic view will be developed.	
Module Coordinator	K. Keller	
Aims and Objectives	<p>The students shall be introduced to methods and concepts in order to:</p> <ul style="list-style-type: none"> - analyze the potential of recent scientific-technical developments and sounding the associated social, economic and ecological chances - examine the legal, economic and social general conditions connected with the realization and implementation scientific-technical developments - analyze anticipatory and globally the potential effects and benefits of recent scientific-technical developments and to demonstrate the possibilities of a strategic utilization of the chances the application of a technique could bring as well as for the prevention or attenuation of its risks 	
Course content	Besides an introduction to TA different methods that are used in TA (Delphi-process, risk analysis, input/output analysis and scenario technique) will be presented and the methodical challenges within TA-projects will be discussed.	
Literature	E. Cornish: Introduction to the Study of the Future FFA: Study Guide and Collection of Articles, Turku 2014 lecture notes	
Courses		
Lecturer	Course Title	SPPW
K. Keller	Introductory Futures Studies for Engineers	4

Module	Marketing	
Semester	1	
Duration	1 Semester	
Method of Examination	Pflichtfach	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	Case study and written 1h	
Teaching Method	Seminar form lecture, exercises	
Module Coordinator	H. Hummels	
Aims and Objectives	<p>The students will understand that the customer is at the center of all corporate marketing activities. To this end, they will acquire a critical understanding of the most important theories, principles, and methods of modern Marketing. They are enabled to appraise and judge unknown issues with relevance to Marketing, and apply and make decisions about marketing instruments, e.g. the Ansoff matrix or the BCG product portfolio model in unknown and complex contexts. The underlying knowledge reflects the state-of-the-art in literature and research, and delves into selected fields of expertise. The students are able to critically discuss Marketing issues and to expand their knowledge base independently.</p>	
Course content	<p>Contents in this course include understanding the conceptual role of marketing for a company, an introduction to buying behaviour and market research, fundamentals of marketing strategy, and the elements of the marketing mix, i.e. product, pricing, communication and distribution policy. Perspectives include both consumer and industrial marketing.</p>	
Literature	<p>Jobber, D./ Ellis-Chadwick, F.: Principles and Practice of Marketing. McGrawHill, 8th edition, 2016.</p>	
Courses		
Lecturer	Course Title	SPPW
H. Hummels	Marketing	4

Module	Master Thesis	
Semester	1-2	
Duration	2 Semester	
Method of Examination	Pflichtfach	
ECTS	30	
Student's Workload	90 h compulsory attendance + 810 h self-study	
Entry Requirements (MPO)	See examination order regulation A and B	
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	Master Thesis and Colloquium	
Teaching Method	to a large extent independent development of a problem and supervision	
Module Coordinator	E. Wings	
Aims and Objectives	The students independently explore scientific literature and draw consequences for their own work. They apply their compiled knowledge and work goal-oriented to solve the problems within the scope of their master thesis. Besides professional competence the ability for managing project will be enhanced by defined tasks within their master thesis. This enables the graduates to become competent in project management.	
Course content	Current topics within the field of Technical Management including the (1) technical deepening or one of the deepening within the department of technical engineering (2) Independent acquisition of a subject with the help of technical literature and other sources (3) Layout of verbal presentations and written scientific papers with the potential for scientific publication	
Literature	Subject specific literature Guide to Writing a Seminar Paper; Göx, Robert lecture notes	
Courses		
Lecturer	Course Title	SPPW
Professoren /LB des FB Technik	Introduction to Scientific Working	1
University lecturer of the study course	Master thesis	4

2.2 Wahlpflichtmodule

Module	Advanced Materials	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h	
Teaching Method	Lecture	
Module Coordinator	M. Görlich	
Aims and Objectives	<p>Understanding the basic techniques for preparation and characterization of nanostructures; Acquire basic knowledge about the characteristics of the most important, nanoscale semiconductor devices and on applications of nanotechnology in various fields; Ability to apply the acquired knowledge to solve basic tasks;</p>	
Course content	<p>Nanofabrication technology (top-down , bottom-up); Nanostructure and surface characterization; Semiconductor-based, nano electronic components; Applications of nanotechnology in electronics, optoelectronics, sensor technology, new materials, chemistry, analytics, biotechnology, healthcare;</p>	
Literature	<p>Amretashis Sengupta und Chandan Kumar Sarkar: Introduction to Nano: Basics to Nanoscience and Nanotechnology (Engineering Materials), Springer Verlag, 2015 Horst-Günter Rubahn: Basics of Nanotechnology, Wiley-VCH Verlag, 2008</p>	
Courses		
Lecturer	Course Title	SPPW
M. Görlich	Basics of Nanotechnology	4

