

Modulhandbuch
Studiengang
Master Technical Management

(PO 2011)

Hochschule Emden/Leer
Fachbereich Technik
Abteilung Maschinenbau

(Stand: 6. September 2023)

Inhaltsverzeichnis

1	Abkürzungen der Studiengänge des Fachbereichs Technik	3
2	Modulverzeichnis	4
2.1	Pflichtmodule	5
	Applied Statistics	5
	Business Administration	6
	Communication and Culture	7
	Computer Sciences	9
	Introductory Futures Studies for Engineers	10
	Marketing	12
	Master Thesis	13
2.2	Wahlpflichtmodule	14
	WPM Advanced Materials	14
	WPM Applied Project Management	15
	WPM Business Management	16
	WPM Computer Aided Geometric Design (CAGD)	18
	WPM Controlling	19
	WPM Data Security	21
	WPM ERP-Advanced	23
	WPM Energy Engineering	24
	WPM Innovation Management	25
	WPM Intelligent Automation	26
	WPM International Commercial Law	27
	WPM Leadership & Negotiation	28
	WPM Project	29
	WPM Quality Management	30
	WPM Strategic Management	31
	WPM TM-Project	33

1 Abkürzungen der Studiengänge des Fachbereichs Technik

Abteilung Elektrotechnik und Informatik

BET	Bachelor Elektrotechnik
BETPV	Bachelor Elektrotechnik im Praxisverbund
BI	Bachelor Informatik
BIPV	Bachelor Informatik im Praxisverbund
BMT	Bachelor Medientechnik
BOMI	Bachelor Medieninformatik (Online)
BORE	Bachelor Regenerative Energien (Online)
BOWI	Bachelor Wirtschaftsinformatik (Online)
MII	Master Industrial Informatics
MOMI	Master Medieninformatik (Online)

Abteilung Maschinenbau

BIBS	Bachelor Industrial and Business Systems
BMD	Bachelor Maschinenbau und Design
BMDPV	Bachelor Maschinenbau und Design im Praxisverbund
BNPM	Bachelor Nachhaltige Produktentwicklung im Maschinenbau
MBIDA	Master Business Intelligence and Data Analytics
MMB	Master Maschinenbau
MTM	Master Technical Management

Abteilung Naturwissenschaftliche Technik

BBT	Bachelor Biotechnologie
BBTBI	Bachelor Biotechnologie/Bioinformatik
BCTUT	Bachelor Chemietechnik/Umwelttechnik
BEEEE	Bachelor Erneuerbare Energien und Energieeffizienz
BEP	Bachelor Engineering Physics

- BEPPV** Bachelor Engineering Physics im Praxisverbund
- BNPT** Bachelor Nachhaltige Prozesstechnologie
- BNPTPV** Bachelor Nachhaltige Prozesstechnologie im Praxisverbund
- BSES** Bachelor Sustainable Energy Systems
- MALS** Master Applied Life Sciences
- MEP** Master Engineering Physics
- MTCE** Master Technology of Circular Economy

2 Modulverzeichnis

2.1 Pflichtmodule

Modulbezeichnung	Applied Statistics	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen	Linear Algebra, Analysis, Linear Equations, Matrices, Series, Differentiation, Integration, Elementary Functions	
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam (2h) or oral examination or project or draft or report or computer program or experimental work	
Lehr- und Lernmethoden	seminar form lecture	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	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;	
Lehrinhalte	mathematical expectation and variants; distribution, distribution function; conditional expectation; expected value and moments; estimation, testing.	
Literatur	Sheldon M. Ross: Introductory Statistics, 3rd Edition, 2010 Andrew Siegel: Practical Business Statistics, Elsevier, 2011	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
E. Wings	Applied Statistics	4

Modulbezeichnung	Business Administration	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h or oral examination or report	
Lehr- und Lernmethoden	lecture, group discussion, case studies	
Modulverantwortlicher	O. Passenheim	
Qualifikationsziele	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.	
Lehrinhalte	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	
Literatur	Thommen, Achleitner: Allgemeine Betriebswirtschaftslehre, Gabler, 2012 Vorlesungsskript	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
O. Passenheim	Business Administration	4