Module	Applied Project Management	
Semester	WPF	
Duration	2 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam (2h) or oral examination or report	
Teaching Method	lecture, group discussion, case studies	
Module Coordinator	A. Haja	
Aims and Objectives	<ul style="list-style-type: none"> + Application of the main tasks of a project manager + Application of approved praxis related methods of project planning and project execution + Experience limits and chances of project management + Practical exercises in handling of selected methods and instruments (teamwork) + creating leeway and free space within projects to face disruption in a proactive way 	
Course content	Structuring projects, planning of time, resources and costs, load diagrams, fast tracking, controlling of time, costs and milestones, reaction to changes and disruptions, risk analysis	
Literature	TOPS im Change Management lecture notes	
Courses		
Lecturer	Course Title	SPPW
A. Haja	Applied Project Management	4

Module	Business Management
Semester	WPF
Duration	1 Semester
Method of Examination	Wahlpflichtmodul
ECTS	5
Student's Workload	60 h compulsory attendance + 90 h self-study
Entry Requirements (MPO)	
Recommended Requirements	
Applicability	MaTM
Type/Duration of Assessment	written 2h or oral or project or draft or report or computer program or experimental work
Teaching Method	lecture, group discussion, case studies
Module Coordinator	O. Passenheim
Aims and Objectives	<p>Participants will understand basic requirements and challenges for running a company in the domestic or international market from the management perspective. Participants will be able to identify and analyze various organizational forms of business and know their advantages and disadvantages. By discussing contemporary short business cases, students in addition will be familiar with understanding the main theories and impact of ethical, sustainable and social requirements on a company. In the last third of the course, the students are familiarized with the challenges of human resource management.</p> <p>By using plenary discussions and group work, participants will also train their teamwork and social skills to prepare them for leadership positions.</p>
Course content	<p>Through the presentation and discussion of various management theories the changing responsibilities of management over the last years will be shown in the beginning. This basic understanding will lead to the introduction of the various different organizational forms and operational structure of international companies with their advantages and disadvantages. Based on various practical examples it will be shown and discussed how and why companies regularly change their business organization. Significant influences on this change have external and internal reasons. External reasons may e.g. changing legal situations, new competitors or social requirements of sustainability or responsibility. Strategy changes, new products or markets, sales development etc. are the factors for an internal reorganization.</p> <p>A business organization lives on and with their employees, what is easily manageable for small enterprises requires an own HR department at larger enterprises. Based on a process model, an under-</p>

Module	Computer Aided Geometric Design (CAGD)	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements	Linear Algebra, Analysis, Linear Equations, Matrices, Differentiation, Integration	
Applicability	MaTM	
Type/Duration of Assessment	written exam (2h) or oral examination or project or draft or report or computer program or experimental work	
Teaching Method	seminar, computer-based demonstrations	
Module Coordinator	E. Wings	
Aims and Objectives	Several of the underlying computational issues in the world of simulation software and virtual reality have their home in the field of Computer Aided Geometric Design, or CAGD. The aim of the lecture is an elementary introduction of basic design principles and all-digital design paradigms. The students understand the possibilities and the limits of computer designed models and learn to handle the basic ideas.	
Course content	Introduction to splines and NURBS, geometric and solid modeling, mechanical assembly, design parameterization, product data management and data exchange	
Literature	Kuang-Hua Chang: e-Design, Elsevier, 2015 Gerald E. Farin, Josef Hoschek, Myung-Soo Kim: Handbook of Computer Aided Geometric Design, Elsevier, 2002 Les Piegl, Wayne Tiller: The NURBS Book, Springer Science & Business Media, 1997	
Courses		
Lecturer	Course Title	SPPW
E. Wings	Computer Aided Geometric Design (CAGD)	4

Module	Controlling	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written 2h	
Teaching Method	Seminar form lecture with exercises	
Module Coordinator	C. Wilken	
Aims and Objectives	<p>After having visited this lecture, you will be able to fulfill the main accounting-related tasks of Engineers in technical organizations, such as planning and control. Among others you will be able to:</p> <ul style="list-style-type: none"> - Plan capital investments and evaluate investments proposals - Submit yearly budgets for your area of responsibility and interpret reports about it - In case of plan-to-actual deviations, analyze any reasons for this deviation - Cost products and interpret product-costings. <p>In addition to this, you will learn how different costing-systems will affect key ratios of your work and how that influences decision control. Thus, you will be able to use systems and values of internal accounting for decision making and decision control, and you will be able to evaluate existing procedures of companies.</p>	
Course content	Fundamentals of Accounting, Accounting for decision making and control, Values and reports of Accounting, Budgeting, Cost Allocation, Systems of Cost Accounting (Absorption Costing, Variable Costing, Standard Costing), Variance Analysis	
Literature	Horngren, C.; Datar, S.; Foster, G.; Rajan, M.; Ittner, C.: /Foster: Cost Accounting - A Managerial Approach Zimmerman, J.: Accounting for Decision Making and Control; McGraw Hill	
Courses		
Lecturer	Course Title	SPPW
C. Wilken	Controlling	4

Module	Data Security
Semester	WPF
Duration	1 Semester
Method of Examination	Wahlpflichtmodul
ECTS	5
Student's Workload	60 h compulsory attendance + 90 h self-study
Entry Requirements (MPO)	
Recommended Requirements	
Applicability	MaTM
Type/Duration of Assessment	Klausur 2 h
Teaching Method	Vorlesung
Module Coordinator	U. Kalinna
Aims and Objectives	<p>Die Studierenden verstehen die Schlüsselkonzepte von Vertraulichkeit, Integrität und Verfügbarkeit.</p> <p>Die Studierenden können die Höhe eines IT-Schutzniveaus bewerten. Die Studierenden können Betriebssystem-, physikalische Netzwerk-, und Anwendungs-Sicherheit bewerten.</p> <p>Die Studierenden können Schwachstellen in IT-Systemen analysieren.</p> <p>Die Studierenden können geeignete Gegenmaßnahmen zur Erhöhung der Informations- und Datensicherheit entwickeln.</p>
Course content	<p>Nach der allgemeinen Einführung in die IT-Sicherheit und das Verstehen von Schlüsselkonzepten wie Vertraulichkeit, Integrität und Verfügbarkeit, werden den Studierenden grundlegende Methoden der Vorgehensweise zum Auffinden von Schwachstellen an die Hand gegeben, aktuelle Angriffsszenarien auf den Netzwerk OSI Layern 2 - 7 vorgestellt, sowie neue Bedrohungen aus dem Internet behandelt.</p> <p>Durch die Analyse und die Bewertung der Schwachstellen, können sowohl organisatorische als auch technische Lösungsansätze, die Anwendung ausgewählter praktischer Sicherheitswerkzeuge, sowie für die rechtlichen Rahmenbedingungen Gegenmaßnahmen implementiert werden.</p>
Literature	<p>Al-Shaer, Ehab: Automated Firewall Analytics, Springer-Verlag (2014).</p> <p>Serrao, Carlos, Aguilera, Vicente, Cerullo, Fabio (Eds.): Web Application Security, Springer-Verlag (2010).</p> <p>Colbert, Edward J. M., Kott, Alexander (Eds.): Cybersecurity of SCADA and Other Industrial Control Systems, Springer-Verlag (2016).</p>
Courses	

Module	ERP-Advanced	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	project work and report	
Teaching Method	project-oriented working/team work grading according to dedication, flexibility, qualification and character	
Module Coordinator	O. Ihnen	
Aims and Objectives	Insight into typical ERP/SAP project work, ERP-software-strategy, -architecture and -application.	
Course content	+ SAP architecture, sales- and adaption-concepts as well as partner strategies + SAP introduction models/ implementation-guide + Acquirement of a independent topic of the ERP-environment (SAP, Navision)	
Literature	A. Shtub, R. Karni: ,ERP, Springer, 2010 Cases and papers will be handed out in the course	
Courses		
Lecturer	Course Title	SPPW
O. Ihnen	ERP-Advanced	4

Module	Energy Engineering	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	30 h compulsory attendance + 120 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h or oral examination or project or draft or report or computer program or experimental workation	
Teaching Method	Seminar form lecture, exercises	
Module Coordinator	O. Böcker	
Aims and Objectives	Students learn how to convert primary energy to usable energy and how to analyse and optimise these processes.	
Course content	Primary energy sources, Energy conversion processes, functionality of power stations like for example wind energy plant, solar heat plants, hydropower plants or coal fired power stations.	
Literature	Diekmann, B.: Energie, SpringerSpektrum	
Courses		
Lecturer	Course Title	SPPW
O. Böcker	Energy Engineering	4