Modulbezeichnung	Communication and Culture	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h or oral examination or project or report	
Lehr- und Lernmethoden	Seminar form lecture	
Modulverantwortlicher	M. Krüger Basener	
Qualifikationsziele	<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 	
Lehrinhalte	<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>	
Literatur	<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>	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
M. Krüger-Basener	Communication and Culture	4

Modulbezeichnung	Computer Sciences	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h or oral examination or project or draft or report or computer program or experimental work	
Lehr- und Lernmethoden	Seminar form lecture, exercises	
Modulverantwortlicher	R. Götting	
Qualifikationsziele	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. Devolving an application using a ide.	
Lehrinhalte	<p>The course contents might be summarized by four topics</p> <ul style="list-style-type: none"> • Advanced concepts of a higher language • Frameworks • design patterns • software development using an ide 	
Literatur	J. T. Streib, T. Soma: Guide to Java, Springer Verlag, 2014 lecture notes	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
R. Götting	Advanced Programming	4

Modulbezeichnung	Introductory Futures Studies for Engineers	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	project	
Lehr- und Lernmethoden	The students prepare topics from the perspective of different stakeholders. Through discussions a holistic view will be developed.	
Modulverantwortlicher	K. Keller	
Qualifikationsziele	<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 	
Lehrinhalte	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.	
Literatur	E. Cornish: Introduction to the Study of the Future FFA: Study Guide and Collection of Articles, Turku 2014 lecture notes	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
K. Keller	Introductory Futures Studies for Engineers	4

Modulbezeichnung	Marketing	
Semester (Häufigkeit)	1 (jedes Sommersemester)	
Dauer	1 Semester	
Art	Pflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	Case study and written 1h	
Lehr- und Lernmethoden	Seminar form lecture, exercises	
Modulverantwortlicher	H. Hummels	
Qualifikationsziele	<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>	
Lehrinhalte	<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>	
Literatur	<p>Jobber, D./ Ellis-Chadwick, F.: Principles and Practice of Marketing. McGrawHill, 8th edition, 2016.</p>	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
H. Hummels	Marketing	4

Modulbezeichnung	Master Thesis	
Semester (Häufigkeit)	1-2 (Beginn jedes Sommersemester)	
Dauer	2 Semester	
Art	Pflichtmodul	
ECTS-Punkte	30	
Studentische Arbeitsbelastung	90 h Kontaktzeit + 810 h Selbststudium	
Voraussetzungen (laut MPO)	See examination order regulation A and B	
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	Master Thesis and Colloquium	
Lehr- und Lernmethoden	to a large extent independent development of a problem and supervision	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	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.	
Lehrinhalte	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	
Literatur	Subject specific literature Guide to Writing a Seminar Paper; Göx, Robert lecture notes	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
Professoren /LB des FB Technik	Introduction to Scientific Working	1
University lecturer of the study course	Master thesis	4

2.2 Wahlpflichtmodule

Modulbezeichnung	Advanced Materials	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h	
Lehr- und Lernmethoden	Lecture	
Modulverantwortlicher	M. Görlich	
Qualifikationsziele	<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>	
Lehrinhalte	<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>	
Literatur	<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>	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
M. Görlich	Basics of Nanotechnology	4

Modulbezeichnung	Applied Project Management	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	2 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam (2h) or oral examination or report	
Lehr- und Lernmethoden	lecture, group discussion, case studies	
Modulverantwortlicher	A. Haja	
Qualifikationsziele	<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 	
Lehrinhalte	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	
Literatur	TOPS im Change Management lecture notes	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
A. Haja	Applied Project Management	4

Modulbezeichnung	Business Management
Semester (Häufigkeit)	WPF (nach Bedarf)
Dauer	1 Semester
Art	Wahlpflichtmodul
ECTS-Punkte	5
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium
Voraussetzungen (laut MPO)	
Empf. Voraussetzungen	
Verwendbarkeit	MTM
Prüfungsform und -dauer	written 2h or oral or project or draft or report or computer program or experimental work
Lehr- und Lernmethoden	lecture, group discussion, case studies
Modulverantwortlicher	O. Passenheim
Qualifikationsziele	<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>
Lehrinhalte	<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>