Module	Innovation Management	
Semester	WPF	
Duration	2 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	oral exam	
Teaching Method	lecture, group discussion, case studies	
Module Coordinator	A. Haja	
Aims and Objectives	<p>Students shall understand the nature of change processes in companies and learn about common problems encountered during the implementation of such processes as well as about efficient management techniques to solve them.</p> <p>The lecture also gives a definition of innovation management and sketches the path from first ideas to final products and the associated processes based on real examples from the industry.</p>	
Course content	<p>The lecture consists of two parts. Firstly, change processes are introduced based on a management game (TOPSim) simulating the introduction of change processes within a company. Secondly, innovation management is discussed using relevant examples from the industry</p>	
Literature	<p>Wördenweber, B. / Wickord, W., Technologie- und Innovationsmanagement im Unternehmen. Lean Innovation, 3. Auflage, Springer Verlag Heidelberg, 2008</p> <p>lecture notes</p>	
Courses		
Lecturer	Course Title	SPPW
A. Haja	Innovation Management	4

Module	Intelligent Automation	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2 h or oral examination or seminar paper	
Teaching Method	lecture	
Module Coordinator	E. Wings	
Aims and Objectives	<p>The students are skilled with knowledge in the areas of</p> <p>(1) applications in various manufacturing concepts;</p> <p>(2) flexibility in production and automation engineering;</p> <p>(3) innovative manufacturing paradigms as 'Holonc and Collaborative Agent Based Manufacturing Automation'.</p>	
Course content	<p>This session follows an integrated study approach, therefore the students use and extend their knowledge in the areas: production-systems', 'automation-systems', 'information systems in the production' and 'production control and management/ functions of supply chain'</p>	
Literature	<p>Marik, B. and Valckenaers, P.: Holonic and Multi-Agent Systems for Manufacturing, Lecture Notes in Artificial Intelligence, Springer-Verlag.</p> <p>Wang, L. and Nee, A.: Collaborative Design and Planning for Digital Manufacturing, Springer Verlag London. 2009.</p> <p>Benyoucef, L. and Grabot, B.: Artificial Intelligence Techniques for Networked Manufacturing Enterprises Management, Springer Verlag London. 2010.</p>	
Courses		
Lecturer	Course Title	SPPW
A.W. Colombo	Intelligent Automation	4

Module	International Commercial Law	
Semester	WPF	
Duration	2 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam or oral examination or project	
Teaching Method	the lecture will take the form of a seminar	
Module Coordinator	B. Bessau	
Aims and Objectives	Students shall get accustomed to the basic lines of legal thinking and discuss those against the background of selected examples from legal practice. Doing so, students shall experience the legal dimension attributed to their own professional activities as engineers and managers as a necessary precondition of any successful liaison with legal experts. In addition, students shall improve their communication skills.	
Course content	Foundations of law (fundamental rights and freedoms, rule of law); Sources of law (agreement, statute, custom); Selected legal topics (due diligence, liability, standardization, proportionality, precaution, security, penalties); Hierarchy and interaction of national, European and international law; Commercial law (EC/EU, WTO); Law of technology, technical installations; Energy and sustainable development.	
Literature	will be announced at the beginning of the semester	
Courses		
Lecturer	Course Title	SPPW
B. Bessau	International Commercial Law I	2
B. Bessau	International Commercial Law II	2

Module	Leadership & Negotiation	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam or oral examination or report	
Teaching Method	The seminar is based on the assessment-center principle. Short presentations of the participants, group work incl. video recording and -analysis	
Module Coordinator	M. Hoogestraat	
Aims and Objectives	Negotiating under Pressure & Leading Human beings to Breakthrough Results	
Course content	<p>The content is structured in the following steps: Social Style The student learns the basic for negotiations and leadership. Identify the social styles as well as observe how human beings behave in different situations. The social style skills will be practically trained to enable the students to deal with different human beings behavior. Negotiation Based on the Harvard Concept developed at the Harvard Law School by William Ury & Co. the course will offer a common process for negotiations under pressure. The objective of the course is to shift the negotiation mindset from a competitive in a cooperative mode. The theoretical content will be moved into practical exercises where based on real examples negotiation skills will be applied. Leadership The session will guide the participant to lead human beings. 10 Leading tactics will be provided and finally brought into practice. The student will be able to lead a group to execute a certain task in using provide presentation skills.</p>	
Literature	Will be announced at the beginning of the course according to the specific topic handled in the lecture set.	
Courses		
Lecturer	Course Title	SPPW
M. Hoogestraat	Leadership & Negotiation	4