Modulbezeichnung	Computer Aided Geometric Design (CAGD)	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen	Linear Algebra, Analysis, Linear Equations, Matrices, Differentiation, Integration	
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam (2h) or oral examination or project or draft or report or computer program or experimental work	
Lehr- und Lernmethoden	seminar, computer-based demonstrations	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	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.	
Lehrinhalte	Introduction to splines and NURBS, geometric and solid modeling, mechanical assembly, design parameterization, product data management and data exchange	
Literatur	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	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
E. Wings	Computer Aided Geometric Design (CAGD)	4

Modulbezeichnung	Controlling	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written 2h	
Lehr- und Lernmethoden	Seminar form lecture with exercises	
Modulverantwortlicher	C. Wilken	
Qualifikationsziele	<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>	
Lehrinhalte	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	
Literatur	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	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
C. Wilken	Controlling	4

Modulbezeichnung	Data Security
Semester (Häufigkeit)	WPF (nach Bedarf)
Dauer	1 Semester
Art	Wahlpflichtmodul
ECTS-Punkte	5
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium
Voraussetzungen (laut MPO)	
Empf. Voraussetzungen	
Verwendbarkeit	MTM
Prüfungsform und -dauer	Klausur 2 h
Lehr- und Lernmethoden	Vorlesung
Modulverantwortlicher	U. Kalinna
Qualifikationsziele	<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>
Lehrinhalte	<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>
Literatur	<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>
Lehrveranstaltungen	

Modulbezeichnung	ERP-Advanced	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	project work and report	
Lehr- und Lernmethoden	project-oriented working/team work grading according to dedication, flexibility, qualification and character	
Modulverantwortlicher	O. Ihnen	
Qualifikationsziele	Insight into typical ERP/SAP project work, ERP-software-strategy, -architecture and -application.	
Lehrinhalte	<ul style="list-style-type: none"> • 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) 	
Literatur	A. Shtub, R. Karni: ,ERP, Springer, 2010 Cases and papers will be handed out in the course	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
O. Ihnen	ERP-Advanced	4

Modulbezeichnung	Energy Engineering	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	30 h Kontaktzeit + 120 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h or oral examination or project or draft or report or computer program or experimental workation	
Lehr- und Lernmethoden	Seminar form lecture, exercises	
Modulverantwortlicher	O. Böcker	
Qualifikationsziele	Students learn how to convert primary energy to usable energy and how to analyse and optimise these processes.	
Lehrinhalte	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.	
Literatur	Diekmann, B.: Energie, SpringerSpektrum	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
O. Böcker	Energy Engineering	4

Modulbezeichnung	Innovation Management	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	2 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	oral exam	
Lehr- und Lernmethoden	lecture, group discussion, case studies	
Modulverantwortlicher	A. Haja	
Qualifikationsziele	<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>	
Lehrinhalte	<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>	
Literatur	<p>Wördenweber, B. / Wickord, W., Technologie- und Innovationsmanagement im Unternehmen. Lean Innovation, 3. Auflage, Springer Verlag Heidelberg, 2008 lecture notes</p>	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
A. Haja	Innovation Management	4

Modulbezeichnung	Intelligent Automation	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2 h or oral examination or seminar paper	
Lehr- und Lernmethoden	lecture	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	The students are skilled with knowledge in the areas of (1) applications in various manufacturing concepts; (2) flexibility in production and automation engineering; (3) innovative manufacturing paradigms as 'Holonics and Collaborative Agent Based Manufacturing Automation'.	
Lehrinhalte	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 chain control and management/ functions of supply chain'	
Literatur	Marik, B. and Valckenaers, P.: Holonic and Multi-Agent Systems for Manufacturing, Lecture Notes in Artificial Intelligence, Springer-Verlag. Wang, L. and Nee, A.: Collaborative Design and Planning for Digital Manufacturing, Springer Verlag London. 2009. Benyoucef, L. and Grabot, B.: Artificial Intelligence Techniques for Networked Manufacturing Enterprises Management, Springer Verlag London. 2010.	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
A.W. Colombo	Intelligent Automation	4