Module	Project	
Semester	WPF	
Duration	2 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	15 h compulsory attendance + 140 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	Report and project and experimental work	
Teaching Method	Solving of a problem independently under the guidance of a supervisor, presentation and discussion of the results, preparation of a project report	
Module Coordinator	E. Wings	
Aims and Objectives	Solving of comprehensive questions within the field of "Technical Management" through a scientific approach and the application of knowledge and skills that have been acquired so far are the goals for the TM-Project.	
Course content	The topic/problem can be proposed by the examinee but has to be approved by the examiner/supervisor.	
Literature	Project dependent Literature	
Courses		
Lecturer	Course Title	SPPW
University lecturer of the study course	Project Technical Management	1

Module	Quality Management	
Semester	WPF	
Duration	1 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	60 h compulsory attendance + 90 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	written exam 2h or oral examination or project or report	
Teaching Method	seminar form lectures, presentations and papers (acquired by the students according to given conditions), occasionally role plays according to the topic of QM.	
Module Coordinator	W. Kiehl	
Aims and Objectives	Understanding the importance of Quality Management; Estimating the potential of QM-oriented approaches; Understanding of QM philosophies and QM dominated thinking; Becoming acquainted with QM methods and QM tools; Practice in team-oriented methods; Deepening of comprehensive thinking; Stabilization of structured, documented work approaches; Strengthening of customer-oriented work approach;	
Course content	Introduction; Development and History of QM; QM philosophies; ISO 9000 and extended Approaches; QM Tools and Methods in R&D and Production; Problem solving Tools; Improvement Methods; Management Tools	
Literature	Gryna, F.M.: Juran's quality planning & analysis Boston (MA): McGraw-Hill, 2007 Masing, W.: Handbuch des Qualitätsmanagements - 6. Auflage München: Hanser, 2014 Linß, G.: Qualitätsmanagement für Ingenieure - 3. Auflage, München: Fachbuchverlag Leipzig in Hanser, 2011	
Courses		
Lecturer	Course Title	SPPW
W. Kiehl	Quality Management	4

Module	Strategic Management
Semester	WPF
Duration	1 Semester
Method of Examination	Wahlpflichtmodul
ECTS	5
Student's Workload	60 h compulsory attendance + 90 h self-study
Entry Requirements (MPO)	
Recommended Requirements	
Applicability	MaTM
Type/Duration of Assessment	written 2h
Teaching Method	lecture with group discussions and case studies
Module Coordinator	O. Passenheim
Aims and Objectives	The importance of strategic management within the global context is brought into focus of the students. In rapidly changing markets with complex and dynamic settings, the strategy process is a success factor not only for a profit-oriented, but also sustainable and socially acceptable management approach. In the first part of the lecture students learn the various phases of a strategy process. That enables them to apply the strategic process in the second part of the lecture through plenary presentations and through group work. Students learn independently and in groups to analyze strategic decisions in the context of the demands of a global environment, to identify strengths and weaknesses and to make and defend their own (strategic) decisions.
Course content	The course is divided into two parts: In the first part, the participants deal with issues of sustainable, responsible and competitive strategic positioning and profiling of companies and business units in a (global) market environments. They will understand various theoretical approaches and the implementation opportunities of strategic management in its international context. In the second part, students apply the learned process steps of a strategy development through case studies. Besides understanding and seeing the starting point of a strategic process, participants will analyze, discuss and evaluate different strategic options and their implementation as a management task. Additionally, students will discuss and consider the implications and influences of strategic decisions by the country and corporate culture.
Literature	Various Case Studies (Harvard Business Cases) Porter, M.E.: What is Strategy?; in: Harvard Business Review, Nov.-Dec. 1996; S. 61-78; 1996. Porter, M. E./ Kramer, M. R.: Creating Shared Value.

Module	TM-Project	
Semester	WPF	
Duration	2 Semester	
Method of Examination	Wahlpflichtmodul	
ECTS	5	
Student's Workload	15 h compulsory attendance + 140 h self-study	
Entry Requirements (MPO)		
Recommended Requirements		
Applicability	MaTM	
Type/Duration of Assessment	Report and project and experimental work	
Teaching Method	solving of a problem independently under the guidance of a supervisor, presentation and discussion of the results, preparation of a project report	
Module Coordinator	E. Wings	
Aims and Objectives	Solving of comprehensive questions within the field of "Technical Management" through a scientific approach and the application of knowledge and skills that have been acquired so far are the goals for the TM-Project.	
Course content	The topic/problem can be proposed by the examinee but has to be approved by the examiner/supervisor.	
Literature	Project dependent Literature	
Courses		
Lecturer	Course Title	SPPW
Professoren /LB des FB Technik	TM-Project	1