Modulbezeichnung	International Commercial Law	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	2 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam or oral examination or project	
Lehr- und Lernmethoden	the lecture will take the form of a seminar	
Modulverantwortlicher	B. Bessau	
Qualifikationsziele	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.	
Lehrinhalte	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.	
Literatur	will be announced at the beginning of the semester	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
B. Bessau	International Commercial Law I	2
B. Bessau	International Commercial Law II	2

Modulbezeichnung	Leadership & Negotiation		
Semester (Häufigkeit)	WPF (nach Bedarf)		
Dauer	1 Semester		
Art	Wahlpflichtmodul		
ECTS-Punkte	5		
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium		
Voraussetzungen (laut MPO)			
Empf. Voraussetzungen			
Verwendbarkeit	MTM		
Prüfungsform und -dauer	written exam or oral examination or report		
Lehr- und Lernmethoden	The seminar is based on the assessment-center principle. Short presentations of the participants, group work incl. video recording and -analysis		
Modulverantwortlicher	M. Hoogestraat		
Qualifikationsziele	Negotiating under Pressure & Leading Human beings to Breakthrough Results		
Lehrinhalte	<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>		
Literatur	Will be announced at the beginning of the course according to the specific topic handled in the lecture set.		
Lehrveranstaltungen			
Dozent	Titel der Lehrveranstaltung	SWS	
M. Hoogestraat	Leadership & Negotiation	4	

Modulbezeichnung	Project	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	2 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	15 h Kontaktzeit + 140 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	Report and project and experimental work	
Lehr- und Lernmethoden	Solving of a problem independently under the guidance of a supervisor, presentation and discussion of the results, preparation of a project report	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	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.	
Lehrinhalte	The topic/problem can be proposed by the examinee but has to be approved by the examiner/supervisor.	
Literatur	Project dependent Literature	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
University lecturer of the study course	Project Technical Management	1

Modulbezeichnung	Quality Management	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	1 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	written exam 2h or oral examination or project or report	
Lehr- und Lernmethoden	seminar form lectures, presentations and papers (acquired by the students according to given conditions), occasionally role plays according to the topic of QM.	
Modulverantwortlicher	W. Kiehl	
Qualifikationsziele	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;	
Lehrinhalte	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	
Literatur	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	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
W. Kiehl	Quality Management	4

Modulbezeichnung	Strategic Management
Semester (Häufigkeit)	WPF (nach Bedarf)
Dauer	1 Semester
Art	Wahlpflichtmodul
ECTS-Punkte	5
Studentische Arbeitsbelastung	60 h Kontaktzeit + 90 h Selbststudium
Voraussetzungen (laut MPO)	
Empf. Voraussetzungen	
Verwendbarkeit	MTM
Prüfungsform und -dauer	written 2h
Lehr- und Lernmethoden	lecture with group discussions and case studies
Modulverantwortlicher	O. Passenheim
Qualifikationsziele	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.
Lehrinhalte	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.
Literatur	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.

Modulbezeichnung	TM-Project	
Semester (Häufigkeit)	WPF (nach Bedarf)	
Dauer	2 Semester	
Art	Wahlpflichtmodul	
ECTS-Punkte	5	
Studentische Arbeitsbelastung	15 h Kontaktzeit + 140 h Selbststudium	
Voraussetzungen (laut MPO)		
Empf. Voraussetzungen		
Verwendbarkeit	MTM	
Prüfungsform und -dauer	Report and project and experimental work	
Lehr- und Lernmethoden	solving of a problem independently under the guidance of a supervisor, presentation and discussion of the results, preparation of a project report	
Modulverantwortlicher	E. Wings	
Qualifikationsziele	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.	
Lehrinhalte	The topic/problem can be proposed by the examinee but has to be approved by the examiner/supervisor.	
Literatur	Project dependent Literature	
Lehrveranstaltungen		
Dozent	Titel der Lehrveranstaltung	SWS
Professoren /LB des FB Technik	TM-Project	1